Pig Industry in Ireland
Strategic Study

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Irish Industry Participants	Industry Bodies and Organisations
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Carroll Meats	Department of Agriculture, Food & Rural Development
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Dawn Meats	Industrial Development Board, Northern Ireland
Dromone Meats	LEDU (Northern Ireland)
Galtee Meats	Teagasc
Glanbia	Irish Association of Pigmeat Processors
Greenvale Ltd.	Irish Farmers' Association Pigs Committee
Greenvale Roscrea	Ulster Farmers' Union
Kerry Foods	Ulster Bacon Curers
Macmine Castle Pork	Tesco Ireland
Malton Bacon Company	Tesco UK
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1 Introduction and study objectives

This analysis of the Irish pig industry is based on the entire island of Ireland. The study was undertaken on the joint request of the Department of Agriculture, Food & Rural Development and Enterprise Ireland in the Republic of Ireland and the Department of Agriculture and Rural Development for Northern Ireland and The Industrial Development Board in Northern Ireland. The study was initiated for the purpose of understanding the current state of the pigmeat industry on the island of Ireland and the future outlook for the industry against the backdrop of recent production trends and conditions in the processing sector. The key focus areas of the study and the summary conclusions of the study team are reflected below:

Focus Area:	Conclusion:
• Quantify the adequacy of slaughtering capacity in the 32 counties and measure this capacity against best practice, including international benchmarks in Denmark, Holland, and the US.	• There is excess slaughter capacity on the island of Ireland. There is an existing potential slaughter capacity to kill 125,000 pigs per week, while the average weekly kill is only around 92,000 This excess slaughter capacity is negatively affecting the competitiveness of the industry on the domestic and export markets. Only the larger plants operate a full 39-hour week. Some of the smaller plants only operate the slaughter line for 15 hours. In competitor countries, 50 hours plus is becoming the norm.
• Establish the location of the processing capacity against the location of pig production and identify any imbalances.	• The current geographic distribution of primary processing capacity is adequate and appropriate for the current distribution of production.
• Assess the outlook for pig production in the 32 counties in terms of competitiveness, expansion or contraction and the adequacy, suitability and geographic distribution of the primary processing capacity in the sector.	• Despite possible short-term gains in prices, production in both the RoI and NI is set to decline over the medium term. The level of the forecast decline will range from 4%-10% in the RoI and from 10%-30% in NI. • The current decline in production has negatively impacted slaughter capacity utilisation and will continue to create a challenge in terms of securing sufficient throughputs at primary processing plants. • Geographic distribution of slaughter capacity is not an issue.
• If the analysis of the industry identifies the need for new processing capacity, determine the type of investment needed. Identify the promoters' profile and the prospects of this happening, given the success requirements in the highly competitive export marketplace.	• No new additional capacity is required due to the excess slaughter capacity in the primary processing sector, which is negatively affecting the competitiveness of the industry on the domestic and export markets. • We recommend a rationalisation of existing capacity, as sufficient production recovery in unlikely. Also the current scale of slaughter plants is falling significantly behind international best practice.

Focus Area:	Conclusion:
• Analyse and quantify the capability of the industry to maximise returns (i.e. profit and margins from existing output), which falls into the following categories: – Added Value – Branded Added Value – Ingredients – Commodity	• The dependence of Irish plants on primarily commodity product outputs will constrain the level of achievable margins for the primary processors. There is scope to improve efficiency levels and increase the level of further processing. • It is difficult for one organisation to achieve all the necessary efficiencies and skills to be competitive and successful across all aspects of the business including primary and secondary processing. • Developing a strong export oriented value-added sector within the industry is very desirable from a strategic perspective but is very difficult to achieve and has not been achieved in other major exporting countries like Denmark, Holland, and the US. • Irish secondary processors, driven by commercial reality, will source its inputs from the most competitive suppliers, which may not always be Irish.
• Identify the competitive issues surrounding the import displacement opportunity and assess what can Irish processors do to redeem both commodity and processed imports.	• Imports of pigmeat to RoI have increased significantly during the 1990s. The main categories for growth are carcasses and primal cuts, indicating that a significant amount of imports are further processed before being sold for consumption, either domestically or on export markets. • The primary buyers of imports are secondary processors and the catering market. • The key issue driving import displacement in the secondary processing sector is the unreliability and lack of consistency in supplies from Irish processors. A secondary issue is price competitiveness. • For caterers, the key drivers of import displacement are the lack of awareness that products are imports and price.
• Evaluate the capability of establishing a mechanism, which can even out the price volatility of the pig cycle.	• Establishing a mechanism for stabilising pig prices will only be achievable through implementing supply agreements between producers and primary processors, which recognise the need for improved sharing of risks and rewards and international competitive reality. • Price agreements should be based on quality specifications, which are approved at the customer (retail) level. • We also recommend the formation/further development of producer groups.

The detailed basis for each of the above conclusions is contained in the main body of the report. They are arrived at after a comprehensive and objective analysis of the pig industry in Ireland and international developments.

1.1 Executive summary and key recommendations

The Irish pigmeat industry is at a major crossroads. After undergoing a major transformation in the 1980s and experiencing significant growth throughout the 1990s, the industry is now facing a number of key issues:

- **Pig producers are facing a number of critical financial burdens.** Very high levels of farm debt, new EPA compliance regulations and impending animal welfare legislation are applying (or will soon apply) pressure to many producers who have already endured at least two years of low profitability levels or in many cases, significant losses. Recent turnarounds in pig prices have not been strong enough to change the tide of these financial pressures. While there are some efficient producers who are in good financial health, it is expected that there will be a further exiting out of production over the next three years.

- **Excess slaughter capacity on the island of Ireland is inhibiting the competitiveness of the primary processing sector.** Pig production numbers are declining and the decline is expected to continue over the next three years. Failure to implement an industry-wide rationalisation scheme will exacerbate the current lack of competitiveness affecting many primary processors and could eventually lead to a reduction in export opportunities, which are critical to the industry.

- **The strength of multiple food retailers is growing.** Requirements for food safety, competitive pricing and new product development are core criteria to serving this market. Many retailers are pushing for total traceability through the pigmeat value chain and this will soon become non-negotiable. Retailers will encourage supply chain agreements between approved producers and primary and secondary processors for the purposes of traceability as well as the critical element of supply reliability.

- **There is a high level of distrust in the industry between the various participants.** The relationship that is most negatively effected by this distrust is that between the producer and primary processor. There are also criticisms regarding the level and quality of the service that secondary processors receive from the primary processing sector. The high level of distrust between these elements of the value chain absorbs valuable amounts of time, resources and attention, which could be more productively spent focusing on improving quality and marketing activities.

- **Supply chain management has become a key element of strategy for international competitors.** The Danish industry model is highly integrated and works with enviable smoothness. However, replicating this model would be difficult in most other countries. Nevertheless, the Dutch and US industries have each moved toward greater integration of the supply chain. Contracts and supply agreements now characterise 70-80% of the supply of pigs in each of these countries. Supply chain management is viewed as a critical element of industry strategy moving forward. The clear benefits of traceability, reliable supply planning and internal price stabilisation have led to the adoption of the concept.

Excess slaughter capacity in the primary processing sector is negatively affecting the competitiveness of the industry on domestic and export markets
Excess slaughter capacity driven by falling pig numbers, is seriously impeding the competitiveness of the Irish pigmeat industry. The declining pig numbers are not providing adequate supply throughput for the existing slaughter capacity.

The Northern Ireland (NI) production decline has been more pronounced than that in the Republic of Ireland (RoI), however, the current strength of sterling has provided an opportunity for NI primary processors to supplement their NI supplies with live imports from RoI. This measure has managed to keep NI processing throughput higher than would otherwise be possible if it was relying solely on local supplies. However, in the medium-term, excess capacity will become more pronounced on both sides of the border as total island pig numbers continue to decline.

The current realistic slaughter capacity of the island of Ireland is 5.4 million pigs annually. This is based on the number of hours that slaughter lines are operational currently, which ranges from 15 hours to 50 hours. However, there is a theoretical capacity on the island of over 6.5 million pigs annually if all plants were operating slaughter lines for a normal working week with a minimum of 30 operating hours. This 30-hour minimum is still well below the 50 hours plus at which many plants in competitor countries operate. In 1999, the total number of pigs slaughtered on the island was 4.8 million pigs, clearly indicating that there is excess slaughter capacity on the island of Ireland. Depending on the capacity figure used, the amount of excess capacity is between 11,500 and 32,700 pigs per week. In percentage terms, the excess falls between 12-35%.

Slaughter line capacity utilisation is a key measure of competitiveness for the primary processing sector. Through detailed examination of 13 EU licensed plants (3 NI plants and 10 RoI plants) our research revealed a capacity utilisation rate (based on current operating hours) of 82% for the first 27 weeks of 2000. When examining theoretical capacity utilisation (a more appropriate basis for international comparison), Irish capacity utilisation falls to 66%. International best practice is 98% capacity utilisation.

Ireland is a net exporter of pigmeat. It is imperative that primary processors remain competitive in its export markets and the rate of capacity utilisation indicates that Ireland's competitiveness in this area is suffering.

If Irish pig numbers continue their decline and slaughter capacity remains as it is currently, capacity utilisation would fall further below international standards and could threaten Irish competitiveness on domestic and export markets.

Recommendation:

The excess slaughter capacity that currently exists on the island must be addressed, either by increased production levels (which is unlikely), or by supply agreements between producers and slaughtering plants and a reduction in the overall capacity.

The option of rationalising existing capacity on an industry-wide basis must be examined. The current realistic capacity utilisation of 82% and the theoretical capacity utilisation figure of 66% for the year 2000 to date, indicate that Ireland is well below international best practice.

The goal of the primary processing sector should be to achieve at least 95% capacity utilisation. This goal will not be achieved without co-operative and equitable supply arrangements between producers and processors and an industry-wide programme to achieve a reduction in the overall slaughtering capacity.

We anticipate that pig production numbers will decline over the next number of years which will add to the over capacity problem and place additional cost burdens on primary processors who will have to compete with increasingly more efficient international competitors for markets.

The recommended rationalisation scheme should seek to achieve slaughter capacity utilisation levels of at least 95%, through a planned approach of reducing the number of plants and the establishment of producer and processor supply agreements for pre-determined supply throughput. The rationalisation programme should also seek to increase the scale of the remaining slaughter plants and bring them closer to the international minimum norm in major competing countries of around 20,000 pigs per week. The results of our international research indicate, that this minimum scale bar is continually rising, with some super plants (80,000 – 100,000 weekly kill capacities) being built and "smaller" plants (even those at 20,000 per week) exiting slaughter activities in countries like Denmark, Holland, and the US.

The absence of an agreed industry wide rationalisation programme would leave the industry subject to the full discipline of market forces which will in time drive uncompetitive processors out of business and create major uncertainty and upheaval in the Irish pigmeat industry.

The growing strength of multiple food retailers has led to a number of key purchase criteria that the pigmeat industry should seek to meet

Meeting the needs of multiple food retailing companies will become more important as their share of food sales continues to increase. The key purchase criteria of quality, consistency of supply, food safety, new product development and competitive pricing will be critical to serving this customer segment in the future.

Retailers desire to have the pigmeat value chain follow the needs of the consumer. This will involve greater co-operation than that which currently exists between the elements of the chain.

Increasingly, consumer driven production and processing will be the industry norm. Producer groups, which proactively seek to establish supply chain agreements from producer to primary and secondary processors, will be extremely attractive to retailers seeking full traceability and production to specification.

Incentivised payments should also become a common reality for these producer groups. Processors who can demonstrate the reliability and consistency of their product will be the winners in terms of supplying the multiple food retailers.

New product research and development is an area that retailers identify as needing improvement. Consumer tastes and behaviours are changing. Convenience and taste are two of the main drivers in food purchases. Retailers are keen to work with processors who can develop products that can meet these needs.

Recommendation:

The industry should work to achieve the following two objectives:

- **Increase and improve supply chain management (on an industry-wide basis)**
- **Invest in research and development of more consumer convenient pigmeat products**

The supply chain management concept will improve the flow of communication and collaboration throughout the value chain, while retailers will have a clear traceable line of the product from "pen to plate". The key issues of traceability and food safety will be met by a supply chain which has been inspected and approved at every level, and the uncertainty of being able to meet the supply requirements of key customers will be resolved.

Investment in research and development will require the commitment of capital in the processing sector to R&D, but should also be driven by working closely with retailers to meet consumer demands for convenience and product tastes. It will be difficult for processors to commit the necessary capital to this area unless profitability levels are maintained (and/or improved) and there is greater certainty regarding consistency and quality of their supply of pigs. However, the introduction of supply agreements should reduce a lot of uncertainty and time spent on negotiating price on a weekly basis.

It should be acknowledged that there is a marked difference in serving domestic and export markets. The above analysis regarding the need for investment in R&D is most appropriate for the domestic Irish market. Value-added product development on export markets is ideal from a strategic perspective, but in reality, is very difficult to achieve.

The level of value-added exports by Irish processors does not compare badly to the level achieved by international competitors such as the Danes and the Dutch. In fact, it is standard practice for exporting nations given the difficulties in achieving significant levels of value-added exports, to focus on commodity type export products – leaving local secondary processors to focus on value-added activities and servicing their local markets.

The high level of distrust between the production and processing sectors is hampering the industry's ability to focus on core issues such as competitiveness, supply consistency, quality and traceability

This issue, although very difficult to quantify, is a critical obstacle for the industry moving forward. The existence of a less than co-operative relationship between producers and processors could severely impact the potential for the Irish pigmeat industry to move forward and make some of the changes that will be necessary to regain competitiveness and retain existing markets.

If the industry is to retain existing markets, it will need to undergo a number of changes. If the recommended initiatives are to be achieved, there will need to be a fundamental shift in the relationships within the industry. It is recognised that there are real issues behind the distrust that exists today. Formal supply agreements are viewed negatively by many in the industry, due mainly to previous failure and/or the lack of necessity. However, the need to achieve a change in a timely and strategic fashion makes the resolution of some of these issues imperative. Pressures from excess slaughter capacity, inconsistent supply levels, eroding competitiveness and profitability, increased retailer demands for traceability, the need for further investment in production facilities and in processing scale and efficiencies together with the high levels of uncertainty and lack of business confidence within the industry, makes the need for producer/processor supply agreements extremely urgent.

Recommendation:

Producers, primary processors and secondary processors will need to enter into co-operative agreements or supply chain alliances to agree on collective approaches to serving buyers on a competitive, consistent and qualitative basis.

Industry participants should make a conscious and focused effort to put past disagreements behind them and agree to work co-operatively moving forward. The formation of supply chain alliances is needed to agree equitable arrangements for supply consistency and quality to meet local and international buyer requirements and the needs of the end consumer.

The days of unplanned and fluctuating arrangements regarding production supply to processors are numbered due to increased competition from major international competitors with integrated supply chains and increasing "ECR" (efficient consumer response) demands from buyers such as food retail multiples.

One key observation is the current dominance of the "co-operative" structure that already exists in Ireland. Over 50% of the primary processing capacity is effectively under the co-operative framework. Any effort to achieve increased levels of collaboration between producers and processors should begin by exploiting this structure, which is already in place. This will present challenges for some processors from a shareholder perspective, however, effective communication and implementation of a strategy that aims to improve supply relationships and consistency of throughput should be well received by all interested parties.

Supply chain management is viewed as a key strategic requirement in many of Ireland's international competitors' pigmeat industries

Many of Ireland's international competitors have found that excess capacity and uncertainty of supply are not conducive to efficient and productive output of pigmeat products.

As a result, the US and the Dutch have implemented supply chain management practices. The Danes have had a fully integrated industry model for some time. While some pig sales still go through the open market in the US and Holland, these are the minority of the supply. Between 70-80% of the pigs sold in each of these countries are sold under contract.

The primary driver behind the establishment of supply chain management in each of the above countries has been the need for the improved ability to plan supply throughputs. Each of these countries has recently undergone a rationalisation of slaughter capacity.

In the US, the rationalisation took place as a result of the primary processors' refusal to maintain enough cushion capacity to accommodate the frequent fluctuations in pig production. With this refusal, the requirements for planning supplies became more important. Producers can no longer produce any amount of pigs and expect them to be slaughtered. The move toward supply contracts has stabilised the price and eliminated some of the internal crises of over production and rock-bottom pig prices.

In the Netherlands, supply chain management was driven by the need for rationalisation of excess production and slaughter capacity. Dutch pig production is undergoing government -sponsored rationalisation as a result of environmental and social pressures regarding the high density of pig production in Holland. In response to the declining pig population, the primary processors agreed on a rationalisation scheme that would eliminate excess slaughter capacity, but also increase the scale of the remaining plants.

Increasing scale requires confidence in the consistency of supply. Until recently, the Dutch industry was similar to the Irish industry in that most pig sales were negotiated on a weekly basis. However, this has shifted, as the processors reduced capacity and required supply agreements. Retailers seeking greater traceability and reliable food safety have also supported the move.

Recommendation:

The implementation of supply agreements and contracts, which balance risk and reward for the parties involved, should be a top priority for the Irish pigmeat industry.

Every effort to establish a fair contract system should be made. Ideally, payments should be based on producing animals to a standard of quality specifications.

Production sector summary

The last three years have shown a significant decline in NI pig numbers and recently, a more moderate decline in RoI

In the last three years, NI pig numbers have experienced a major decline (-42%) and the June 2000 figures show the lowest level of production in NI for 50 years. In the ROI the decline over the last three years has been more moderate but since mid 1998 the rate of decline has picked up between June 1998 and June 2000 pig numbers fell by nearly 4%. This decline in pig numbers is expected to continue over the next three years.

A key determinant of future pig numbers is the size of the breeding herd. In NI, the female breeding herd has fallen by 42% in the last three years. In RoI sow numbers fell by just under 5% between June 1998 and June 2000.

There have been significant shifts in the concentration of pig production by county

In addition to the shift in production numbers between NI and the RoI, there have also been sizeable shifts in the overall concentration of pig production in various counties within both RoI and NI. Over 50% of RoI sows are found in 4 counties (Cavan, Cork, Tipperary and Waterford) and 75% of all pigs are concentrated in just 11 counties. However, environmental control implications will probably see increases in pig production in areas with lower pig densities. The levels of reductions vary significantly across NI, with Tyrone experiencing the lowest reduction (17%) and Fermanagh experiencing the largest (72%).

The scale of pig production varies dramatically between RoI and NI

There are major differences in the scale of production between NI and RoI. Pig production in RoI operates on a much larger scale than in NI. In the RoI, the Teagasc survey of 'Commercial' Pig Units counts only units with more than 20 sows or 200 finishers. This definition would exclude 61% of breeding and finishing units in NI. While pig numbers were much higher in RoI, producer numbers were higher in NI indicating the difference in scale between production in RoI and NI.

- A quarter of finishing herds in NI have 400 or more pigs whereas, 90% of finishing herds in RoI have 400 or more pigs.
- Average sow herd size in NI (49) is less than a sixth of the size of the average herd in RoI (316).
- In 1999, there were 75% more producers in NI than in RoI.
- From 1997 to 1999 the number of producers fell by 44% in NI and 9% in RoI.

There are also significant differences in competitiveness, physical performance and cost base between RoI and NI

In RoI, there has been a transformation of the industry over the last two decades and now RoI producers are amongst the best, if not the best in the EU in terms of physical performance. Physical performance indicators for NI show it to be significantly less competitive than in RoI, Denmark and the Netherlands.

- Pigs weaned/sow/year in NI is 18.9 whereas in RoI, it is 22.1
- Litters/sow/year NI is 2.0 compared to 2.32 in RoI.

Feed, healthcare, energy, repairs and maintenance costs are all reasonably consistent across NI and RoI. In both countries, feed is the principal component of cost and given Ireland's grain deficit this will continue. All producers in NI have the added cost of producing UK welfare friendly pork while many producers in RoI have the added cost of environmental regulatory compliance.

- The cost basis quoted by Teagasc for the production of finished pigs in RoI has increased by 17.5% from 87p/kg in 1998 to 102.3p/kg in May 2000.
- The increase in costs in RoI masks a decrease in the percentage of total costs taken up by feed from 72% to just under 60% as other costs (licensing, welfare, financing) rise rapidly.
- The cost basis for NI is broken down into fixed and variable costs. Fixed costs estimated by the Farm Business Survey (FBS) were STR£8-12/pig (no change).
- While variables costs show a 13% reduction from STR£61 in 1997 to STR£53.5 in 1999.
- The declining costs of production mentioned above have not improved profitability for NI producers because the price decline during the period discussed was more significant than the decline in production costs.

The required introduction of "animal welfare" friendly housing in NI has had a significant cost impact

Pig production in NI is now governed by the UK's animal welfare regulation, which requires the withdrawal of all stalls and tethers from pig production. Producers in NI point out that UK animal welfare regulations have had a major impact on their competitiveness. Producers in RoI are not covered by the regulation but some have chosen to produce to these standards.

- Producers in NI report that their hasty/ad-hoc conversion of welfare compliant housing has had a big impact, resulting in lower yields.
- This is in addition to the extra cost associated with producing to welfare friendly standards, which is estimated at between 2p/kg and 5p/kg.
- Where welfare housing has been established in RoI, it has been built to best practice and thus the reductions in yields are much lower.
- In RoI, unlike NI, there is a premium available for welfare friendly pork.

Environmental control compliance is beginning to have a significant impact on the production cost structure in RoI

The weak environmental controls in place until recently in RoI and which still apply in NI, effectively reduced the cost of production, and operated as an invisible subsidy to Irish producers.

In the RoI, the chief applicable environmental control legislation is the EPA Act 1992 and the Integrated Pollution Control (IPC) provisions within it on the regulation of intensive farming practices. Many farmers see IPC compliance costs as the main threat to their

future in the pig production industry. IPC compliance costs can be broken down into the following: the cost of application, the costs of upgrading facilities to comply with requirements of the licence and ongoing operating costs.

More important than the immediate costs associated with IPC licensing are the structural effects that the IPC licensing regime will have on pig production. A critical issue is the current lack of availability of suitable spreadlands in many parts of the country.

Some of the key implications of environmental control compliance are that:

- Some producers will exit or reduce production and those who remain will find it more difficult to expand production.
- The traditional "pig cycle"-driven expansion is likely to be curtailed and there will be increased scope for producers to be out of sync with the pig cycle.
- The dual standards for new and existing producers mean that new entrants will be disadvantaged.

In contrast to RoI, there is very little specific environmental regulation in relation to the licensing and planning for the development of pig production capacity in NI. While currently largely free from environmental regulation that applies elsewhere, by 2006, NI producers who meet the size thresholds will be fully covered by the conditions of the IPPC licensing regime.

The future scope of the environmental regulation of pig production in RoI, NI and across the EU is to be found in the Integrated Pollution Prevention and Control (IPPC) Directive. By 2006, this directive will have been implemented in all European countries and will ensure some EU wide consistency in addressing the environmental impact of intensive farming. The size distribution of the production industry in each country will have a large impact on the percentage of producers covered.

Future pig cycles will see the number of years where there is a high probability of experiencing substantial losses increase significantly

In an effort to assess whether or not there is a viable future for pig production the 'pig cycle' was examined in some detail. In particular, historical data was used to assess the probability of earning a profit or a loss over time and the likely extent of this profit or loss.

The pig cycle results from the failure of supply to stabilise at the market equilibrium point. The major implication of the pig cycle, is that it causes inefficiency and resource wastage and a recurring pattern of expansion and contraction which makes planning by the producers very difficult over the medium term.

Our examination of the pig cycle over the last twenty years shows that during both the 1980's and 1990's there was a high degree of price variability but that during the 1980's the likelihood of making a substantial loss was significantly less than during the 1990's. The implication of this is that expected profit levels for a 300-sow unit halved between the 1980's and the 1990's. Left un-addressed, the pig cycle will continue to make pig production an unpredictable business where the probability of making a loss is higher than the probability of making a profit. The implications of our examination of the pig

cycle are that steps must be taken to address the potential downside of the pig cycle. The only measures, which can make a difference to the pig cycle, are deeply structural to the pig business in RoI and NI.

Structural changes need to address problems associated with the pig cycle, with animal quality, with animal consistency and with animal health

A key change is that producers and processors need to work more closely together. As a first step in this process, producers should be encouraged to form producer groups which would market their product and which might also conduct collective purchasing on their behalf. These producer groups would then represent the interests of producers in the negotiations with processors to agree contract for the supply of pigs. These contracts would dampen to a degree the effects of the pig cycle and could also be structured to promote animal consistency, animal health and best practice in pig production.

To ensure that there is not dramatic decline in the supply of pigs, we recommend the introduction of tax relief against the cost of work conducted in pursuit of IPC compliance. Failure to do this could mean a continuing decline in pig numbers and by extension a decreasingly profitable processing sector.

Global outlook

Pigmeat consumption in the EU is expected to remain fairly static at 49% of all meat consumed over the next three years but unforeseen developments, as was the case with BSE in the beef industry, have the potential to significantly impact demand for pork.

World production is expected to increase substantially over the next three years but most of the production increase is going to occur in China and Far East rather than in the EU, whose share of world pig production is due to fall to approximately 17% by 2003.

Across the EU, pork production is expected to contract over the next three to five years. In all the main EU production countries, the environmental effect of the pig production is creating pressure for a reduction in pig concentrations and numbers. The only exception to this rule is Spain, which is seeing significant new development of production capacity. In the medium term, significant investment in production capacity in the Eastern European countries likely to be first for membership of the EU (Hungary and Poland) presents a significant medium term threat to production in both the RoI and NI.

The Berlin Agreement on Agenda 2000 will have an impact on pig production in Ireland. By reducing support for cereal, pork prices should come down but this will be balanced by a reduction in support for and thus the price of beef, which is a substitute product for pork. Overall, both these developments should cancel each other out leaving demand for pork constant.

The conclusion of the next round of WTO negotiations may have a significant impact on European pig production. While there is unlikely to be agreement on the next round of WTO negotiations before 2002 considerable efforts are being made to improve access to EU markets for US pork. Clearly, if the WTO agreement in 2002 provides for this there will be a major impact on pig production in the EU.

Production sector summary conclusions

In NI, the underlying issue is that the current structure of pig farming cannot survive in the long term. In the short term, production may stabilise but farmers will continue to exit the industry and imports will continue to increase.

Even for the most efficient producers in NI, their achievable levels of profitability are constrained more by the actions of the rest of the industry and by factors entirely outside their control than by their own individual productivity. Taking an optimistic outlook sow numbers in NI are expected to fall by 10% between 1999 and 2003 to 39,500. A pessimistic scenario forecast would see a further reduction of 32% between 1999 and 2002 to 30,000.

Our survey of producers would suggest that in RoI reductions in or ceasing of production in some units is likely to exceed expansion in others. Increased labour cost and scarcity of skilled labour will add to the strains in the sector. Additional reductions are likely to arise as a result of the mismatch between the ageing demographic structure of farmers in both RoI and NI and the lack of new entrants to production

After an almost continuous 15-year expansion of the herd, the prospect is now for a reduction. However, predictions of a decline in production must be tempered by the realisation that high levels of efficiency and labour productivity remain in pig production in RoI. Nevertheless, the average size of production facilities and thus the level of investment represent a bar to wide scale reductions in production capacity.

Taking an optimistic outlook the breeding herd in RoI could fall to 178,500 by 2004. Taken together with the optimistic reduction in NI this represents a total breeding herd of 218,000 sows, resulting in annual production of 4.8 million pigs and a weekly kill of 92,650 pigs.

Taking a pessimistic outlook the breeding herd in RoI could fall to 165,000 by 2004. Taken together with the pessimistic reduction in NI this represents a total breeding herd of 195,000 sows, resulting in annual production of 4.3 million pigs and a weekly kill of 82,700 pigs.

Processing sector summary

Pig kill numbers are declining, and will continue to do so for the next 3 years

The annual number of slaughtered pigs grew steadily from 1996 to 1999. On an island of Ireland basis, pig kill numbers have shown an overall increase of 6.5% per year from 1996 to 1999.

However, NI kill numbers began to decline in 1998, while RoI kill numbers began to decline in 1999. Slaughter figures comparing the first 27 weeks of 2000 to the same period in 1999, show a decline of –1.4% for NI and –6.8% for RoI. The rate of decline in NI pig kill figures appears to be stabilising, due largely to the import of live pigs from RoI.

The decline in pig production has been more pronounced in NI than in RoI, but the current strength of sterling has enabled NI primary processors to supplement their throughput levels with live imports from RoI. As of July 2000, NI processors were importing 17% of their average weekly kill from RoI.

RoI pig kill figures for the first 27 weeks of 2000 show a significant decline of -6.4%. The larger, exporting primary processors are struggling to maintain sufficient throughput against the smaller, primarily domestic operators and NI buyers.

The top 5 slaughter plants in RoI have shown the largest reduction in throughput levels on the entire island. The average weekly kill of the top 5 RoI plants is down –10% for 2000 year to date.

Mid-sized RoI plants have shown a 21% increase in average weekly slaughter, and NI plants have shown only a –1.4% reduction in weekly average kill. The net additional supply of pigs resulting from Denny's exit from slaughter activities has not benefited the larger RoI plants in terms of increasing their weekly kill numbers.

NI plants will find it difficult to maintain throughput levels without the consistent flow of live imports from RoI. Given the current strength of sterling and the lower rate of decline in RoI production, the short-term strategy for NI primary processors will likely be to maintain or increase the import of live slaughter pigs. Medium to longer term, NI slaughter plants can expect throughput levels to suffer from the continued reduction in the NI and RoI herds. A downward shift in the strength of sterling could also make the economic rationale for importing live pigs less attractive.

The larger RoI processors will find it increasingly difficult to procure sufficient supplies of pigs to meet their requirements. However, the smaller RoI processors are somewhat insulated from recent declines in pig production numbers, given their smaller weekly throughput requirements. The planned expansion of Malton's slaughter throughput in the North has begun to impact the pig supplies of the larger RoI primary processors. As the herd declines further, the larger RoI processors will find it difficult to maintain or increase kill numbers unless there is a consolidation or rationalisation in the industry.

Two main players account for over 40% of the total island kill, placing a strategic dependency on these companies

Malton and Glanbia account for 43% of the total island pig kill. Any event that resulted in the Malton or Glanbia capacity being taken out of the industry would cause major problems for producers in getting their pigs killed and also is likely to have a negative impact on the price they would obtain for their the pigs.

There is excess slaughter capacity in the industry and the decline in production will lead to further excess capacity over the next three years

The top 3 NI plants have a realistic possible capacity[1] of 30,350 pigs per week or 1.6 million pigs per year. Current carcass chill storage capacity at 32,000 carcasses per week is more than sufficient to meet this slaughter level. Total NI kill figures have not exceeded total realistic possible capacity levels for the last 3 years. The number of pigs killed in NI in 1999 was 1.3 million.

Against the backdrop of declining production, this would indicate that there is significant excess slaughter capacity for the requirements of current NI production. Although the rate of decline in NI pig kill numbers has slowed, production is expected to continue to decline before stabilising. It is unlikely to recover to levels significant enough to justify existing slaughter capacity. The excess will grow more significant if no rationalisation takes place.

Across eleven of the main RoI slaughter plants surveyed, the realistic possible capacity for RoI is 65,435 pigs per week or 3.4 million pigs annually. In addition to these 11 plants, there are a number of other EU approved plants, as well as local authority abattoirs that also slaughter pigs in RoI. When these additional plants are included in the capacity calculation, the total realistic capacity is 3.7 million pigs annually.

However, many of the plants do not operate their slaughter lines for the full standard 39 working week hours. If the top 11 plants were to operate the slaughter line for at least 30 hours the theoretical capacity in RoI would 4.5 million pigs annually. The annual kill figure for 1999 was 3.5 million pigs which was its highest ever level. This indicates that there is sufficient capacity to kill the number of pigs produced annually in RoI.

Irish slaughter plants are suffering from low levels of capacity utilisation - a key indication that productivity and competitiveness are suffering under the strain of declining throughputs

The theoretical capacity utilisation (TCU) of a plant provides an indication of what Irish slaughter plant performance is by assessing current throughput against the plant capacity operating at its top slaughter line speeds killing for a full standard working week of 39 hours. The realistic capacity utilisation (RCU) is the measure we have used to determine the utilisation levels being achieved operating at their maximum line speeds, but only for the current hours that they are operating their slaughter lines. In this measure, the available capacity is based on ramping-up line speeds to their maximum levels, but not asking staff to work any longer than they are currently working.

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[1] The calculation of realistic capacity is based on the following formula:
(Maximum slaughter line speed) * (Current operating hours) = Realistic Possible Capacity

The TCU level in the first half of 2000 was 66% for the top 10 EU licensed plants in RoI representing 86% of the total RoI kill. The RCU for these plants was 85%. In NI the TCU level for the top 3 plants in NI was 63% and the RCU level was 75%. These plants represent 93% of the total NI kill.

The TCU figure is a better measure on which to base international comparisons for the following reasons:

- Excess capacity and small-scale plants in other competing nations (such as Holland and Denmark) is being rationalised in an effort to streamline efficiencies and increase scale.
- International competitors are ramping-up throughput levels and operating hours, not maintaining the status quo.
- The "standard" slaughter week is extending in competing nations like Denmark, Holland and the US, where the industry norm is becoming 50+ kill hours per week.

The Danish Meat Research Institute's (DMRI) experience from benchmarking studies shows an international best practice capacity utilisation of 98.2% and the poorest is about 92%. On a medium speed kill line with 225 pigs/hour the difference of 6% constitutes approximately 86 hours per week, which is the equivalent of 2.4 persons. This is an additional cost that the more inefficient plant has to bear against its more efficient competitors. The lower utilisation levels and shorter operating hours of Irish slaughter plants are negatively impacting the competitiveness of the industry as a whole.

Exporting plants should be aiming for utilisation levels on par with competitors like Denmark and Holland. No single RoI plant is currently slaughtering more than 13,000 pigs per week and no RoI plant is currently operating at 50+ kill hours per week. Despite these limitations, improvements in utilisation levels are possible. However, the excess capacity and the large number of slaughtering plants in the industry currently hinder RoI primary processors. The larger slaughter plants lack a sufficient and consistent supply of pigs to get slaughtering efficiencies up to the level of international competitive best practice.

The Malton plant in Cookstown which accounts for over 50% of the NI pig kill, needs to be cost efficient in the pigmeat it supplies to its parent the Malton Group. The Cookstown plant is in competition with other Malton plants in GB and with product that Malton can source from other processors in countries like Holland and Denmark. It needs to achieve capacity utilisation, productivity and output price levels that are internationally competitive. The competitiveness of its raw materials costs, productivity, cost of the labour force and the effective use of capacity are critical to its long-term survival.

International competitors are implementing operational systems that allow them to "sweat" their slaughter assets and increase productivity

A key element when evaluating the status of the Irish pigmeat industry is the changing international competitive environment. Major exporting countries in the world: Denmark, the Netherlands, and the US are the international examples we have examined in this study. When looking at the changing landscape of processing in these three countries, there are a number of changes occurring that will greatly impact the

international competitive environment. The key themes that consistently come out of the competitive analysis are scale, productivity, supply chain management, and food safety.

The issues that pertain directly to the capacity debate are scale and productivity. Denmark, Holland, and the US have all implemented rationalisation schemes aimed at increasing productivity and driving up scale in the processing sector. Plants in Ireland are unlikely to reach the sheer scale of some of the existing and planned "super" slaughter plants in these competitor countries; however the need to compete with them in terms of productivity is a reality. The standard operating week in most plants in these countries is a minimum of 50 kill hours. Only Malton in the North has set a target of 50+ kill hours per week.

The number of pigs killed per operator hour is much lower in Irish plants compared to Denmark

The average number of pigs slaughtered a day per operator in RoI is significantly lower than in Denmark. In the top 5 RoI slaughtering plants, the average daily pig kill per slaughter line operator in 2000 (first 6 months) was 49. This is down from 53 in 1999 and 54 in 1998.

The equivalent figure in Denmark was 84 pigs per operator or between 11-12 per hour, 60% higher than the 1999 RoI figure. Increased use of automation and plant size in Denmark will widen this gap even further.

In Denmark, the slaughtering plants are well advanced in their plans to increase the level of automation in the slaughtering process. The introduction of robots on the slaughter line will reduce the number of operators and de-skill some the remaining manual tasks. Also the move to a 10 hour working day shift in Denmark, has the potential to increase the average number of pigs killed/operator per hour to 18 –25, more than three times the rate currently being achieved in RoI plants.

Cost of labour has been an important driver of the use of robots in Danish plants. Higher productivity on the slaughter line gives Danish plants a competitive advantage over Irish plants. Irish slaughtering are falling behind some of their major competitors in terms of operator productivity.

The DMRI benchmarking analysis of Irish industry indicates that Ireland is below best international performance in terms of:

- Slaughter capacity utilisation
- Pigs slaughtered per operator per hour
- Cutting kilograms per operator per hour
- Boning piece operator per hour

The DMRI view is that the business case for automation that is becoming prevalent in plants in Denmark and Holland is difficult to make for plants with slaughter line speeds below 300 pigs per hour operating one shift, which applies to almost all of the Irish slaughtering plants.

The price that the plants pay for their main raw material (pigs) needs to be competitive with that paid in the main competing export countries i.e. Denmark and Holland and not with the price paid to domestic producers for pigs in the countries the Irish plants export their product

The Danish and RoI prices tracked very closely over the year in 1999 with the average price paid for the year being the same. This means that Irish exporting plants did not have a raw materials cost advantage or disadvantage against the Danes in 1999.

The Dutch, who are a major exporter of pig meat, particularly, to RoI's and NI's main export market - GB, had generally a lower raw materials cost over the year in 1999. The average price for the year was almost 10% lower than the Danish or RoI average price. This puts the Irish plants at a significant input cost disadvantage that they have to counter through better productivity, processing efficiencies, product quality or marketing to compete successfully against the Dutch.

The price in GB was, on average, 17% higher than the average RoI price in 1999 and the EU average was almost 9% higher. This reflects the higher prices paid to domestic producers in countries that are net importers or self sufficient in pigs.

The lack of consistent supplies of raw material creates a number of serious threats to the primary processing sector

It leads to a loss of competitiveness due to inconsistent throughput levels and slaughtering inefficiencies. It creates a lack of focus on customer and market issues due to poorly utilised time and resources, which are often inordinately focussed on procurement activities.

It also results in ineffective supply chain management, particularly as the need to meet customer requirements regarding product specifications, quality, price, traceability and delivery are becoming increasingly important. The need for effective supply chain management from producer to retailer will force change.

The increasing importance of supply chain management and traceability will demand better communication between all parties in the pig meat value chain. The growing trend for retailers to approve products, beginning at the producer level, will drive better co-operation between producer, primary processor and secondary processor.

If the Irish industry is unable to resolve the supply issue by entering into some type of agreement, it will harm its competitiveness at the customer level and will struggle to supply the top retail groups.

Processing plants are also experiencing labour shortages, high turnover rates and increasing labour costs

The pool of skilled, dependable labour that was once available to processors is shrinking. RoI and NI processors are competing with other industries, such as construction for staff. Competitive compensation packages are becoming increasingly difficult for processors, as rising wages and more attractive (cleaner) jobs compete for qualified staff.

Increased labour costs will reduce the competitive advantage that Irish processors had over international competitors such as Denmark and Holland. This labour cost advantage was historically used to offset disadvantages on other competitive measures such as operator productivity and scale.

The product output from the primary processing plants is predominately primal cuts with very little of the product going through a further processing stage

A very large percentage of the output is the form of carcasses or primal cuts attracting the lowest values for the output. This impacts the price it can pay to suppliers and the level of profit margins it can achieve. The slaughtering plants are operating at a lower output value end of the pig meat market and therefore they need to be very efficient and cost effective in the purchase of raw materials (pigs) and in their processing operations if they are to be competitive and profitable. The primary processed output from the slaughter plants is generally sold on to other secondary processors or wholesalers in the domestic market or in export markets.

Primary processors find it difficult to increase their levels of value-added output. While developing a strong export oriented value-added sector within the industry may be very desirable from a strategic perspective; it is very difficult to achieve. It requires major investment in product development, marketing and branding. There are very few examples internationally of companies who have managed to develop strong brands for value-added pork products outside of their own domestic markets. Kerry's Denny brand is the dominant market leader in Ireland but they have been unable to translate that domestic strength to develop strong export markets for its branded products using Irish pork.

The lack of skilled staff available for cutting and boning is also becoming a contributing factor to the low level of further processing, but it is not as significant as the lack of buyers or markets.

There is a critical dependence on developing export market outlets for Irish pig meat products. An important factor which needs to be assessed when looking at the output profile of the slaughtering plants is the level of exports and the prices obtained for the various pig meat products in the different export markets. RoI is self sufficient in pig meat and over half of the output has to be exported. Irish processors are placed at a significant disadvantage compared to processors in countries who are not self-sufficient or who are net importers of pigmeat.

This is due to the fact that domestic processors tend to command higher prices for their product compared to imported product. The recent increase of food nationalism in many countries in the wake of BSE is leading to even greater price differentials.

Export markets are of critical importance to the larger slaughtering companies, particularly when you contrast the dependence of the smaller slaughtering plants on supplying the domestic market where 95% plus of their output is sold locally. Without a significant export outlet for Irish pig meat products the price would collapse due to excess supply on the domestic market.

1.2 Conclusions

The findings of this study reflect a number of fundamental changes in the Irish pig industry as well as the global pig market. The most recent downturn in the pig cycle has driven most major producing countries to make strategic decisions on the basis of industry-wide implementation. The increasingly competitive environment of the global market has mandated the co-operation of industry participants who would traditionally have operated independently from one another. Producers and processors are working together as never before. Retailers are steering the direction of production and consumers are demanding more from their products in terms of safety, quality, convenience, and taste.

The key conclusions from this study of the Irish pigmeat industry are summarised below:

- **Pig producers in RoI have achieved a scale of production and best practice in most physical performance indicators** to offset the disadvantage they face with higher feed costs, which account for over 60% of production costs.

- **Pig production in NI is at a significantly smaller scale compared to RoI production. NI producers are not achieving the same levels of physical performance in a number of key measures.** This together with the strength of sterling and the additional costs arising post BSE has meant that producers were extremely vulnerable during the price crisis in 1998 and 1999. Additionally, the lack of sufficient price recovery since then has resulted in a major decline in pig farmers and pig numbers. A recovery, or even stabilisation, is unlikely in the short to medium term.

- **Producers in RoI are facing increasing costs and expansion restrictions due to environmental control regulations.** These additional costs burdens and production restrictions will lead to certain producers exiting pig production and will constrain typical expansions, which normally follow improvements in price.

- **The processing sector** in RoI experienced major transformation and investment in the late 1980s and early 1990s. However, it **has not kept pace with recent developments in scale, processing efficiency and supply chain arrangements in its major competing countries.**

- **The majority of the output from the processing sector is commodity product, of which, 50% must be exported.** This product has to be competitive and match commodity product from Denmark and Holland in terms of price, quality, supply consistency and adherence to customer specifications.

- However, the primary processing sector is suffering from:
  - **Excess capacity** and as a result, poor capacity utilisation
  - **Lower productivity levels** compared to international competition
  - **Plant scale which is well below the norm in key competing countries** like Denmark and Holland - and the gap is widening

- **Inconsistent pig supplies and variances in pig quality** and consistency
- **Inability to fully and reliably meet customer requirements** particularly, domestic secondary processors who are increasingly turning to imports to meet their needs
- **Labour and skill shortages and increasing labour costs,** which are eroding a previous area of significant competitive advantage that Irish processors had over their Dutch and Danish counterparts

- The excellent transformation in the RoI pig production sector to achieve international best practice has focussed mainly on physical performance. The **focus now needs to shift to significantly improving quality, consistency, and meeting customer requirements.**

- **The lack of trust and co-operation between the production and processing sectors will become a major competitive disadvantage for the industry.** Without a major transformation in this area, the urgent need for change and improvements in competitiveness that the industry must make will be difficult, if not impossible, to achieve.

- **A new approach and attitude is required in the industry to design, agree, and implement the supply chain arrangements to tackle some of the fundamental weaknesses and eroding competitiveness** manifested by:

    - Excess processing capacity and inconsistent and declining supplies
    - Price volatility and spot market pricing, which makes forward planning and logistical management difficult for both producers and processors and erodes confidence regarding making much needed and forward-looking investments in the industry
    - Increasing customer dissatisfaction and concern regarding the consistency, quality, and future competitiveness of Irish pigmeat

The international competitiveness bar has risen significantly in recent years. Unless the Irish industry recognises and acts on the need to address its eroding competitiveness on an industry-wide basis, it faces the prospect of a loss of export market share, reduced margins and shrinkage in both the production and processing sectors.

2 Pig production sector

2.1 Pig numbers

Pig numbers are experiencing a major decline in NI. They have also declined in RoI but not to the same extent.

The state of the pig industry at any one time is best reflected in pig numbers. The most recent complete data available to us for NI is the December 1999 Census. In the Republic of Ireland (RoI), the most recent complete data comes from the December Livestock survey conducted by the Central Statistics Office (CSO).

While the most recent complete data series for both NI and RoI comes from December 1999, there is other data available. In the case of both RoI and NI, a full Farm Census has been conducted this year. The final results of the Census in both RoI and NI will not be available until the New Year.

As of August in NI and October in RoI some preliminary information has become available in relation to the census results. In the case of both NI and RoI, the data that is available is sample of returns. As such, whilst the date gives a good indication as to trends, they are in no way definitive.

The NI statistics below firmly indicate that the pig production industry is still in decline. While the rate of the reduction in pig production has slowed down in the second six months of 1999 and into 2000, this decline is still very marked alongside RoI figures.

Though producers in RoI have been under similar pressures, (excepting the sterling issue), production in RoI has experienced a far smaller decline than in NI. However, RoI has not been left unaffected by the slump and the last two years, between 1998 and 2000, have seen significant falls in total pig numbers.

Key messages:

- December 1999 CSO figures show very little fall in pig numbers in RoI
- In NI by comparison, December 1999 and early June 2000 figures both show pig numbers are continuing to fall in NI and forecast further significant falls
- The most recent figures show NI and RoI moving in opposite directions
    - NI decline in total pig numbers June 1997 – June 2000 – 42%
    - RoI increase in total pig numbers June 1997 - December 1999 +3.5%
    - June 2000 figures show the lowest level of production in NI for 50 years

Total pigs

The NI total pig numbers as a percentage of the RoI total pig numbers has declined dramatically

The level of total pigs at any one time gives a rough idea of the well being or otherwise of the industry. Combining the survey and NI census data and CSO figures for the RoI produces the following tables on total pig numbers for RoI and NI.

The consistent and large decline that is evident in NI figures is not matched by a similar rate of decline in RoI figures, even though there has been some decline from June 1998 onwards.

Table 1: Total pig numbers NI and RoI (June 1997 – Dec 1999)

Year	Total pigs NI	Total pigs RoI	NI as % of RoI pig numbers
June 1997	696,700	1,699,500	41%
December 1997	668,800	1,717,000	39%
June 1998	653,000	1,818,600	36%
December 1998	599,800	1,800,900	33%
June 1999	490,300	1,786,900	27%
Dec. 1999	441,700	1,762,900	25%
June 2000	412,800	1,752,700	23.5%

Source: Department of Agriculture and Rural Development (DARDNI) and CSO

Table 2: Change in total pig numbers RoI and NI (June 1997 – Dec 1999)

Total pig numbers NI		Total pig numbers RoI	
June 1997 – June 2000	- 41%	June 1997 – June 2000	+3%
June 1997 - June 1999	- 29%	June 1997 - June 1999	+4.89%
Dec 1998 – Dec 1999	- 26%	Dec 1998 – Dec 1999	- 2.1%
June 1999 – Dec 1999	- 10%	June 1999 – Dec 1999	-1.36%
Dec 1999 – June 2000	- 07%	June 1999 – June 2000	-2%

Source: DARDNI and CSO

Key messages:

- From June 1997 to June 2000, total pig numbers in NI declined by 41%.
- The total pig numbers in RoI in the same period actually increased by 3%.
- More recently, figures for RoI - June 1998- June 2000 show a decline of over 3%.
- The rate of decline in total pig numbers in NI has decreased somewhat (25% from June 1998 to June 1999 and only 16% from June 1999 to June 2000).

Female breeding herd

Trends in the size of the female breeding herd provide a useful indicator of future production

Looking at the total pig figure numbers is insufficient in itself to give an accurate impression of what is happening to herd structure. To get a more accurate picture and to forecast what is likely to happen in the future, it is also important to look at the numbers in the breeding herd.

For the purposes of this report we have divided the breeding herd into a number of classes as follows:

- Breeding herd: (sows in pig, gilts in pig, maiden gilts, other sows, boars)
- Female breeding herd: (sows in pig, gilts in pig, maiden gilts, others sows)
- Productive female breeding herd: (sows in pig, gilts in pig, other sows)

Looking at the female breeding herd numbers, it is evident that while there has been some small reductions in RoI over the last two years that there has been a marked reduction in the female breeding herd numbers in NI over the same period.

In NI, the trend in female breeding herd numbers has been downward for each of the last seven recorded periods, with the exception of the results from the preliminary Census 2000

In years such as 1996 and 1997 when prices were good, the size of the NI female breeding herd declined. By contrast, the female breeding herd increased in the RoI from June 1997 and only really began to decrease after June 1998.

The consistent reduction in the NI female breeding herd has continued in recent times in a period where prices were beginning to pick up again. The figures for the last six months of 1999 show a further fall, and while the preliminary figures from the 2000 Census show an increase in numbers of maiden gilts these are preliminary figures only.

Even with the June 2000 figures, relative to the reductions in NI, the level of reductions in the RoI to June 2000 have been very modest. Even so, there was a small overall reduction in the female breeding herd up to June 2000 with a significant drop in gilts in pig. The differential between the rate at which the NI breeding herd is decreasing relative to the decrease in RoI has been very evident over the last number of years.

One of the more interesting patterns emerging from this data, is the shifting production capacity geography on the island of Ireland over just the last three years. The shifting geography of sows on the island as a whole is very evident. Between June 1997 and June 2000, there was a reduction of over 40% in the female breeding herd in NI. During the same period in RoI by comparison, there was a decrease in the female breeding herd in RoI of under 1%. Significantly, however, this aggregate figure for RoI masks a fall of over 1%in the female breeding herd between June 1999 and June 2000, and a fall of nearly 10% in the gilts in pig category from June 1999 – June 2000.

These figures indicate a major collapse in female breeding herd numbers in NI compared to the recent incremental reduction in RoI in response to the very poor pig prices in 1999. Given this collapse in the female breeding herd, we would expect the reduction in total pig numbers to reflect this over the next number of years.

Table 3: Female breeding herd numbers RoI and NI (June 1997 – June 2000)

Year	Female Breeding herd NI	Female Breeding herd RoI	Female NI herd % of RoI herd
June 1997	78,139	186,700	43%
Dec. 1997	76,600	192,400	41%
June 1998	72,153	195,000	38%
Dec. 1998	64,200	187,800	35%
June 1999	50,639	188,300	27%
Dec. 1999	44,700	186,300	23%
June 2000	45,500	186,200	24%

Source: DARDNI and CSO

Table 4: Changes in female breeding herd RoI and NI (June 1997 – June 2000)

Breeding Herd NI		Breeding Herd RoI	
June 1997 – June 2000	- 42%	June 1997 – June 2000	- 0.21%
June 1997 - June 1999	- 34%	June 1997 - June 1999	+ 0.8%
Dec 1997 – Dec 1999	- 40%	Dec 1997 – Dec 1999	- 3.1%
June 1998 – June 1999	- 29%	June 1998 – June 1999	- 3.4%
Dec 1998 – Dec 1999	- 29%	Dec 1998 – Dec 1999	- 0.2%
June 1999- Dec 1999	- 11%	June 1999 – Dec 1999	- 1%
Dec 1999 – June 2000	- 0.5%	Dec 1999 – Jun 2000	0%

Source: DARDNI and CSO

Key messages:

- There has been a 10% fall in the female breeding herd from June 1999 to June 2000 in NI with almost all of it occurring before Dec 1999.
- The small increase in NI female breeding herd from Dec 1999-June 2000 is accounted for by an increase of 1,000 in maiden gilts and fall of 200 in other female breeding herd – these results are still preliminary.
- Since 1997, NI has lost almost half of breeding stock (42%).
- The female breeding herd in NI fell from 43% of RoI size in Dec 1997 to 25% in December 1999.
- The was a fall in the ROI female breeding herd from June 1999- June 2000 of over 1%.
- There has been little change in the absolute number of the female breeding herd but there have been significant internal changes with gilts in pig in particular falling by just under 10%.

Slaughter pigs

The reduction in sow numbers impacts the number of pigs marketed

A consequence of the fall in sow numbers has been the knock-on effect on the number of slaughter pigs marketed in 1999. As this fall in sow numbers has been very much more marked in NI, so too has the fall in slaughter pig numbers. The 41% fall in slaughter pig numbers in NI between June 1997 and June 2000 matches very closely the 42% reduction in the female breeding herd.

In RoI by comparison, while some reduction has taken place, it has not occurred at a rate that is anything like the decline found in NI. Significantly, it was not until after the crisis in 1997 that numbers began to drop.

Table 5: Slaughter pig numbers (June 1997 – Dec 1999)

Year	Slaughter pigs NI	Slaughter pigs RoI	Island of Ireland total	NI slaughter pigs % RoI slaughter pigs
June 1997	615,506	1,507,800	2,123,306	41%
Dec. 1997	589,300	1,519,400	2,108,700	39%
June 1998	578,460	1,618,700	2,197,160	36%
Dec. 1998	533,300	1,608,500	2,141,800	33%
June 1999	437,900	1,594,200	2,032,100	27%
Dec. 1999	395,600	1,572,600	1,968,200	25%
June 2000	365,800	1,562,600	1,928,400	23.4%

Source: DARDNI and CSO

Table 6: Changes to slaughter pig numbers, RoI and NI (June 1997- Dec 1999)

Slaughter pigs NI		Slaughter pigs Herd RoI	
June 1997 – June 2000	- 41%	June 1997 – June 2000	+3.64%
June 1997 – June 1999	- 29%	June 1997 - June 1999	+5.4%
June 1998 – June 1999	- 24%	June 1998 – June 1999	-1.5%
Dec 1997 – Dec 1999	- 32%	Dec 1997 – Dec 1999	+ 4.6%
Dec 1998 – Dec 1999	- 26%	Dec 1998 – Dec 1999	- 2.2%
June 1999 – June 2000	- 16%	June 1999 – June 2000	-1.98%

Source: DARDNI and CSO

Key messages:

- Slaughter pigs on the island of Ireland have declined by 7% from June 1997 to December 1999.
- Slaughter pigs in NI have fallen by over 40% between June 1997 and June 2000.
- In RoI, slaughter pigs have increased by over 3.5% between June 1997 and June 2000 (masks fall of over 2% between Dec 1998 and June 2000).
- The slaughter pig herd in NI has fallen to under 24% of size of RoI herd in June 2000 1999 from 41% in June 1997.

Production geography

There have also been changes in the location of pig production on the island
One of the objectives of this study has been to look at production geography relative to processing geography. As can be seen from the figures below, sizeable shifts in overall pig production numbers have already taken place. In this section we focus on the shifting internal production geography within both RoI and NI.

The following conclusions are drawn from data provided by Teagasc from the Survey of Commercial Pig Units in Ireland. Evident from the data are a number of shifts in production geography in RoI. In the medium term, the availability of suitable spread lands under the IPC regime is likely to have the greatest effect on production geography.

Table 7: Pig and sow number in RoI by county 1995 - 1999

	Breeding Units '95		Breeding Units '99		Finishing Units '95		Finishing Units '99	
County	No. Units	No. sow	No. Units	No. Sows	No. Units	No. pigs	No. Units	No. pigs
Cork	134	25015	118	35,350	96	122100	105	180,100
Tipperary	55	15020	48	14875	36	83000	42	87300
Waterford	21	6090	21	7435	21	36000	19	37900
Limerick	21	4715	17	6225	12	23800	17	24000
Kerry	38	5495	30	5405	14	2300	18	29900
Clare	5	1200	5	1385	5	5400	5	6500
Cavan	70	25595	73	30875	66	113,800	78	146,500
Monaghan	27	4670	23	4040	24	21400	23	22000
Donegal	23	2670	25	3815	17	15550	22	20300
Leitrim	9	3085	9	3665	8	10800	8	13900
Mayo	18	2565	14	3095	15	13375	15	18900
Roscommon	8	1760	7	2135	8	7920	7	10000
Galway	8	930	7	865	7	4225	8	4500
Sligo	1	760/2	2}	310				
Longford	10	5850	13	7385	8	25700	13	33900
Westmeath	8	5200	10	7365	10	27800	12	37800
Wexford	31	5790	28	6875	25	28350	25	30000
Kilkenny	21	5860	21	6315	21	28215	21	31400
Offaly	12	5065	14	6000	7	10385	12	18400
Laois	18	4930	17	5570	9	18500	10	20600
Meath	17	3915	19	4785	15	19000	21	23600
Kildare	10	3180	12	4560	10	8225	15	15700
Carlow	9	2005	9	2375	9	9000	8	11000
Louth	7	1955	5	1965	5	6600	7	8500
Wicklow	5	1480	5	1580	6	11700	7	14800
Dublin	1	760/2	1}	620	7	10500	7	10500

Source: Teagasc Summary of Commercial Pig Units by County

Key messages:

- The location of pig production has shifted in the recent past (though not hugely).
- Areas of traditional strength (Cavan and Cork) have grown even further, while some counties with lower densities of pig production (Westmeath, Longford) have also seen increases.
- Over 50% of all sows are found in 4 counties (Cavan, Cork, Tipperary & Waterford).
- Over 75% of all pigs are concentrated in just 11 counties.
- It is impossible to accurately forecast where production is likely to exit/enter in future but given the IPC regime areas such as Cork and Tipperary, which have lower pig densities are likely to increase in importance.

Table 8 below relates to the production geography in NI and derives from data provided by DARDNI. This data shows significant shifts in production geography within NI over a very short two-year period. The available data shows that distribution of farm size in each of these areas is fairly consistent and so it is not possible to conclude on the basis of this evidence that it is the smaller farms that are leaving

Table 8: Pig & sow numbers in NI by county

County	1998		1999		% change	
	Pigs	Sows	Pigs	sows	Pigs	Sows
Antrim	107,646	12,501	76,504	8,413	-29	-32
Armagh	83,088	10,051	61,917	7,159	-25	-29
Down	111,039	13,014	77,801	8,174	-30	-30
Fermanagh	14,183	1,622	3,969	387	-72	-76
Londonderry	93,900	11,242	76,845	8,207	-18	-27
Tyrone	176,608	18,499	146,125	14,773	-17	-20
Total	578,460	66,929	443,161	47,113	-23	-30

Source: DARDNI

Key messages:

- Tyrone remains the biggest producer county accounting for 33% of pigs and 31% of sows in NI in 1999. It also had the lowest reduction in numbers pigs declined by 17% and sows by 20% over the 1998 figures. Hugely varying levels of reductions across NI.
- Fermanagh had the biggest decline with pigs declining by 72% and sows by 76% in 1999 over the 1998 figures. However, it is by far the smallest pig producing county only accounting for less than 1% of pigs and sows in 1999.
- County Down is the second biggest pig producing county in NI, representing 18% of the pigs and 17% of the sows in 1999. Pig and sow numbers in Down, declined by 30% in 1999 over 1998.
- Counties Tyrone, Down and Londonderry accounted for 68% of the pigs and 66% of the sows in 1999. This up from the 1998 figures when the accounted for 66% of the pigs and 64% of the sows.

2.2 Farm structure

Pig production in RoI operates on a much bigger scale than is the case in NI
In assessing pig production in Ireland, it is helpful to compare the farm structure in RoI and NI. Scale of production is the area in which the industry in NI and RoI differ most. To give an indication of the gap that currently exists, Table 9 below, illustrates some of the key points of comparison between NI and RoI pig production industries.

Teagasc is the only body in RoI to regularly conduct a survey of 'Commercial' Pig Units (defined as units with more than 20 sows or more than 200 finishers). The narrow definition used by Teagasc thus clearly excludes units under this size, which would be included in the NI survey but are not included in the RoI survey.

Equally, comparing average herd size in both RoI and NI to our European competitors is instructive (see Table 14 below). In the case of RoI, average herd size is significantly above the European average and the average for the main European exporters. In the case of NI, the reverse is true and average herd size is significantly below the European average.

Table 9: RoI and NI Breeding herd & finishing herd comparisons

Breeding herd	**NI**	**RoI**
Average herd size	49	316
< 20 sows	588 (61%)	not measured
> 100 sows	130 (13%)	420 (75%)
> 300 sows	30 (3%)	173 (31. %)
Finishing herd	**NI**	**RoI**
>400 places	206 (26%)	476 (90%)
>1,000 places	85 (11%)	401 (76%)

Sources: DARDNI, Pig Industry Genetics Company, and MLC

Key messages:

- 'Commercial unit' definition used by Teagasc would exclude 61% of breeding and finishing units in NI.
- Average sow herd size in NI is less than a sixth of the size of the average herd in RoI.
- A quarter of finishing herds in NI have 400 or more pigs whereas, 90% of finishing herds in RoI have 400 or more pigs.

In RoI, there has been a significant shift from specialised to integrated production
Since the previous Teagasc survey in 1997, there has been a very marked shift from specialised breeding and finishing units into integrated pig production. Between 1997 and 1999, there was a 37% reduction in the number of specialised breeding units in RoI. During the same period, there was a significant rise in the numbers of integrated production facilities increasing from 76% to 83%. There is also significant incidence of the same producer owning both breeding and finishing capacity but siting them in different areas. Where this occurs, the Teagasc survey would still count them as specialist and not integrated producers.

Pig unit numbers

The number of NI producers with less than 100 sows declined by 40% in 1999
The 26 % reduction in pig numbers across NI in 1999 has not seen a uniform reduction in producer numbers across all farm unit size categories. The statistics below demonstrate that a considerable number of pig producers have left the industry.

Draft figures from the NI Census 2000, show that in 1999 there was a decline in NI of over 40% in producer numbers in the 3 categories 0-10 sows, 10-50 sows, 50-100 sows. In each of these categories, the reduction in producer numbers was accompanied by a roughly similar reduction in sow numbers.

In the 150+ sow category, however, this was not the case. While producer numbers fell by over 20%, the total sow numbers in this category fell only by roughly half this percentage. It can be concluded from this, that in the 150+ sow category, those producers who have remained in the industry have increased their sow numbers. This conclusion is supported by the large increase in the average herd size in the category (not sow size) seen over the last year (up from 305 – 426).

Part of the explanation for the differential in the decline of the industries in the RoI and NI, is down to scale. The concentration that has yet to happen in the pig production sector in NI has already taken place in RoI. A function of this, is that for the remaining producers in the RoI, their scale and thus their level of investment, makes it much more difficult to exit the industry. These factors may in part explain the lower level of decline in producer numbers in the RoI compared to that in NI.

Table 10: Pig unit numbers in NI and RoI

Year	Pig unit numbers NI	% change in unit numbers NI	Pig unit numbers RoI	% change in unit numbers RoI
June 1997 NI and Jan 1997 RoI	2041	N/A	723	N/A
June 1998	1669	- 18%	N/A	N/A
June 1999 NI: Jan 1999 RoI	1,151	- 31%	657	- 9%
December 1999	960	-17%	N/A	N/A

Source: Teagasc, DARDNI

Key messages:

- In 1999, there were 75% more producers in NI compared to RoI but the average unit size was much smaller.
- From Jan 1997 to Jan 1999, producer numbers fell by 44% in NI.
- From Jan 1997 to Jan 1999, producer numbers fell by 9% in RoI.
- From June 1999- December 1999, producer numbers in NI fell a further 17%.

- The bulk (88%) of those who left the NI industry during June 1998 and June 1999 were small producers with fewer than 50 sows.

- By early 2000, those producers left in the industry in both RoI and NI were the more efficient/ resilient producers.

- From our interviews, it has emerged that some efficient producers in RoI and NI who did not have alternative farm or off farm income and who had invested heavily have also exited production.

- By late 1999, the perception in NI and RoI was that the worst of the price fall had passed and this kept many producers in the business in the hope of better times. The lack of a strong and sustained recovery in 2000 has impacted on producer confidence and may encourage further producers to exit.

Farm size

Based on the finishing and breeding statistics above, it is clear that farm size and therefore, the scale in NI, relative to RoI, is very small. In RoI between 1997 and 1999, the average herd size increased from 274 to 316 sows with integrated units (83% of all units) averaging upwards of 340 sows.

The most up to date and comprehensive figures available to us for NI are slightly different to those for RoI, focussing on herd size as opposed to sow numbers. These figures for NI show a significant increase in average herd size from 305 in 1998 to 426 in 1999.

The reduction in the number of pig units allied to the increased average herd size (herd size rose 39% in 1999 alone) shows that as far as pigs are concerned the NI producers are availing of the opportunity to rationalise and concentrate production.

The Statistical Review of NI Agriculture 1999, gives a sow number breakdown showing an average sow number of 48.9 for herds in NI.

The vast majority of farmers exiting from the industry in NI had less than 50 sow places

The draft results of the June 2000 census show that 88% of the producers who left the industry between June 1998 and June 1999 had less than 50 sows (and over half had less than 10 sows).

Only 3 % of the producers exiting the industry had over 150 sows. The exit of the few producers from this category represented 16% of the total decrease in sow numbers. However of more importance, the actual number of producers of over 150 sows fell from 98 to 77 during this period. This represents a drop of over 20% in the top level of producers in NI over a one-year period.

95% of NI producers have units with 150 or less sow places

Having talked to a number of the larger pig producers in NI as part of the study, there is a concern that there is now neither the funds nor the inclination amongst the larger farmers to develop farm size further in the current climate of uncertainty.

The cost of developing production facilities requires that there is a high probability of being able to make a profit sufficient to pay off the development loan. Currently, there is a feeling that the probability of such profitability being available is not sufficiently high to justify the risk. This is the opinion of both the producers and the banks. The 'probability of profit' issue is examined in greater detail later on in the study.

Table 11: Structure of farms in NI

sows on farms	1998 No. of sows	% of total	1999 No. of sows	% of total	1998 No. of farms	% of total	1999 No. of farms	% of total
<10	3,949	6%	1,730	4%	950	50%	466	48%
10-49	13,538	20%	6,521	14%	599	32%	273	28%
50-99	11,527	17%	6,808	14%	165	9%	95	10%
100-150	9,001	14%	6,345	13%	75	4%	53	6%
150+	28,914	43%	25,709	55%	98	5%	77	8%
Total	66,929	100%	47,113	100%	1,887	100%	964	100%

Source: DARDNI

Key messages:

- In NI, the number of farms declined by 49% from 1998 to 1999 while the number of sows declined by 30% over the same period.
- The greatest decline occurred in farms with 10-49 sows with a 54% decline.
- Farms with 150+ sows only accounted for 8% of the farms in 1999 but for 55% of the sows.
- From 1998 to 1999 the number of producers of over 150 sows fell from 98 to 77 (a drop of over 20%).

In RoI by comparison, farm size has increased considerably over the last decade, the number of producers exiting the industry relative to NI is low and production numbers have not fallen in the way they have in NI.

Further concentration of production in the hands of fewer and fewer producers is forecast to continue and the exiting of smaller production units will add to the increase in average size of production facility. A limitation on this trend may however be exercised by the IPC regime, which is discussed later in the report. This has had the effect of both limiting the expansion of existing facilities in RoI and of reducing the attractiveness of the industry to new entrants.

Table 12: Structure of pig production in RoI

Unit size	1995 Unit No.	%	1999 Unit No.	%	1995 Sows	%	1999 Sows	%
Integrated units – units / sow numbers								
20-49	35	09%	24	06%	1,235	01%	930	01%
50-99	65	17%	48	11%	4,745	04%	3,450	02%
100-299	112	29%	207	49%	16,110	15%	38,335	26%
300-499	116	30%	56	13%	34,575	31%	21,345	15%
500-999	40	10%	61	14%	25, 330	23%	38,720	27%
1,000 +	18	05%	26	06%	28,670	26%	42,585	30%
Total	386		422		110,665		145,365	
Breeding units – units / sow numbers								
20-49	53	26%	31	24%	1,585	05%	1,080	04%
50-99	49	23%	30	23%	3,425	10%	2,135	07%
100-299	58	29%	40	31%	7,790	23%	7,180	24%
300-499	28	14%	14	11%	8,430	23%	5,345	18%
500-999	11	05%	11	08%	6,955	20%	6,825	23%
1,000 +	4	02%	5	04%	5,950	17%	6,960	24%
Total	203		131		34,135		29,525	
Finishing units – unit / finishing places								
150- -499	16	21%	25	24%	5,200	03%	7,450	04%
500-999	19	24%	27	26%	12,870	08%	18,950	11%
1,000-2,999	14	18%	33	32%	20,330	12%	55,700	33%
3,000 – 4,999	22	28%	11	04%	72,00	42%	41,400	25%
5,000	7	09%	7	07%	59,100	34%	45,500	27%
Total	78		103		169,500		169,000	

Source: Teagasc

Key messages:

- The total number of units decreased by 5% from 1995 to 1999.
- Integrated units represented 76% of total sow units in 1999 up from 59% in 1995.
- Production in integrated units has increased from 35% of the total in 1995 to 83% in 1999.
- Average size of integrated units increased from 273 in 1995 to in 344 in 1999.
- 75% of production in 1999 occurred in units with 500 sows or more.
- The number of sows in specialised breeding units declined by 14% from 1995 to 1999. In 1999, this section of production only accounted for 9% of the total number of sows.
- The number of specialised breeding units declined by 35%.
- The number of pigs in the specialised finisher unit sector remained static although the number of units increased by 32%.

2.3 Competitiveness of the Industry

If the primary difference that exists between the industry in NI and RoI is scale of production, a secondary differentiating factor is the relative competitiveness both in terms of physical performance and cost base of the two industries. These two elements of competitiveness are examined separately below.

The figures for both NI and RoI are in places dated but changes in efficiency over the intervening period have been gradual unlike the exponential change in other areas

Physical performance

Two sets of statistics exist for physical performance for NI, the statistics from DARDNI and those from the Pig Industry Genetics Company. There are significant differences between the samples used by DARDNI and the Pig Industry Genetics Company – Pig Manager (PM). In using the data from the Pig Manager study, it is important to recognise the limits that the small number of Pig Manager participating farms imposes. It must also be borne in mind that producers participating in the Pig Manager programme are likely to be a self-selecting group who are unlikely to feature producers who are below the average level of productivity. As the PM group is a small and decreasing group and as the participants may be self- selecting we would favour the statistics from DARDNI as having a more appropriate reference value.

Using the PM figures as the reference point, it would appear that the competitiveness advantage enjoyed by producers in RoI is limited to the slightly higher litters/sow/year rate and the slightly lower piglet mortality rates.

However, looking at the other physical performance data from DARDNI, the differential is much more marked. Even with less complete figures, the picture that is presented is of an industry which is significantly less competitive than in RoI. Looking at the pigs weaned/sow/year numbers, it is clear that NI producers are at least 15% less productive than those in RoI.

Table 13: Key Physical performance indicators

	NI			**RoI**	
	DARDNI Average	PM Average	PM Top 25%	Average	Top 25%
Litters/sow/year	2.0	2.13	2.3	2.32	2.42
Live births/litter		10.88	11.57	10.84	11.29
Pigs weaned /litter		9.83	10.43		
Pigs weaned/sow/year	18.9	20.87	23.49	22.1	24.6
Piglet mortality %		9.53	5.95	8.6	7.2
Finisher mortality		3.91	2.03	2.0	
Daily growth rate weaning-slaughter (g)		617	707	712	
FCR Finisher herd		2.39	2.17	2.39	

Source: Pig Manager (PM) March 1997, DARDNI 1999, Teagasc

Looking to the Pig Manager data, it is clear that there is a section of pig producers in NI (the top 25%) who can compete with RoI and elsewhere in terms of physical productivity. However, this represents just 25% of the sample size, which in 1995 was just 39 farms.

The productivity comparison beyond RoI is doubly illustrative, even if the comparisons are not as exact. Using the DARDNI figures, NI is severely un-competitive relative to other European producers. While France stands out as being a country where this difference is not so marked, the fact is that the method used to estimate physical production figures for France is slightly different from other countries, and this needs to be borne in mind when considering cross-comparisons.

Table 14: Cross country physical performance indicators

	Denmark	Holland	France	UK	Republic of Ireland	Northern Ireland
Breeding herd						
Average herd size	195	182	88	295	316	49
Pigs/sow/year	21.9	21.3	18.8	21.8	22.2	18.9/20.87
Feed/sow/year	1265	1086	1275		1210	
Finishing herd						
FCR	2.68	2.77	3.04	2.57	2.39	2.39
Weight gain/day	778	729	716	600	712	617

Sources: Pig Cost Competitiveness in selected European Countries Feb1999 (Data 1997), Pig Industry Genetics Company Summary Report 1997,

Feed and other costs

NI and RoI share much of the same cost structure. Healthcare costs, energy costs, repairs and maintenance costs are all reasonably consistent across NI and RoI. Equally, both countries share the same problems of distance from feed supply and markets.

The issue of feed costs has been very well documented in the past and will always emerge as a critical factor when discussing the cost structure in Ireland. Given that the availability of feed ingredients is a structural issue and that very little can be done to address the basic feed cost differential we propose to examine it in a slightly different fashion. Rather than trying to identify the scope of the structural feed gap which is unbridgeable, we plan to look briefly at where there is scope within the current feed supply structure to realise some savings.

The differential of IR£20/tonne (STR£17/tonne), which is widely accepted as being the difference in feed price between the RoI and Denmark/ Holland is not as cut and dried an issue as the simple price basis would seem to show. Rather the up front price that a producer pays for feed is a function of his existing indebtedness (and thus risk), his terms of trade (credit period) and ability to play feed compounders against each other as much as the price of the feed he is ordering. Much of the differential in feed prices can be traced back to these elements.

The cost of feed to producers is often increased significantly in both the RoI and NI to reflect the increased risk, long periods of credit and high cost of debt collection. The feed industry has staff whose primary function is that of debt collection. This is an expensive

method of debt collection relative to that in Holland where a direct debit system of payment for pig feed is used. It is evident that there is considerable scope for improved efficiency in the system of payment for pig feed, which would reduce the relative price advantage enjoyed by other countries.

The Farm Business Survey (FBS) in NI conducts an annual survey of costs applicable to pig farming. The only costs that are surveyed however, are variable costs (defined by the FBS as including feed, veterinary and medicine costs and sundry costs). Fixed costs (is defined by the FBS as including machinery running costs, depreciation on buildings, machinery and equipment costs, labour costs and overheads (electricity, water charges)) are not surveyed but are estimated as being from IR£8 -IR£12/pig (STR£6.7 -STR£10/pig).

The figures for the last four years shows that variable costs for pig producers, the principal element of which is feed, have actually fallen considerably since their peak in 1996.

Table 15: Variable costs 1995 - 1999

Year	Variable cost STR£/pig
1995/1996	55.3
1996/1997	61.0
1997/1998	56.9
1998/1999	53.5

Source: FBS

Table 16 below builds on a range of data provided by DARDNI. The margins available for producers over and above the cost of feed in 1998 – 2000 are below the IR£10 (STR£8.36) mark. Looking at the information from the FBS above, feed costs are just one element of variable costs. The IR£10 margin has then to cover the price of the other variable costs and the price of the fixed costs. With the FBS estimating the price of fixed costs at between IR£8 and IR£12/pig it is clear that many farmers are even now not covering their costs.

- With the realisable value of pigs having fallen from an average of 132.86p/kg in 1996 to an average of 72.99p/kg in 1998 the effect can clearly be seen on the feed cost/IR£100 (STR£83.64) clean pig output.

- The feed cost/IR£100 clean pig output rose from IR£61.65 (STR£51.57) in 1996 (a good year) to IR£99.62 (STR£83.32) in 1998.

- Even now in 2000 the feed cost level of IR£84.66/IR£100 (STR£70.81/STR£83.64) for a clean pig is very high considering the further cost elements which must come out of the pig.

What is important to remember however, is the fact that feed price/pig has actually fallen 18.5% since 1996 and the margin over feed would have increased significantly had it not been for the collapse in the price of pork.

Table 16: Pig price trends NI

	1995	1996	1997	1998	1999	2000	
Northern Ireland average clean pig price	112.43	132.86	104.71	72.99	70.7	80.36	p/kg/dwt
Northern Ireland average weaner price	27.51	32	22.81	12.85	13.81	17.52	£/weaner
Ratio pig price: feed price	6	6.41	5.37	4.14	4.23	4.81	£/kg dwt: £/kg feed
Average feed cost/pig	52.44	59.23	55.47	50.06	47.6	48.3	£/pig
Margin over feed /kg	38.56	51.62	27.13	2.98	4.31	13	p/kg
Margin over feed/pig	27.38	37.66	19.4	2.13	3.09	9.32	£/pig
Feed cost / St£100 clean pig output	65.95	61.65	75.08	99.62	94.28	84.66	Cost of feed £/ St£100 output

Source: DARDNI

In RoI, Teagasc conducts research on producer costs amongst the farms that use their services. Unlike in NI, this research covers both variable and fixed costs. The most recent of these was in May of 2000 and the results of that survey are outlined below. While the previous estimate in 1998 was of a total cost basis of 87p/kg, the most recent estimate shows a significant rise to 102.3p/kg.

The most noticeable changes have been the increase in the costs of welfare and licensing and the relative decrease in the cost of feed. Given the Berlin Agreement on CAP reform which will reduce the intervention price for cereals between now and 2002 and given the high incidence of cereals in pig feed in RoI and NI, the percentage of total costs represented by feed costs will continue to fall.

Table 17: Condensed cost analysis RoI 1999

Cost	Cost in p/kg
Feed costs	61
Non-feed costs (Common, Herd specific)	41.3
Total costs	**102.3 p/kg**

Source: Teagasc

Non-feed costs are further broken down into common non-feed and herd specific non-feed. Common non-feed costs (27.8p/kg) are costs that are shared by all farms (energy, healthcare, transport, labour, management, AI, insurance, manure disposal, miscellaneous). Herd specific non-feed costs (13.5p/kg) are those costs to which not all farms are currently exposed (financial charges, licence compliance, and up-grading facilities).

Key messages:

- The cost basis quoted by Teagasc for the production of finished pigs has increased from 87p/kg in 1998 to 102.3p/kg in 1999. This is a 17.5% cost increase in one year
- The increase in total costs has taken place at the same time as the percentage of total costs taken up by feed has fallen from 72% to just under 60%
- In case of RoI, other costs are rising rapidly (licensing, welfare, financing)

The pig industry is a capital-intensive industry and if producers are going to be able to re-invest in stock and buildings they must be realising reasonable margins. Teagasc also monitor pig price margins over feed cost in pig production in RoI. The data that they have compiled shows considerable support for the strong cyclical effect that the pig cycle has on producer margins.

Table 18: producer margins in the RoI

1992	1993	1994	1995	1996	1997	1998	1999	2000*
Pig prices p/kg dwt (finished pigs at export plants)								
116.4	100.9	100.6	112.3	129.1	112.7	89.4	80.5	93.8
Feed cost /kg dwt (p) – meal feeding								
76.2	73.6	71.2	67.5	72.3	69.1	63.6	60.1	61.4
Margin over feed /kg (p)								
40.2	27.3	29.4	44.8	56.8	43.6	25.8	20.6	31.94
Gross annualised margin per sow – specialised breeding (£)								
277	163	184	303	392	276	103	68	183.6
Average gross margin per finisher – specialised finishing(£)								
8.85	5.45	5.85	10.9	15.3	11.05	6.3	3.65	6.36
Gross annualised margin per sow - integrated (£)								
467	279	312	540	725	514	241	149	323
Gross annualised margin per pig - integrated (£)								
21.7	13	14.5	24.8	33.3	23.8	11.0	6.7	14.6

* 2000 is based on the period Jan-August 2000 Source: Teagasc

Effect of welfare housing on competitiveness

One of the major competitiveness issues going forward for NI producers is likely to be the lowering of yields that has and will increasingly derive from the hasty and at times ad-hoc conversion by farmers of existing facilities into welfare friendly accommodation. There are no hard facts for the % of all welfare friendly housing that are sub-standard from an efficiency point of view, but in interviews with farmers, the issue was raised regularly.

In addition to the loss of efficiency from the sub-standard manner in which the welfare housing has been built, there is the actual ongoing cost of using welfare friendly

housing. The extra cost associated with the introduction of welfare friendly production has been variously costed at between 2p/kg and 5p/kg. Based on the results of our survey of Northern Ireland producers, the average cost that producers are putting on the welfare friendly housing is 3-4p/kg.

Where welfare housing has been established in RoI by comparison it has been built to target a particular market segment. Much of the welfare housing in RoI has been built on greenfield sites and since no time limits were in place the facilities were built exactly to specification and according to best practice. The result of this has been that while there is an extra cost associated with such housing, the experience in RoI has been that there need be no productivity loss and in fact there are some areas such as sow mortality which have shown improvements

Carcass weight

The average NI carcass weight increased in by over 1% in 1999 to 71.7kg. The average RoI carcass weight increased from 66.8kg in 1992 to 71.8kg in 1998 in RoI. The trend has been for weights to vary around a fairly stable average in both RoI and NI. The fact that the slaughter weight of pigs in NI and RoI are significantly lower than in other key EU competitors adds a further element of competitive disadvantage into the value chain. With heavier pigs, the overhead costs per pig are spread over a larger number of kgs of pigmeat.

Table 19: Average EU Carcass weight

Average Carcass Weight 1998								
RoI	NI	UK	Spain	Denmark	Dutch	France	Germany	Italy
71.8	71.7	74.9	79	78.2	88	83.7	90.8	117.8

Source: Meat & Livestock Commission (MLC - UK)

Although increasing the average weight is attractive from an efficiency point of view, increasing the weight still further while using entire males will not be possible because of taint. In NI and RoI, the practice of castration of male pigs has largely been abandoned. However, in Europe and the US, this practice is still common and castration of male pigs prevents the emergence of boar taint in pigs above a certain weight.

While there is considerable on-going research into the reduction of the boar taint related genes; the current position is that producers in NI and RoI cannot currently realise the gains from increased average weight because of the taint issue. These gains have been estimated by the MLC at ST2p/kg dwt for every increase of 5kg dwt.

The weight issue is not as clear cut however as a ST2p/kg differential would seem to imply. While the average weight issue is important it cannot be examined in isolation as production of a heavier pig adds additional costs such as feed costs which will account for part of the efficiency gain and raises important question of animal welfare in relation to piglet castration.

2.4 Environmental issues

This section of the report looks at both the nature and impact of current environmental regulation in NI and RoI on the pig production sector.

Background
Most of the main pig producing and exporting countries of the EU, especially Holland and Denmark, have had rigorous environmental regimes relating to pig production for some time. Until recently, RoI has had a less rigorous regime and NI still does.

In effect, the weak environmental controls that were in place in RoI and remain in place in NI fail to require the producer to absorb the full costs associated with pig production that are brought on by compliance with environmental regulation. As such, they have operated in effect as an invisible subsidy to Irish pig producers.

Coming from such a low base in terms of environmental control, it was inevitable that the farming community would poorly receive the current implementation of environmental controls in RoI. This was reflected in the findings from our interviews with pig producers. Many RoI producers felt that the additional costs associated with environmental protection compliance are a major threat to their remaining in pig production in RoI.

There are a number of sources of environmental regulation in RoI which impact on the pig production sector. With different thresholds, overlapping remits and distinct limits, the situation can be confusing. In RoI, the chief applicable legislation is the Environmental Protection Agency (EPA) Act 1992 and specifically, the Integrated Pollution Control (IPC) provisions within it on the regulation of intensive farming practices.

Secondary sources of environmental regulation that relate to pig production in RoI are to be found in Waste Management and Water Pollution Acts. These regulations, unlike the IPC regime, which include controls on the levels of soil phosphorus and on the use by local authorities of by-laws to control intensive agricultural practices, are not subject to size thresholds. Therefore, they apply to farms of all sizes.

In contrast to the situation in RoI, there appears to be very little in the way of specific environmental regulation in NI. There is currently no environmental licensing regime and planning regulations for the development of pig production capacity – especially for the further development of existing capacity are very limited. While currently largely free from the type of environmental regulation that applies elsewhere, by 2006, NI producers who exceed the size thresholds will be fully covered by the conditions of the Europe-wide Integrated Pollution Prevention and Control (IPPC) regime.

The future of the environmental regulation of pig production in RoI, NI and across the EU is to be found in the Integrated Pollution Prevention and Control (IPPC) Directive from which NI has secured a derogation until 2006.

By 2006, this Directive will have been implemented in all European counties and will ensure some EU wide consistency in addressing the environmental impact of intensive farming practices such as pig production. By extension, it will also mean that weak environmental controls cannot be used as an invisible support to the pig industry in any one country. The size distribution of the production industry in each country however, will dictate the percentage of producers covered.

Environmental Protection Agency (EPA) - Integrated Pollution Control (IPC)

The Environmental Protection Agency in RoI is charged with licensing activities that have the potential to cause significant environmental impacts. The main aim of the IPC regime is to prevent or solve pollution problems rather than transfer them from one part of the environment to another as had happened previously. Under the terms of the Environmental Protection Agency Act 1996, intensive farming (pigs and poultry) are included on a list of 61 activities that have the potential to cause such significant environmental impacts.

Scope

The IPC regulations apply only to intensive 'pig production'. This is defined in the Act as: "the rearing of pigs in installations, whether within the same complex or within 100 metres of that complex, where the capacity exceeds 1,000 units on gley soils. Or 3,000 units on other soils, where the 'units' have the following equivalents 1 pig = 1 unit and 1 sow =10 units"

Further clarification of the above definition has been provided by two court cases. In Shannon Regional Fisheries Board v An Bord Pleanálá, it was adjudged that a gilt (both maiden and served) is equivalent to a sow and thus 10 units. Also in Maher v An Bord Pleanálá, that weaners, fatteners and boars are all equal to 1 unit and that sows not including progeny are 10 units.

Thresholds

The IPC legislation distinguishes between two different constituencies in its application to the pig production sector. Since September 1996, all new or expanding units that meet the definition of pig production above (1,000 units) have required a licence. Since 1998, there has been a phased introduction of the regulations for existing pig production capacity

Table 20: Thresholds for IPC licence

Date of introduction	Type of facility
3 September 1996	New or expanding pig production facility (as defined)
10 March 1998	Existing facility>10,000 units
9 June 1998	Existing facility>7,000 units
1 September 1999	Existing facility>6,000 units
4 April 2000	Existing facility>5,000 units
5 September 2000	Existing facility>4,000 units

Source: EPA

Although other countries have their own particular environmental conditions regarding pig production, the structure of the Irish herd with the largest average herd size in the EU

has meant that the impact of the IPC has been felt particularly strongly in RoI. As of the 5 September 2000, the combination of these two developments has produced a situation whereby the IPC regulations apply to 60% of the sows in RoI.

Application procedure

RoI was one of the first countries in Europe to introduce an integrated system of pollution control for pigs. This is reflected in the application procedure for an IPC licence. This "goes beyond the traditional framework of pollution control by encouraging the anticipation of the environmental emissions, not just in the environmental medium into which they are released but also in addressing the potential for those emissions to cross-over into other environmental media and cause harm to water and land".

Taking this as the their starting point, the basis of the licensing regime is a document called the BATNEEC Guidance Note For the Pig Production Sector. This note which was first prepared in 1996 and was revised in 1998 specifies the minimum standards applicable in the IPC regime – Best Available Technology Not Entailing Excessive Cost – (BATNEEC).

These are however, the minimum standards only and the EPA is free to require more stringent standards where the environmental protection of a specific site so requires. As costs, technology and environmental factors change it is envisaged that the BATNEEC notice will change to reflect these differing circumstances.

The BATNEEC Guidance note requires that all licences must address the individual circumstances of the facility including manure storage capacity, facility siting, soil type for spread lands, sub-surface geology of spread lands, surface and ground water resources etc. The pig production sector has found the limitations of the spreading of slurry (especially in relation to phosphorous content) and the requirement for a minimum manure and wash-water storage capacity of 26 weeks to be among the most onerous conditions of the IPC regime.

Once the EPA receives an application for an IPC licence, anyone can make a submission to the EPA regarding the application. Having assessed the application and any submissions received, the EPA can recommend granting a licence/ granting subject to conditions/ seek clarification/ refuse the licence. At this juncture, the applicant has 28 days (everyone else has 21) to object to the proposed determination. Having taken note of any objections, the EPA either grants the licence, refuses the licence, or grants the licence subject to conditions.

The onus is on the producer to determine whether they are subject to the conditions of the IPC regime and failure by regulated producers to apply for a licence by the appropriate date leaves them open to prosecution. Where a licensee is granted a licence and then fails to abide by it or where a producer fails to apply for a licence, the EPA has the power to enforce compliance or pursue the producer through the courts for non-compliance. While this power is available to them, in practice, the EPA has attempted to adopt a co-operative as opposed to confrontational approach to ensuring compliance. If the co-operative approach is not sufficiently successful in achieving compliance, it is likely that the EPA will use legal remedies to enforce compliance.

Table 21: IPC Licence applications as of August 2000

Estimate of number of producers who should have applied by 5th Sept 2000	180-200
Total number of applications to date	71
Licence granted	32
Application currently being assessed	25
Application abandoned	5
Application refused	5
Proposed determination to be communicated	4

Source: EPA

Cost

As mentioned above, many farmers see IPC compliance costs as the main threat to their future in the pig production industry. IPC compliance costs can be broken down into:

- The cost of application
- The costs of upgrading facilities to comply with requirements of the licence
- Ongoing operating costs.

The basic up front cost of applying for an IPC licence is the initial IR£7,500 (STR£6,273) licence fee. While not a requirement of the licence, in practice, many producers have also retained environmental consultants to prepare all or part of their licence application. The cost, quality and role of these consultants vary widely, so it is not possible to put a firm figure on cost. Much of what they are retained to do in many cases relates to Environmental Impact Studies (EIS) for which estimates are available.

A widespread misapprehension in the pig production sector is that the EPA requires the completion of an Environmental Impact Study (EIS) as part of the IPC process. This is not the case. The EPA cannot require that a producer conduct an EIS as part of the IPC licensing process but the local authority to which the producer must apply for planning permission for the same facility (if it is a new as opposed to existing facility) may impose such a requirement.

Where a local authority requires an EIS as a condition of the planning permission for a new facility or where a producer on an existing facility chooses to support his application with an EIS, the EPA will evaluate the EIS as part of the wider submission for licensing. Local authorities can also have the successful receipt of an IPC licence as a condition of the planning permission. Where an EIS is called for or where one is produced to support an application the cost can be from IR£35,000 (STR£29,275) upwards.

The second level of costs are the costs of upgrading facilities to comply with requirements of the licence. Conditions of compliance found in licences vary considerably in accordance with the varying levels of environmental controls already in place on facilities. Given this, the costs of compliance will reflect the size of unit, the level of existing facilities (particularly manure and wastewater storage capacity) and the availability of suitable spread-lands.

In many cases, it is the compliance costs and conditions that attach to the licence that form the largest proportion of the costs associated with the IPC licensing process. As facilities on each farm vary so widely, it is not possible to estimate a representative 'compliance cost' but from the interviews we have conducted with producers the range has been seen to vary from IR£20,000 (STR£16,728) to over IR£500,000 (STR£418,210).

On-going costs associated with the retention of the licence are the third level of costs. These costs are taken to include the constant soil and water sampling and analysis which is required and the regular recording and reporting of data to the EPA. These costs have been estimated by Teagasc as amounting to just short of IR£10,000 (STR£8,364) a year for a 500 sow unit.

Teagasc has estimated the total environmental costs of compliance, together with cost of manure disposal at 3-4p per kg carcass. We would expect that with the increasing uptake of the Rural Environmental Protection Scheme (REPS) and with manure treatment as opposed to storage or spreading being a condition of some licences, that this cost will increase considerably.

While it is clear that these costs are significant, it must be recognised that the failure by a significant percentage of producers to register for IPC licensing makes the relative cost far higher for those who are compliant. In effect, non-compliance represents a subsidy to the non-compliant producers of an equal amount to the costs associated with licensing.

In the interests of those producers who have already complied with the regulation and the wider social interest in the quality of the environment it is incumbent upon all parties including the IFA, the EPA, and the Department of Agriculture to do everything within their powers to ensure the full compliance with IPC regime.

Impact of IPC

Of equal and perhaps greater concern in the long run than the immediate costs associated with IPC licensing, are the structural effects that the IPC licensing regime will have on the pig production sector in RoI.

Responses of pig producers to the costs of compliance will vary widely according to individual circumstances. Below, we have detailed what we believe to be some of the likely effects of the effects of the IPC regime.

Our chief concern in examining the IPC, is to attempt to assess the impact that it is and will have on the level of pig production in RoI over the medium to long term. This will be especially important if the regime leads to a shift in production geography or limits the ability of the pig production sector to follow the pig cycle. In attempting to do this, we have chosen to look at the problems the regime presents to producer and then to explore some of their possible responses.

Availability of suitable spreadlands

The primary problem that producers are encountering is that of the availability of spreadlands for their slurry. Unlike other animals whose slurry contains a high dry matter

percentage, pig slurry contains a low dry matter percentage and the IPC regime place strict controls on the storage and timing and location of slurry spreading.

Location of units
The producer must ensure that the facility is close to suitable spreadlands with a given soil type and nutrient status. The surface and groundwater resources in the vicinity of the facility and the spreadlands must not be classified as being high risk. The load minimisation conditions of the IPC regime further require that the mineral content of the feedstuffs be further reduced by the careful control of feed content and feeding mechanisms. Pig slurry must be contained in storage facilities built to precise specifications and there must be sufficient slurry and waste water storage for six months.

Restrictions on manure spreading
A key aspect of the controls on manure spreading is the provision prohibiting spreading on land, which contains more than 15ppm of phosphorous. The ban on bonemeal in feedstuffs has removed the calcium phosphate content from feedstuffs thereby reducing overall phosphate levels in pig slurry by up to 33%. Even so, there are significant pig producing areas which are already above the maximum phosphorous levels and which as a result, can receive no further slurry. If, as is speculated by some groups, the allowable level of phosphorous is reduced to 10ppm there will be exponentially greater demand for spreadlands especially given the borderline levels of phosphorous already found on much of the spreadlands in some areas.

Further controls on the spreading of slurry prohibit the spreading of slurry on land that is waterlogged, frozen, that has been pipe or mole drained or where there are soils of a particular type or where there is surface gradient of over 20%. In addition, the IPC regime sets up buffer zones around various buildings, dwellings, roads and waterways within which spreading cannot take place and specifies a wide range of times when spreading may not take place.

The important issue to highlight here is that suitable spreadlands are becoming increasingly difficult to come by in certain parts of Ireland. This situation has been made worse by the growing participation in these same areas of farmers in the REPS scheme. The REPS scheme limits the use of the land by the landowner and prohibits the landowner from accepting slurry onto the land. 45,000 farmers are participating in the current REPS scheme and if approval is forthcoming from the EU, a similar number will participate in the newly proposed scheme that will form part of the Rural Development Plan 2000-2006.

In the areas where there is most pressure on the availability of spreadlands, the largest pig producers have begun to buy up the available spreadlands to ensure that they have the required capacity. Even though the EPA don't require that the pig producer either own or lease the land that they spread on, unlike in other countries such as Denmark, the inevitable effect of this is further pressure on those not able to buy spreadlands.

Recently, the EPA have issued a number of licences which impose a requirement on the producer to at least partially treat slurry before its application to spreadlands. Such solutions tend to be very costly and the proliferation of such conditions on licences will

lead to a spiralling in slurry disposal costs. Inevitably, it must be accepted that the trends outlined above will mean that for many existing pig producers there will be increasing difficulty in obtaining suitable spreadlands for pig slurry and that the costs associated with either transporting slurry or purchasing spreadlands for the slurry will increase.

Likely reactions to the challenges posed by the IPC regime

The IPC regime has and will continue to generate considerable extra costs for pig producers, especially those who have older or more rundown physical infrastructure.

It is likely that some producers will choose to exit the production sector. Those production facilities that have the most deficient physical infrastructure and where there is an ageing producer with no direct line of succession are likely to go first. Given the size of most farms covered by the IPC, it must be recognised that there are significant structural bars to exiting the industry, such as levels of investment and debt. Thus we feel that the most important impact of the IPC regime is not going to be the level of production exiting that it generates.

Rather than exiting the industry, we feel that many producers covered by the IPC regime will choose to reduce sow numbers. For some, the reduction will be marginal brought about to bring them below the threshold set out in the IPC regulations. The importance of this trend is that it will serve as an invisible barrier to the expansion of many facilities and may serve to hinder the development of the industry in the future. This is made more probable given the different thresholds (1,000 units) applicable to new as against existing (4,000 units) producers in the IPC regime. The lower cut-off point for new/expanded facilities as opposed to existing facilities is likely to act as a disincentive to younger producers entering pig production in the first place.

Even amongst producers who will remain above the IPC threshold, there may be in some cases, a strong case for a reduction in sow numbers. This case will exist where there are problems with the availability of manure storage capacity and or the availability of spreadlands. While it is possible to build more storage capacity at a cost, the spreadland issue is currently much more difficult to address and as a consequence we are increasingly likely to see producers carefully matching production capacity to spreadland availability. In the current environment with suitable spreadlands being at a significant premium in traditional production areas, this will obviously require a reduction in the numbers of sows.

The IPC regime is also likely to have an impact on the ability of production capacity to react to opportunities presented by the pig cycle. If some production capacity is likely to exit the sector, the traditional reaction would have been for large-scale producers to further increase production to capture the market share. Expansion of this nature is going to face considerably increased barriers in the future. Quite apart from the cost of such expansions, which have always been high, the difficulty for producers in the future will be in getting IPC approval for the expansion.

The application procedure for IPC approval is quite detailed and time consuming and at the end of the process the licence specifies a maximum number of pig units that are allowed on the licensed facility. Inevitably, producers are not going to apply for a licence

for any more pigs than they already have as to do so would require them to install spare storage and spreadage capacity. Thus, where a producer decides he would like to apply for an increase in numbers on his facility, the old licence will need to be renewed. In addition to the time that this will take, the new increased numbers will have to be closely matched to slurry storage and slurry spread capacity. For these reasons, the traditional route to growing the sow herd has had a number of obstacles put in its way.

The IPC regime will have a specific effect on the ability of pig producers to move with the pig cycle, which will be examined in some detail later on in the report. Whereas in the past, a producer could easily move with the price to increase production in periods of high price, the same is not true anymore. There will increasingly be a time lag between the time a producer would like to increase his production and when the IPC process will facilitate such an increase. This could increase considerably the potential for the producer to be out of sync with the pig cycle.

A producer reacting to a sustained increase in price and wishes to increase production will have to secure additional slurry storage and slurry spreadage capacity to do so. In the length of time it takes to secure spreadlands, additional manure storage capacity and the IPC approval the pig cycle may be well on the way to peaking. The significance of this is that it exposes the producer to a greater downside risk of making a loss than had previously been the case.

Key messages:

- Environmental compliance will make it more difficult for existing producers to expand production.
- Given the scale of production in ROI the IPC threshold impacts over 60% of sows.
- The additional costs of applying, complying and on-going compliance may result in producers exiting or reducing production scale.
- Traditional pig cycle driven expansion to be curtailed by the lead-time involved in getting licences.
- Increased scope for producers to be out of sync with the pig cycle.
- Different standards for new and existing producers mean new entrants will be disadvantaged.

Secondary sources of environmental regulation

While the EPA is responsible for the regulation of intensive agricultural activities which have the potential to impact on the environment, under the terms of the Water Pollution Acts 1977 and 1990 the primary responsibility for the management and protection of water vests in the local authorities.

Under the terms of the Water Pollution Acts, the local authorities have considerable powers to regulate activities that have the potential to impact on water quality. While these regulations expressly exclude the larger farms that are subject to IPC, their remit does however cover the farms to which these larger farms supply their slurry. Also, all smaller pig producers are covered by their remit.

Local authorities have a number of options open to them when it comes to dealing with pollution emanating from pig production. Under the terms of the Water Pollution Acts a local authority can issue a Section 12 notice detailing measures to be taken to prevent water pollution. It can enact byelaws to regulate, limit or prohibit certain agricultural activities (including pig farming of any size) so as to prevent/mitigate water pollution. Section 12 notices are used where there is a direct source for a specific environmental problem. Where there is more widespread pollution in a given area, the imposition of byelaws is the approach adopted. Generally, prior to the introduction of byelaws, environmental consultants on behalf of the local authority will undertake a study, assessing the need for and most appropriate form of the byelaw. Under the terms of the Waste Management Act 1996, local authorities can also require farmers to prepare and comply with a Nutrient Management Plan where the authority considers it necessary to prevent, eliminate or minimise nutrient losses to water.

In 1998, the most recent year for which there are figures, local authorities served over 1,300 section 12 notices of which over 1,200 related to the agricultural sector. Equally, local authorities in two areas including Cavan, have already passed byelaws restricting spreading and a number of others are looking actively at the possibility of similar actions.

As new sources and manifestations of pollution emerge, the Water Pollution Acts are being modified so as to address them. Currently, the Department of Environment is planning to address concerns over nitrate pollution that was raised in the 1998 survey of water quality. After a negative review in 1992, the survey of water quality in 1998 established the existence of a number of areas, referred to as Nitrate Designated Zones, where nitrate pollution had become a problem. Pig producers operating in these areas, even if they fall below the thresholds required for IPC licensing, will be subject to these provisions and pig producers generally are likely to be increasingly subject to a range of other conditions on production.

Northern Ireland

Traditionally, pig production in NI has been smaller scale than in RoI. As such, there is considerably less intensive pig production and as a result there have been fewer of the environmental problems associated with intensive pig production of the type that have been experienced in RoI and elsewhere. A consequence of this is that there has not been the same need for environmental controls in NI and environmental issues are not strongly featured in the planning process. Currently, the main environmental controls that there are in NI relate to the disposal of carcasses on farms and elsewhere.

While there may currently be little regulation of the environmental impact of pig production, this is set to change in 2006. In 2006, NI will have to begin implementing the EU's Integrated Pollution Prevention and Control (IPPC) regulations. The current structure of the pig production in NI would suggest that very few producers would be subject to the IPPC because of the levels at which the thresholds have been set.

If the current trend towards concentration of the pig industry in the NI continues, it may well be the case that a number of the larger and more efficient producers in NI will in 2006 find themselves subject to the terms of the IPPC regime. A concern would be that producers in NI might limit growth below the IPPC thresholds. This would constrain the

concentration of the pig herd and keep the average size of pig farm relatively low. For those producers who do find themselves in the position of having to comply with the IPPC regime, very considerable extra costs may be anticipated.

Key messages:

- Currently little environmental control or costs apply to production in NI.
- Main control is on the disposal of animals
- IPPC regulations will impact in 2006 but at current levels very few producers will be effected.
- There will be very considerable costs for those covered by IPPC regime.

The future

In October 1996, the EU's Integrated Pollution Prevention and Control (IPPC) Directive came into force. EU member countries were given some leeway in enacting the directive into national law. So while the directive is due shortly to be implemented into law in RoI in the form of changes to the EPA IPC regime, the same directive will only come into force in NI in 2006.

Currently an expert group at the European IPPC Bureau in Seville is preparing a guidance note for the IPPC Directive based like the existing IPC regime on the idea of Best Available Technology (BAT). These guidance notes, to be known as BREF notes will be provided to each member state which will then be required to prepare their own guidance note, outlining what will be considered best available technology in their country. A technical working group has already been set up by the EPA to advise in the preparation of the contents of the new guidance note for RoI.

One of the features of the IPPC regime that differs from the IPC regime, is that of the thresholds. Reflecting the differing structure of pig production on mainland Europe where there is less integration of breeding and finishing, the IPPC directive sets out different thresholds to the IPC regime. Under the IPC regime as outlined above is 4,000 units (400 sows) for an existing unit and 1,000 units (100 sows) for a new unit. By contrast, the draft threshold for the IPPC is 750 sows or 2,000 finishers. This may bring some production units in RoI into the net for the first time, but in reality there will be few producers in RoI who will be covered by this and who were not already covered by the IPC regime.

A secondary feature of the IPPC Directive, is its focus on the prevention of trans-boundary pollution sources. Currently, the IPC regime does not cover the release of ammonia into the environment from intensive agricultural but control of ammonia emissions is one of the central elements of the IPPC regime. The introduction of curbs on ammonia emissions are likely to add to the producer cost base as limits on the release of ammonia from pig housing, slurry storage and from spreading on land must be addressed for the first time.

2.5 Non-Environmental issues

This section builds on the findings from the survey and interviews conducted with pig farmers in NI and RoI. The issues outlined below are well know to producers however it is beneficial that all parties in the industry share a common understanding of the threats that face pig production.

It is worth noting that in many cases and this is especially true in NI, the most important hurdles facing pig producers are out of their control and not of their making.

Ambition and confidence

The level of ambition within the industry is the key determinant of whether or not there is going to be commercial pig production in RoI and NI in the future. The level of ambition can be seen as being a complex function of pig prices, growth prospects, the ageing demographics of the sector, the availability of capital, cost of capital, availability of labour, uncertainty and a myriad of personal factors.

Pig farming requires an on-going commitment to investment just to stay in the business and a proportionally greater commitment to grow and to develop production capacity. Every time that a farmer weighs up the pros and cons of investing still further in the pig production capacity, their level of ambition and confidence plays a deciding role.

Conscious that there are no metrics to show just what level their ambition and confidence has reached we asked all interviewees and all survey participants about their levels of ambition to stay within pig production. From our interviews and our survey it is clear that while many producers would like to and indeed need to invest in their businesses they recognise that at this time investment in pig production capacity is inherently risky.

Scale

Producers in NI worry that relative to RoI and all the other major producer countries they lack the scale to be efficient. This is a well-founded concern.

It is positive to see the increase in average finishing herd size in NI last year. With the average sow herd size in NI less than a sixth of the average herd size in RoI there is still a considerable distance for NI pig producers to travel to gain anything like the scale in RoI or Denmark. While pig production in RoI is concentrated in the hands of large scale producers to an extent not found in other key EU competitors, this large scale production has enabled RoI to develop production efficiencies thereby addressing some of the feed cost disadvantage.

Producers in NI must also be aware that moving to a more intensive scale of production brings with not just financial strains not felt on smaller farms but also other problems such as concerns over the environment. Unlike in RoI, where the industry has been rationalised by increased concentration there has been very little concentration or moves to scale in NI.

Currently the availability of skilled labour is not a great issue in NI but this is mainly because farms in NI tend to be run by families with little external labour input. Where units have moved beyond the family unit sized farm there is already been problems sourcing staff and unlike in RoI, Eastern Europeans do not appear to have been targeted to work on the farms.

In RoI, much of the social dislocation that was associated with the move to larger farms and more intensive practices has taken place although the process has not yet fully run its course. If a viable commercial pig production sector is to emerge in NI then very significant and painful changes will need to happen/be made happen in the structure of pig production.

With very few new students specialising in pigs in agricultural courses in NI (or for that matter in RoI), labour shortages are increasingly going to be a severe constraint on those ambitious enough to want to move beyond family farm sized units.

Another issue, which needs to be considered when promoting the move to scale in NI, are the IPPC regulations that will come into effect in NI in 2006. Only relatively large farms are covered by the regulation. It will only be the best and most efficient farms that have made the move to scale that will face the considerable costs associated with IPPC licensing.

Price

As far as producers in NI and the RoI are concerned, the most important measure of the on-going well being of the industry is the level of prices paid for finishers. In RoI, producer prices in 1999 were lower than they were in 1981. In NI, the reference price at the end of July 2000 (STR85p/kg) was lower than it was in July 1981(STR91p/kg). These are prices in actual not real terms so prices have not been discounted to take account of inflation! On the basis of p/kg/dwt the industry in both the RoI and NI have become significantly less profitable over the last number of years

Following on from the last dip in the pig cycle, producer prices remained consistently low in 1999 as they had done in 1998. Since the beginning of 2000 the long awaited recovery has in part materialised in both NI and the RoI but not at the levels that were expected.

Table 22: Average price

Year	NI: STR p/kg dwt	ROI: IR p/kg dwt
1996	131	128
1997	103	111
1998	71	90
1999	69	81

Source DARDNI

Six months ago producers were looking forward to sustained period of increasing prices. Many producers now say they are less optimistic about the industry than they were six months ago after six months of profoundly disappointing price increases.

The issue of the pig price cycle is examined in some considerable detail later in the report. What is clear however, is that the distance between the peaks and the troughs in the pig cycle is narrowing and that the producer sector need to accept that in both RoI and NI, there will increasingly be a higher risk of making a loss relative to the 1980's.

Key messages:

- In 1981 the average price (pence per kilo dead weight) in Northern Ireland was 89.98p.
- In 1999 the average price (pence per kilo dead weight) in Northern Ireland was 70.75p.
- This is a net fall of 21% in absolute (not real terms) over 18 years.
- In 1996 finished pigs rose to a high of over 140 pence per kilo dead weight.
- In 1998 finished pigs fell to low of just over 50 pence per kilo dead weight.

Price differential

While RoI and NI producers accept that during this period there was slump in the price of pig meat on international markets, they are strongly of the opinion that the structure of the processing and retailing trade meant that they suffered more than other countries.

In addition to problems with the price that they are being paid, producers have an issue with the relativity of prices. That is they feel that the current price differential between GB/EU average and the prices available in NI and RoI is unwarranted and merely goes to show that there is in fact a cartel in operation in processing. This they feel is evidenced by the degree of consistency in the prices offered by the processors and the speed with which they move to match each other.

Part of the differential can be explained by the transport costs required for delivery to export markets and by the additional deductions in force in GB and possible differences in quality and consistency. The rest of the differential farmers argue is excess profit shared out between the processor and the retailer.

However it is important that producers recognise that it is not the GB or EU price that is relevant to Ireland. As a major exporting country it is the price paid to producers in Denmark and Holland that matter. If Irish processors pay a higher price for pigs than the Danish or Dutch processors, it puts them at an immediate cost disadvantage.

Looking at the prices paid in these markets over the last number of years illustrates the fact that as net exporters of product, prices paid in RoI and NI are very much in line with those paid in Denmark and are above those paid in the Netherlands.

Table 23 shows the levels of prices in RoI, Denmark and Holland over the last number of years. These figures come from Eurostat and as such there are no separate figures for NI.

Table 23: Historical prices in main EU exporting countries ECU/100kg dw

Year	Netherlands	Denmark	RoI	EU Average
1996	151.79	150.41	152.22	N/a
1997	154.89	154.36	146.31	N/a
1998	100.16	108.84	113.75	119.43
1999	93.84	104.15	103.72	112.67
2000 YTD	117.38	121.99	122.08	131.70

Source: Eurostat

Strength of sterling: NI

While the strength of sterling can not be blamed for the lack of parity between the prices available in NI and prices available in the GB, the movements of sterling are seen as potentially the biggest problems facing the pig production industry.

Totally outside the control of pig producers, the various movements in the value of sterling over the last number of years, invariably upwards, have effected pig production in NI badly.

In the first instance, recent movements make the exporting of pigs to NI from RoI very attractive. This has the effect of keeping pig supply for processors up in NI thereby keeping pig prices down.

In the GB NI pork is treated like an import and is compared to product from Denmark, Holland and RoI. The strength of sterling puts NI pork in the GB at a massive cost disadvantage. However, while every NI producer we have talked to as part of the study has pointed to this issue as being the single biggest problem with the NI industry, there remains very little that can be done about it.

BSE follow on

The BSE crisis did not just have an impact on the beef industry in RoI and NI. It had a similar, though lesser effect on the pig industry. After the 1996 crisis, the decision was taken by Ministry for Agriculture Fisheries and Food (MAFF) to reduce the risk of cross-contamination by prohibiting the use of mammalian meat and bone meal in the feed of all farm animals. In RoI a decision was taken to adopt the same approach with regards to the meat and bonemeal ban. The ban that was imposed an EU level only banned the use of meat and bonemeal in feed for ruminants (cattle and sheep) and not pigs.

The ban added three main costs. The first cost is that associated with sourcing alternative sources of protein for the pig feed, the second cost is that associated with the increased disposal costs of offal and the third cost is the cost associated with loss of valorisation of the fifth quarter. Taken together, Greenmount College has estimated that there is a IR£4.25 (STR£3.55)/pig cost associated with the BSE fallout

Of particular concern to pig producers in NI is the fact that producers in other European countries can still use bonemeal in feed. This means that while producers in some European countries can keep pigs in UK approved housing feeding them bone meal along the way and can then sell the resultant pork into GB, NI producers are prohibited from doing this.

Welfare friendly

In 1995, the UK government introduced a new regulation (The Welfare of Livestock Regulations), which instigated a complete ban on the use of stalls and tethers in the production of pigs. This regulation came into force at the beginning of 1998. Up to this point, the use of stall and tethers was the accepted practice on most farms in both NI and RoI. While no similar legislation banning stalls and tethers exists in other countries, by 2006, new European legislation will come into force, which will limit the use of tethers.

There is considerable resentment across all producers at the imposition of the UK Welfare Regulations. This is especially marked in NI but is also true of producers in RoI many of whom are coming under pressure to supply welfare product.

In NI, there is a strong feeling that the move by the UK alone to welfare friendly housing has imposed huge pressures and additional costs on them and that it leaves them at a competitive disadvantage relative to other producers. Equally, producers resent the fact that the regulation was imposed from the top at the behest of retailing interests and was imposed in a manner that failed to provide any premium or government support to recoup costs.

In RoI by comparison, where there are no such regulations yet, those few producers who have adopted the welfare friendly housing regulations have largely done so on green-field sites which are expertly designed from the ground up to ensure the maximum possible efficiency. The situation is complicated by the fact that while many of these NI farmers recognise the importance of upgrading their facilities from an efficiency point of view there is very little capital available to NI farmers at the moment to make the necessary changes.

Whatever about the current reach of the UK regulations into Ireland, by 2006 the more limited EU regulations, which require production units to be tether free will have come into place. The 1997 Pig Advisory Service estimated that 59% of dry sows in RoI were still being housed in tethers. By 2006, Teagasc have estimated that this may have fallen to 50%. Based on these figures, there will be a need over the next 5 years for further significant capital investment in converting to either stall systems or loose housing systems.

Cost of converting to stall accommodation

Teagasc has estimated the costs associated with converting from tethered accommodation to stall accommodation and to loose housing for RoI. The costs for building green field welfare friendly accommodation will obviously differ to those outlined below but the loss in spaces relative to the number of non-welfare spaces that could have fitted into the facility will be approximately the same.

Table 24: Animal Welfare housing costs

Type of housing	Cost/sow	Loss of space
Stalls (EU regulations)	£120+	25% of spaces
Loose (UK regulations)	£100+	50% of spaces

Source: Teagasc

A consistent theme to the interviews with producers in NI, was the shock that was felt at the introduction of the regulations. Though alerted to the introduction of the regulations well in advance the producers did not think that the regulations would actually come into force and as a result, many were in fact unprepared for their introduction. On the application of the regulation, a large proportion of producers had then to convert their housing immediately to the welfare friendly housing and much of that was done in a way which paid little heed to the requirements of production efficiency.

In the short term, producers in NI are at a significant cost and efficiency disadvantage relative to producers in other countries and in RoI. Even in the longer term with the introduction of the EU regulation, NI producers will remain at a significant disadvantage relative to other producer countries. As the only part of the UK, which is a net exporter of pork, NI is suffering particularly from these regulations.

The effects of the UK welfare housing regulations have also been felt in production markets outside of the UK. However, those producers in other countries and in RoI who have adopted them, have chosen to do so and generally speaking, have been financially in a position to meet the costs and to maintain productivity.

Key messages:

- In NI housing is fully welfare friendly.
- The ad-hoc implementation in many cases has lead to productivity losses.
- There is relatively little UK welfare standard accommodation in RoI.
- What welfare friendly housing there is in RoI is largely greenfield with little if any productivity losses.
- By 2006, all production in RoI will have to be stall free.

Availability of capital

Unlike in RoI, there do not appear to be any general figures for the average level of indebtedness of NI farmers. With the interview and survey process we attempted to establish general levels of indebtedness in NI from which it is possible to paint a representative picture.

The availability of capital to pig producers is both a function of their personal indebtedness and of the accepted wisdom on the profitability of the industry in the future. Currently, the situation in RoI and NI are very different but in neither part of the country is capital easily available.

The study team discussed with the main banks in NI and RoI, their experiences with the pig industry over the last number of years and their general attitudes towards lending to members of the pig production sector.

In RoI, the attitude of the banks was that the producers who remain in the industry tend to be large-scale producers who manage their farms professionally and who as a consequence manage their finances quite well. There remain a number of producers within this category who are viewed as being in a position to finance capital expenditure from reserves or from borrowing. Those that are in a better condition to raise money are those that have larger units or those that have associations either with buying organisations or co-operative groups.

While it remains feasible in RoI to raise funding for capital expenditure the experience of the banks in RoI is that most producers have other priorities. Currently, producers in RoI are looking for funds from the banks for improvements to existing facilities as opposed to funds for new investments.

The experience of the main banks in RoI is that second to repairs and maintenance, the most important issue for producers at the moment is the restructuring and rescheduling of debt. By debt here, we mean both the debts to the banks and to the feed companies. Information from the IFA and from the banks shows that in many cases, debts to feed companies can match or exceed those debts to banks.

Part of the concern that banks have in RoI is securing their funds against assets, which have in the past have shown to have very little realisable value. In this context, the banks in RoI are increasingly looking to the IPC regime as part of the loan applications process. While not a de facto precondition of a loan, banks are now paying increasing attention in the loan procedure to the whether or not a producer has an IPC licence or whether they are in the process of getting one. From a bank viewpoint, the residual value that there is in an IPC approved facility is far greater than that in a non-approved facility.

While not all producers in RoI would be in a position to access new funds, the banks, looking at each case on its merits, are still generally speaking willing to lend to pig producers in RoI. The same cannot be said of the banks in NI.

The situation in NI is totally different, as both the banks and the producers are less optimistic about either borrowing for pig production or lending to pig producers. While the willingness to lend in NI is, as in RoI, a function of personal indebtedness and profile, generally speaking, banks in NI would be very reluctant to consider exposing themselves to new pig producer debt at this time.

This loss in confidence in lending to the production sector mirrors the loss in value of the pigmeat sector in NI over the last three. By combining the aggregate effects of a number of factors (number of pigs marketed, average weight of pigs marketed and average price of pigs marketed) we can see that the value of the market for pigs in NI dropped by 53% from 1996-1999 from STR£123.6m to STR£58.1m.

The perception amongst banks at the moment is that to lend to pig producers is not prudent – "throwing good money after bad". Many of the larger producers to whom they have lent heavily in the past are now the producers worst effected by the low prices. The position of bankers now is that for there to be any new investment finance a producer would have to establish a clear 'path to profitability' and would have to clearly demonstrate an ability to service the debt.

Given the continuing low prices in NI, proving to the satisfaction of the banks, the ability to service the debt will be very difficult for a producer. Most of the banks feel that they have too much exposure to the sector and that reducing this exposure is the priority. As a consequence, those producers who have the ambition and possibly the know-how to stay in the business and operate at a profit are not being facilitated to do so.

If there is to be a pig 'industry' in NI in a decade from now the priority now must be to assist the viable producers manage their debt and source fresh funding for both repairs and development. As part of any out-goers scheme being considered thought should also be given to how assistance could be provided to those producers who are willing to stay in the industry and make the investment to achieve scale.

Relationship with processors

A very high level of distrust exists between the producers and the processors. Many producers speculate that there is a considerable degree of collusion, bordering on a cartel, in operation between processors which keeps the spot price consistent across all processors and which keeps the average price down.

Separate to the price issue, relationships between farmers and processors have further suffered from a strongly held producer opinion that the pig classification system is open to abuse. In addition to the base reference price issue producers also take exception to the degree of variance within the classification of pigs.

The consequence of these views, whether true or not, is that most interactions between producer and processor are confrontational and are focussed on the issue of price as opposed to more mutually beneficial issues such as quality and consistency.

More harmonious relationships between producer and processor are a necessary precondition of the type of co-operation that will be called for to realise change within the industry.

2.6 The pig cycle analysed

Background

Commodity price fluctuations within agriculture are common. The price inelastic nature of demand for agricultural products means that variations in production from year to year can lead to wide variations in price.

In the pig sector, cyclical movements in production and prices are more profound than many other agricultural enterprises, which in the EU are more sheltered to a degree by policy, support mechanisms such as intervention.

Cyclical movements within the pig industry have been endemic for decades and fluctuations of 30 percent or more from peak to trough are not uncommon. This pattern of cyclical fluctuations in pig production and prices is usually referred to as the 'pig cycle.'

Objectives

This section of the report presents a close examination of the pig cycle. This examination has four main objectives:

1. To explain in general terms the economic reasoning for the pig cycle and its consequences for producer decisions.
2. To describe production and price trends within the pig sector.
3. To quantify some of the farm level implications of price instability in the pig sector.
4. To examine possible industry and government responses to help reduce the adverse effects of pig cycle.

Why the pig cycle persists?

The economic logic for the pig cycle is attributable to the failure of pig supply to stabilise at the market equilibrium point.

To illustrate, consider a scenario where an economic shock results in a period of weak pig prices. In this scenario, the low prices will induce farmers to reduce pig production. Because demand for pigs is price inelastic, the reduction in pig output results in a sharp rise in price. This rise in pig prices will then induce farmers to again produce more pigs. When this large crop of pigs reaches the market, the price of pigs will be depressed again. This then leads farmers to produce fewer pigs, prices start to rise and as the price and production level continues to swing round and round the market equilibrium point the cycle precipitates itself.

In economic terms, the uncertainty created by the pig cycle causes inefficiency and resource wastage. Producers respond to the ensuing price fluctuations and a seemingly irrational picture emerges of an industry engaged in a recurring pattern of expansion and contraction.

To understand the causes of this situation, it is necessary to examine some of the factors that influence the chain of events that take place during the pig cycle. These features, discussed below, arise from the atomistic nature of the industry at farm level; the problem of 'asset fixity'; time lags in the response of farmers to a change in price; and random disturbances affecting either supply or demand that set off the cycle.

Key messages:

- The pig cycle is a result of the failure of supply to stabilise at the market equilibrium point.
- The pig cycle cause inefficiency and resource wastage
- The pig cycle causes recurring pattern of expansion and contraction

Atomistic industry

Persistence of the pig cycle is aided the fact that the relatively large number of geographically dispersed producers individually take decisions with no co-ordination with the decisions that others are taking simultaneously. When an individual farmer decides to expand his/her production, he does so independently and perhaps unaware that others are deciding to do likewise. While an individual farmer does not have any influence over market prices, when large numbers of farmers change their production plans market prices will be affected.

Key messages:

- No co-ordination of decision making between producers
- Individual farmer have no influence on market prices but large numbers of individual farmers making the same decision will influence market prices

Asset fixity

Asset fixity is a term used to describe the problem of specialised capital assets that once acquired or installed on farms (e.g. specialist buildings, equipment) have limited alternative use and therefore, low resale/scrap value. This problem is very relevant to the pig sector and helps to explain the behaviour of some farmers at the low end of the cycle. Pig farmers have tended to respond to rising prices with ready investment in specialist pig housing. When prices fall as a result of the extra output from farmers as a whole coming onto the market, farmers are often reluctant to cut production. The scrap value for the new housing is extremely low and any margin above variable costs goes towards reducing the size of the loss by covering part of the fixed costs. This response to the problem of asset fixity on pig farms tends to exacerbate the weak price situation at the low point of the pig cycle.

Key messages:

- Limited scrap value for specialised capital assets needed for pig production
- Producers react to good prices with investment in capital assets
- Producers reluctant to react to lower prices with lower production

Time lag
The length of the cycle depends on the time required for a change in price to affect production. Due to the time lag between farmers' decisions to expand their sow numbers and the additional pigs reaching market, the cycle tends to average about four years in length. The time required to produce a finished pig, from breeding to slaughter is approximately 12 months but as well as this physiological constraint on production response, the psychology of the farmer also plays a role. Farmers do not respond immediately to a change in price.

Initially, he/she may feel the change in is only temporary and therefore, is unlikely to breed more sows. It is usually only after the pig price has remained high for a year or so that farmers pay enough attention to it to breed more sows, and a further time period must elapse before the pigs from this increase in sow numbers reach the market.

Moreover, where additional housing is required, there is an obvious time lag in terms of the physical construction of the new buildings. Additional supplies of pigs on the market soon depress prices, so it is usually those who respond quickest that make a good return on their extra production before prices start to fall.

Key messages:
- Length of the cycle depends on the time required for a change in price to affect production
- Tends to average about four years in length
- This due to time lag between farmers' decisions to expand their sow numbers and the additional pigs reaching market

Random disturbances affecting supply or demand
What initiates the cycle each time? Typically, some random disturbance or economic shock that affects either supply or demand sets off the cycle. The disturbances prevent the market from converging to a stable equilibrium. Because of the globalisation of trade and the interdependencies of international markets for agricultural commodities, market disturbances need not be due to purely domestic factors.

For instance, US pig production levels affect European pig meat prices. The USA is a large exporter of pig meat and its pig production fluctuates with maize prices. A good maize growing year due to favourable weather can reduce feed prices and pig production rises. Such production changes in one of the major pig producing countries such as the USA or the EU can have global repercussions for pig prices.

The most recent low point in the pig cycle during 1998/99 was instigated by the economic crises in Asia and Russia, two major importers of pig meat. The resulting excess supply following this shift in demand and buoyant growth in production produced one of the worst pig price slumps on record. This was a global problem although export dependent countries such as Ireland were particularly badly affected.

Of course there are many other disturbances which can initiate the cycle acting either individually or in combination with other factors. These include disease outbreak in a major production region, movements in international exchange rates, domestic processing problems (e.g. the fire at the Lovell and Christmas plant during 1998), food safety scares (e.g. the BSE scare in cattle resulted in additional consumption of pig meat and rising prices in 1996/97), etc.

Key messages:

- A random disturbance which prevents the market from converging to a stable equilibrium usually sets of the shock
- Last cycle kicked off by the economic crises in Asia and Russia

Resource inefficiency

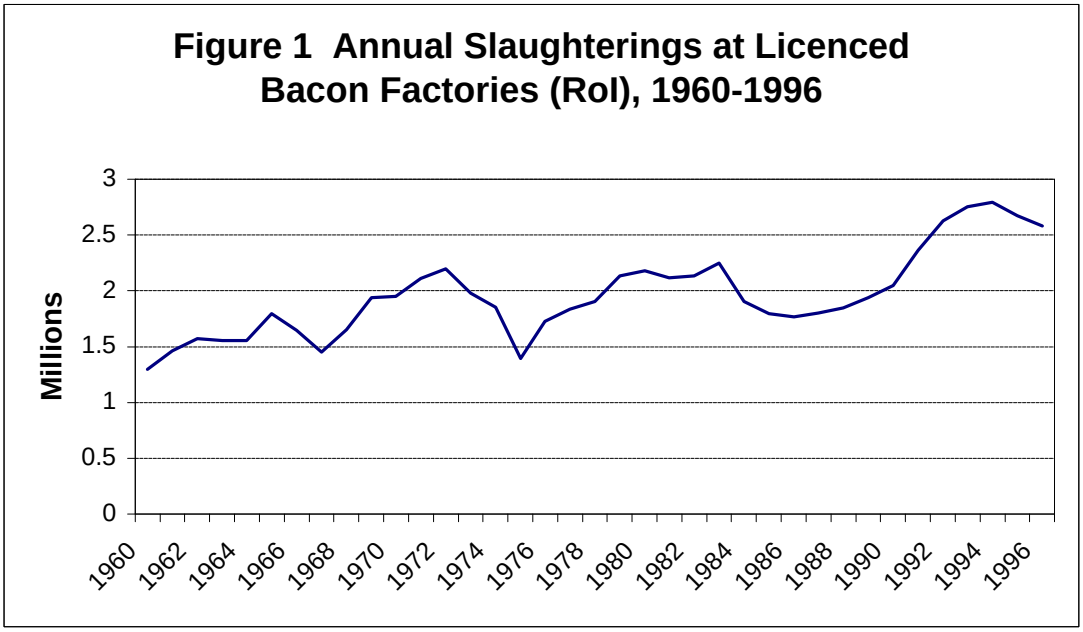
Price instability arising from the pig cycle causes considerable uncertainty for both producers and processors. In the case of the producer, business planning is extremely tenuous as expected margins over the medium term typically lie within a very wide range, from substantial loss making to significant profit. The nature of pig production as a capital-intensive enterprise means that large investment decisions are often required (e.g. new housing, pollution control, etc).

Price instability results in such decisions involving a high degree of risk and this is illustrated at present by the acute debt burden experienced by many producers as the industry recovers from the most recent trough in the cycle during 1998/99.

For the processor, as well as price instability, there can also be a problem of cyclical supply fluctuations (see Figure 1). This occurs as pig production expands following peaks in the price cycle and then contracts as prices start to fall again. The problem is exacerbated for processors in border areas of RoI and in NI due to exchange rate fluctuations. This can mean additional variation in pig prices between both jurisdictions of the island and shifts in the supply of pigs either North or South across the border due to exchange rate differences.

Key messages:

- Pig cycle means that business planning for producers over the medium term is very difficult
- This is because possible margins typically, lie within a very wide range, from substantial loss making to significant profit.
- This source of considerable risk and unease in a capital intensive industry



Pig cycle trends

Figure 2 illustrates the trend in the breeding herd in NI and RoI between 1970 and 1999. The pig cycle was particularly evident up to the late 1970s with numbers first increasing up to 1971, declining between 1971 and 1975 and then recovering again. After 1978, they remained relatively stable despite fluctuating profits. The reason for this is thought to be the change in concentration within pig production at farm level.

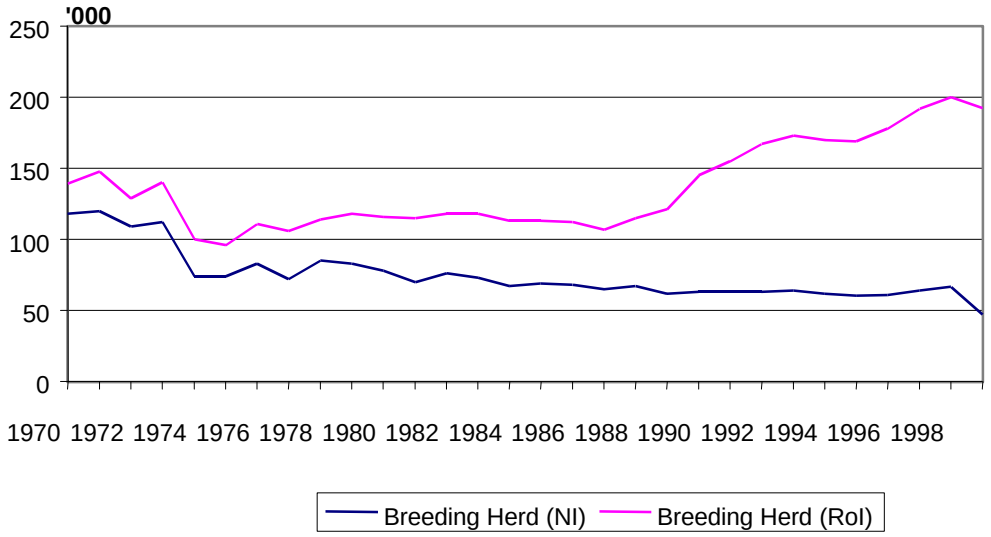
Pig production prior to this had typically been a small ancillary enterprise on mixed farms and these small-scale operators would swing in and out of pig production rapidly with the price cycle. The industry has moved to become highly specialised activity concentrated in the hands a smaller number of highly committed producers. This has meant that cyclical fluctuations in pig production are now less serious than a couple of decades ago.

The level of commitment of specialised producers in RoI is very evident from Figure 2 as sow numbers almost doubled between 1988 and 1999. In contrast, the trend within the NI pig showed a gradual decline in pig numbers the early 1980s. In both NI and RoI sow numbers declined sharply during 1999 - a reflection of the exceptional weakness of pig prices at that time. The reduction was particularly significant in NI where the sow herd fell by 24 per cent between 1998 and 1999.

Key messages:

- Change in concentration of production caused easing of pig cycle in late 70's
- Period of exceptional weakness in pig prices caused sharp decline in 1999

Figure 2 Breeding Sow Herd Size in Northern Ireland and the Republic of Ireland, 1970 - 1999



Source: CSO and DAFRD

In Figure 3, times series data are presented for monthly average live weight prices for pigs between 45 and 54 kg quoted at auction markets. As indicated in Figure 3, the level of price instability has been considerable since the early 1970s. In addition, the level of variation in average monthly prices appears to have worsened during the 1980s and 90s. However, the underlying trend in pig prices has been quite flat in nominal terms.

Current prices are close to levels received by farmers in the late 1970s. Consequently, pig prices have declined substantially in real terms. The real purchasing power attributable to the sale of a pig in 2000 has declined by approximately two-thirds since 1980 (Figure 3).

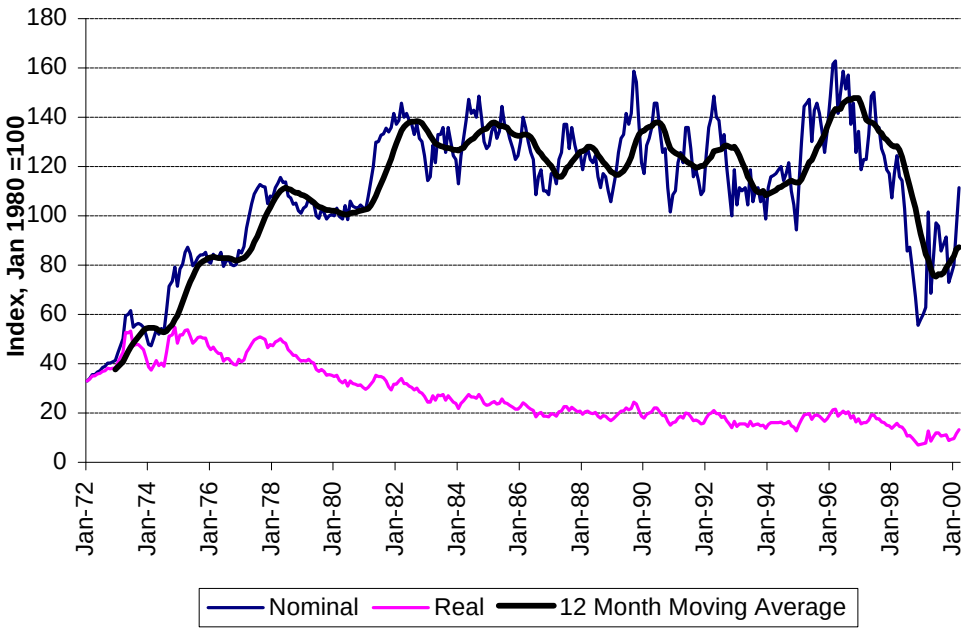
The cyclical trend is more clearly observed by examining the 12-month moving averages for nominal pig prices in Figure 3. The characteristic cycles have been remarkably consistent averaging about four years in length. The most recent low point in the cycle was 1999 when prices fell to their worst level on record. As discussed earlier, this period of weak prices reflected a global slump in pig prices.

Key messages:

- The level of price instability has been considerable since the early 1970s
- Level of variation in average monthly prices appears to have worsened during the 1980s and 90s.
- Current prices are close to levels received by farmers in the late 1970s

- The real purchasing power attributable to the sale of a pig in 2000 has declined by approximately two-thirds since 1980

Figure 3 Nominal and Real Indices for Monthly Prices of Live Pigs (45-54 Kg), Jan 1972 - March 2000



Source: CSO, Real Price series comprises the nominal indices deflated by Consumer Price Index (CPI)

In order to consider the effect of price instability on producer margins it is necessary to examine the trend in feed costs. Feed costs account for approximately 70 per cent of production costs in a pig enterprise. In Figure 4, data are presented for the period January 1980 to March 2000, indicating estimated monthly feed costs in pence per kg of pig meat produced and estimated average monthly pig price in pence per kg deadweight.

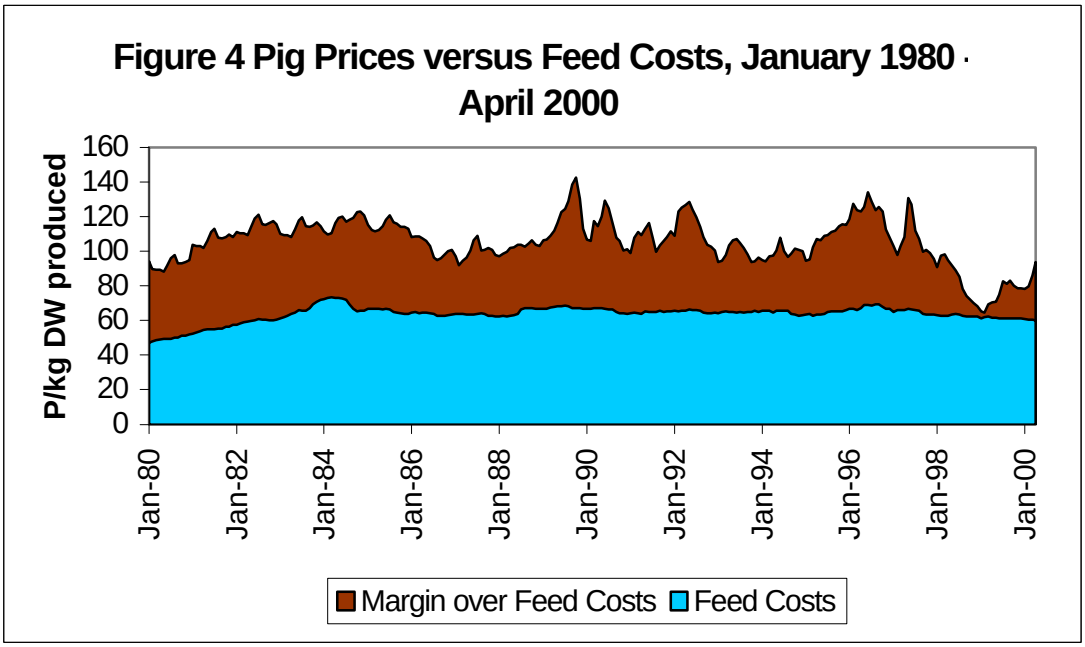
The data series have been estimated from CSO figures on feed prices and converted to a pence-per-kg-produced by applying average feed conversion figures obtained from Teagasc 'Production Cost Guidelines'. It is clear from the graph that feed costs have been relatively stable over the period averaging around 60 pence per kg of pig meat produced.

The cereal price reductions resulting from the MacSharry CAP reforms implemented after 1992 have failed to lead to significantly lower feed costs for pig producers. In addition, the fact that Ireland is a grain deficit area means that much of the country's pig feed has to be imported. Continued weakness of the Euro against the dollar is likely to lead to significant feed cost increases in 2000.

Widely fluctuating pig prices against stable feed costs means that producer margins vary considerably over time as indicated in Figure 4. In addition, because margins are normally quite tight small changes in either pig prices or feed costs have a disproportionate effect on producer returns.

Key messages:

- Feed costs account for approximately 70 per cent of production costs in a pig enterprise.
- Cereal price reductions resulting from the MacSharry reforms in 1992 have failed to lead to significantly lower feed costs for pig producers.
- Widely fluctuating pig prices against stable feed costs means that producer margins vary considerably over time



As well as examining trends in prices over time it is useful to examine the characteristics of the pig price distribution and how that has changed over time. Because of the volatility of pig prices, producers must formulate their production plans with reference to a probability distribution of future price. This will typically be based on the farmer's past experience of price movements and his/her informed judgement.

The next part of this analysis seeks to create the probability distribution for prices based on monthly price series data for the 1980s and 1990s. It is then possible to ascertain the mean expected price as well as the probabilities of especially low or high prices.

The level of skewness of that price distribution is an important consideration. A negatively skewed price distribution implies a higher than normal level of downside risk

associated with the industry and has clear implications for producer optimism and future investment within the sector.

The probability distributions for prices during the 1980s and 1990s estimated using risk analysis software are shown in Figures 5 and 6, respectively. A number of inferences can be drawn from the price distributions for the two decades.

Firstly, it is obvious that the price distributions were quite flat reflecting the high degree of price variability in both time periods. However, this price variability was considerably greater during the 1990s than in the 1980s. The coefficient of variation for prices during the 1990s was of 0.15 compared to a figure of 0.10 for the 80s, an increase of 50 per cent.

Moreover, there were important changes to both the mean expected price and the shape of the price distributions over the time period. The average price fell from approximately 108 p/kg during the 1980s to 103 p/kg during the 1990s. So combined with the increase in volatility the price distribution was shifting to the left.

Finally, it is interesting to note the change in skewness of the price distribution between the 1980s and 1990s. During the 1980s the price distribution tended to be positively skewed while it tended to be negatively skewed during the 1990s. Producers prefer a positively skewed price distribution where there is low variation (a short tail) to the left of the mean price and a high variation (a long tail) to the right of the mean.

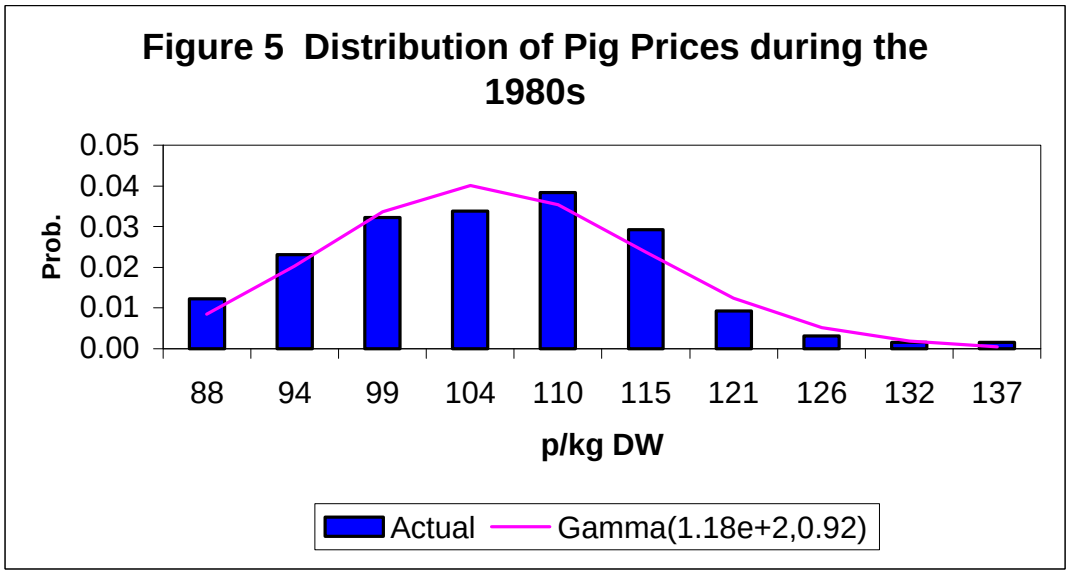
Given such a distribution the probability of upside risk exceeds that of downside price risk. This favourable situation existed during the 1980s (See Figure 5) and may partly explain the optimism within the sector during the late 80s that culminated in a major expansion in sow numbers in RoI after 1988. The situation reversed during the 1990s with the price distribution tending to be negatively skewed.

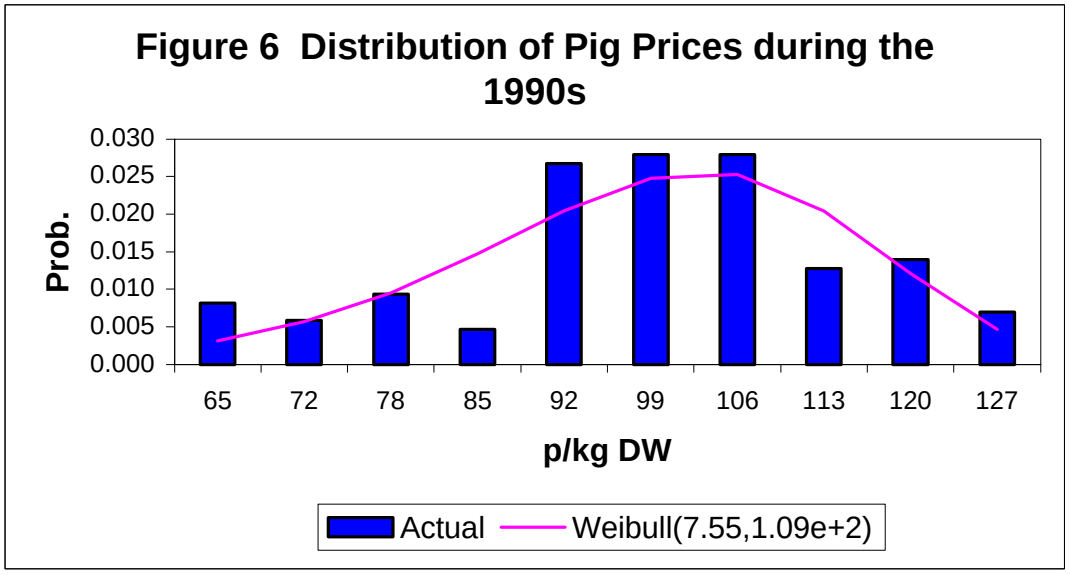
This obviously equated with increased downside price risk in the sector for much of the 90s, which combined with a falling average price severely dented confidence within the sector. The price distributions indicate that during lows in the pig cycle prices were weak for longer on average during the 1990s than during the 1980s.

Key messages:

- Because of the volatility of pig prices, producers must formulate their production plans with reference to a probability distribution of future price
- A negatively skewed price distribution implies a higher than normal level of downside risk
- Price distributions were quite flat in 80's and 90's reflecting the high degree of price variability in both time periods
- Price variability was considerably greater during the 1990s than in the 1980s
- Combined with the increase in volatility the price distribution in 1990's shifted to the left relative to during the 1980's.

- During the 1980s the price distribution tended to be positively skewed (high probability of profit) while it tended to be negatively skewed (low probability of profit) during the 1990s





Farm level analysis

It is useful to clarify the effects of the price distributions described above on producer profit margins during the 1980s and 1990s. To undertake this analysis a stochastic budgetary model was constructed and estimated using risk analysis software. The technique of stochastic budgeting or Monte Carlo simulation is quite widely applied in risk appraisal within industry. The aim of the technique is to estimate the expected distribution of an output variable (e.g. net margin per sow) where that output variable is directly related to one or more probabilistic input variables.

In this analysis, two probabilistic or risky input variables were included: pig price and feed costs per sow and litter. The actual budget was quite straight forward computing net margin per sow for an average birth to bacon unit (see Table 1). It was possible to obtain an estimate of farm profit for the average size unit by multiplying the net margin per sow by average herd size in RoI (316 sows). The technical and cost data for the budget were derived from Teagasc 'Pig Production Cost Guidelines.' The budget identified a breakeven pig price of 95 pence per kg deadweight.

For the risky price variable, the statistically estimated price probability distributions presented in Figures 5 and 6 were applied in the simulation model. Consequently, the price distribution was a positively skewed Gamma distribution for simulations representing the 1980s while for the 1990s: a negatively skewed Weibull distribution was used. Feed costs per sow and litter were represented by a triangular distribution with maximum and minimum values equal to +/-8 per cent of the mean value. This distribution reflected the range in feed efficiency identified by Teagasc pig production cost guidelines.

A Monte Carlo procedure was used to evaluate the budget for a very large number of scenarios randomly sampled from the input probability distributions. After 10,000 iterations the expected distribution of net margin across the scenarios was obtained. Using the simulation model, it was possible to compare the distribution of expected returns from pig production during the 1980s and 1990s. For ease of comparison underlying fixed and variable costs were not changed between the simulation runs. Obviously, most fixed costs were lower during the 1980s than in the 1990s and this was not taken into account in the budget.

On the other hand feed costs per sow, (which account for around 70 per cent of costs) were quite similar in nominal magnitudes between the 80s and 90s. Hence the limitation of maintaining constant costs in the exercise was not considered problematic as the aim of the simulation was to compare the effects of the different price distributions during the 1980s and 1990s on the distribution of expected profit in the respective periods.

The advantage of comparative consistency between the 1980s and 1990s simulations was felt to more than out weigh the moderate loss in detail in terms of quantifying changes in fixed costs over the period.

Key messages:

- The effects of the price distributions described above on producer profit margins during the 1980s and 1990s
- This assessed using stochastic budgeting based on feed costs and pig prices
- Using this it is possible to obtain an estimate of farm profit for the average size
- Price distribution was a positively skewed (Gamma) distribution for simulations representing the 1980s

- Price distribution was a negatively skewed (Weibull) distribution for simulations representing the 1990s

Table 25: Pig budget used in model simulation

No. Pigs produced per sow per year	21	
Pig weight	70	
Pig price kg/dwt (pence)	103	* Stochastic variable
Gross output	£/sow	
Value of pigs	1,514	
Sow and boar depreciation	-12	
Gross output	1,502	
Variable costs	£/sow	
Feed	906	*Stochastic variable
Vet, medicines, AI	54	
Miscellaneous	12	
Total variable costs	972	
Gross margin/sow	530	
Gross margin per finisher	25	
Gross margin/kg/dw	.36	
Fixed Costs		
Labour	140	
Energy	34	
Depreciation	100	
Repairs/maintenance	22	
Manure disposal	22	
Debt servicing	70	
Other: phone, insurance, water	31	
Total fixed costs	**418**	
Net margin	111	
Net margin per finisher	5.31	
Net margin /kg/dwt	0.08	
Average sow unit size	316	
Profit /average size unit (£)	36,211	

Note: Stochastic variables are shown at their 1990's mean values
Source: Derived from Teagasc's "Pig Production Cost Guidelines"

A summary of the simulation model results using the price distributions for the 1980s and 1990s is presented in Table 25. The results indicated that expected profit levels for a 300-sow birth to bacon unit almost halved between the 1980s and 1990s. Average profit levels for the unit reduced from around IR£60,000 (STR£50,185) in the 1980s to less than IR£35,000 (STR£29,275) during the 1990s. In addition, standard deviation of expected return increased dramatically over the period reflecting increased volatility in prices.

The upside represented by the average of the best 5 per cent of solutions from the stochastic simulation was quite similar during the 1980s and 1990s. However, the degree of downside risk changed substantially over the period. This is evident from the average of the worst 5 per cent of solution: in the 1980s the worst case scenario was a marginal loss while during the 1990s the potential for substantial losses was very real.

Table 26 Summary of Stochastic Simulation Model Results

	Net Margin per Sow (£)	**Net Margin per Fat Pig (£)**	**Net Margin per KG (pence)**	**Profit (Loss) Average Size Unit (£)**
Results using 1980s Price Distribution:				
Mean	191	9.12	13.02	60,490
Standard Deviation	150	7.13	10.19	47,339
Skewness	0.179	0.179	0.179	0.179
Av. of **Worst 5%** of scenarios	-47	-2.21	-3.16	(14,691)
Av. of **Best 5%** of scenarios	446	21.23	30.33	140,866
Results using 1990s Price Distribution				
Mean	109	5.20	7.42	34,478
Standard Deviation	214	10.17	14.53	67,492
Skewness	-0.546	-0.546	-0.546	-0.546
Av. of **Worst 5%** of scenarios	-277	-13.19	-18.84	(87,514)
Av. Of **Best 5%** of scenarios	421	20.05	28.66	133,137

The increased down side risk is extremely clear in the graphical presentation of the profit results for an average size unit in Figures 7 and 8. During the 1980s, the probability of the average unit incurring a loss was around 1 in 10. In contrast the 1990s saw this probability of financial loss rise to almost 3 in 10. In addition, in the event of a financial loss, the probability of a substantial negative return increased from the 1980s to the 90s. In particular, for the average size unit of over 300 sows, the probability of a loss of more than £50,000 (STR£41,821) was over 1 in 10 in the 1990s. The probability of the same unit making a loss of more than IR£50,000 (STR£41,821) during the 1980s was almost zero.

Figure 7 Probability Distribution of Profit for Average Size Birth to Bacon Unit, 1980s

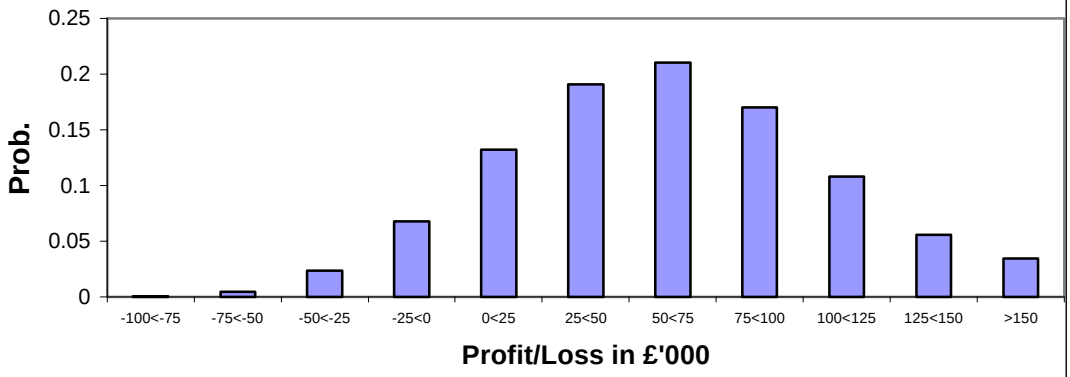
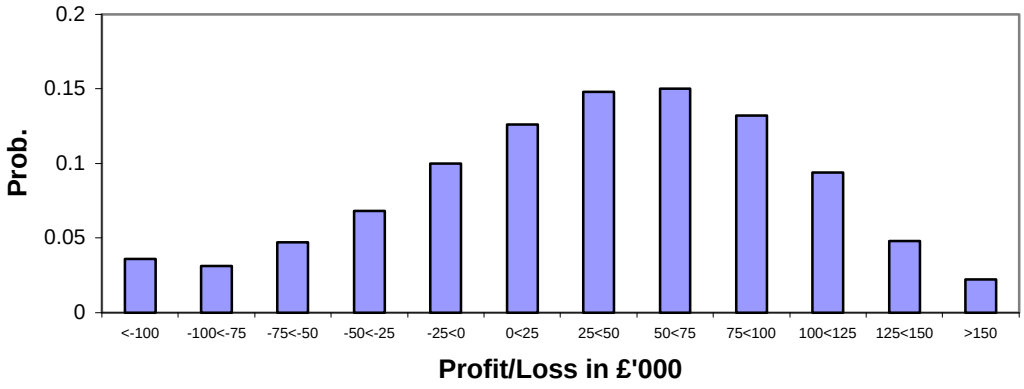


Figure 8 Probability Distribution of Profit for Average Size Birth to Bacon Unit, 1990s



As average expected profit has shifted downward over the analysis period, the effects of price instability have become more severe for producers. This situation of declining average income levels combined with increased down side risk has conspired to produce very unfavourable conditions for farmers in the pig sector in recent years.

Key messages:

- Results of simulation using price distributions for the 1980s and 1990s indicated that expected profit levels for a 300-sow birth to bacon unit almost halved between the 1980s and 1990s.

- From the results, the average profit levels for the a 300 sow unit reduced from around IR£60,000 (STR£50,185)in the 1980s to less than IR£35,000 (STR£29,274) during the 1990s

- The degree of downside risk changed substantially between the 1980's where the worst case scenario was a marginal loss to the 1990's where the potential for substantial losses was very real.

- For the average size unit of over 300 sows the probability of a loss of more than IR£50,000 (STR£41,821) was almost zero in the 1980s

- For the average size unit of 300 sows the probability of a loss of more than IR£50,000 (STR£41,821) was over 1 in 10 in the 1990s.

Policy responses to the pig cycle

Cyclical price variation has been detrimental to the pig sector by creating uncertainty for both processor and producer. For this reason, measures that might dampen or eliminate the cycle are desirable for the sustainable development of the pig industry on the island.

The pig cycle is well established in both RoI and NI. There are however, a number of measures that could be examined by the industry to attack the root causes of the cycle that were described in the early part of this section.

Two main approaches comprise the provision of market information to producers and achieving better co-ordination of production in the sector. The issue of market information is examined below and the issue of co-ordination of the production sector is examined in the later section on initiatives.

By improving information reaching farmers, action may be encouraged which will lead to the reduction in the effects of the cycle. For example, farmers who are aware of the regular and predictable periods of high prices and periods of low prices may time their production and investment decisions to catch the former and avoid the latter. In addition, during periods of peak prices farmers may attempt to build up reserves that can help them ride out the low points and avoid the characteristic escalation in debt burdens at the bottom of the cycle.

To be effective, market information would have to be available to farmers and should be concise and easily understood. This market information would include information on domestic and international market trends, trends in global production and medium range forecasts. Such information can help commercial producers make better production planning decisions and take appropriate defensive action when dealing with the cyclical problems of the industry.

Key messages

- Measures that might dampen or eliminate the cycle are desirable given the detrimental effect of the uncertainty for both processor and producer

- Measures might include the provision of market information to producers and achieving better co-ordination of production in the sector

2.7 Initiatives

This section looks at some of the measures that could begin to address the specific concerns of RoI and NI pig production industries. They are a list of measures rather than absolute recommendations.

In trying to address some of the issues that the producers have raised we acknowledge that producers, processors and even central government have very little control over some of the issues (the biggest issues). Also, in addressing some of the issues, we have arrived at the conclusion that one size definitely does not fit all when it comes to the pig industry. The pig industries in NI and RoI are at different stages in their development and as such, different policies are called for in each country.

One of the fundamental issues we need to address is whether it is wise to be encouraging everyone to continue investing in production. For the pig production industry to survive in NI there must be a further considerable reduction in pig producer numbers with an attendant increase in the average size of pig farms.

1. Producer groups

To consistently get the best producer price, collective selling is one of the best approaches. Farmer Controlled Business in the UK now controls over 38% of the marketing of cleaned pigs to processors. The co-operative marketing of pigs in this fashion has also long been the practice for producers in France who have overcome their small scale production structure by co-operative marketing.

Large 'Federal' producer groups like United Pig Marketing in England have control over at least 2 million pigs a year. Smaller producer marketing groups have also begun backward integration into the supply chain in both RoI and UK.

A producer marketing group allows for full price transparency. It also prevents price competition between producers and assists both the producers and processors plan financially ahead. In addition, producer marketing groups can evolve further functions such as the collective purchasing of feed and could take on the position of the producers in negotiating contracts with processors for sections of their membership.

While all these benefits are possible, we recognise that many producers have a long-standing reluctance to full co-operation with each other and to more integration of the supply chain. We would recommend that if it is possible to reconcile the producers desire to be independent and trade as such, that there are benefits from the establishment of producer groups in NI and RoI.

While there are obvious barriers to this approach, the highly concentrated nature of pig production in RoI and the increasing move to concentration in NI means that there are significantly less barriers to this approach with pigs than in other sectors such as beef.

We would recommend initiatives by the Department of Agriculture, IFA and UFU to encourage and assist the development of producer led marketing groups that would guarantee consistency of quality and size. The groups would provide information on best

practice and would work closely with processors to effectively produce pig characteristics with target market specifications. Currently, a producer supplies pigs and depending on what specification the processor gets, he then decides which markets/products are suitable for the pigs that he gets. Producer groups would facilitate specific numbers of pigs being produced to particular market spec for delivery on a specific day.

With a greater degree of predictability, there would be a significant secondary benefit to the Irish pig production sector as primary processors would thus be able to more efficiently service the secondary processing market. The current lack of co-operation between primary processors and producers ensures that Irish primary processors cannot consistently guarantee specifications and quantities to secondary processors resulting in product being imported. A significant quantity of pork products is imported in this way as a direct consequence of the lack of co-operation between processor and producer. This is a very significant lose-lose situation for the industry. This issue is addressed, in greater detail elsewhere in the report.

If at least part of the solution to the processing profitability/competitiveness issue conundrum is further concentration of the processing sector, then the collective approach to marketing of pigs is an absolute must. With producers represented by a single or smaller body of voices the relative bargaining positions improve. The importance of producer groups, which need not be full co-operatives, is especially marked for those producers who currently are outside the existing co-operative structures. It is important however, that the nature of the relationship between these larger groupings does not just replicate those that exist now. The most important benefit of such groupings is the ability to negotiate and agree joint policies more easily with fewer parties, which brings with it the greater likelihood of agreement and compliance.

Benefits of producer led marketing groups

- Enables the capture of new markets with specific product requirements that could not be serviced up to now
- Provides for a closer/more traceable supply chain that the retailer and consumer is looking for
- Rewards and encourages improvement in the quality and consistency of the animal
- Ensure uniform adoption of best practice in pig production
- Helps to match production to processing supply requirements thus improving capacity utilisation
- Helps processors to actively target high worth markets which would allow processor pay higher price to producer

2. Measures to address price volatility

The inability to forecast from one week to the next the likely price that you are going to receive for your pigs despite having committed already to supply a certain quantity is a considerable problem for producers in both the Republic of Ireland and Northern Ireland.

The current system in both RoI and NI sees each processor set a weekly reference price for each grade of pig and then it is up to each producer to negotiate their own individual price by themselves around the reference price. Rather than relying on the spot market for selling their output, producers could enter a contract with the processor that helps to preserve reasonable prices during the low points, compensated for by farmers accepting a lower price at the peak of the cycle.

The effect of such a system would be to consolidate the distribution of prices more tightly around the mean. Effectively, the upper and lower tails of the price distribution as it currently exists would be removed for producers entering the contract thereby, yielding a greater level of certainty over price. The producer would not incur potentially ruinous low prices but neither would he/she receive the very high prices at the other end of the price distribution.

Table 27: Highest price/lowest prices NI and RoI

	High price	Low price
Northern Ireland Price	1996: St 140p/kg/dwt	1998: 50p/kg/dwt
Republic of Ireland Price	1996: IR 135.7p/kg/dwt	1999: 70.2p/kg/dwt

Source: Bord Bia and DARDNI

Below, we have outlined in brief, a number of ways in which the current system could be modified to reduce price volatility and improve the ability to forecast price. Agreeing the detail of these plans will be difficult and moving this from a concept to a workable model will take considerable time and effort.

While the initial temptation would be to use the EU average price as the reference price for any potential contracts, this approach would fail to recognise the reality of prices in both RoI and NI. Rather than the average EU price, the price in both RoI and NI needs to track the Danish and Dutch prices. As we are net pork exporters we must keep our costs in check relative to the other main exporting countries. One of the ways to do this would be to reference the price payable in contracts to a basket of prices from the main EU exporting countries.

Especially important, will be the ability of those involved to build a working relationship that will stand the test of swings in pig price in both directions. A working model would incorporate a range of different elements from the models outlined below.

Quarterly set prices

Set prices on a quarterly basis to which both producers and processors are bound to without variation. These can either be agreed individually by producers or on a collective basis with a producer marketing group. Longer-term contracts can also be designed to allow variation against set standards.

Pros: Facilitates medium term forecasting of revenue
Cons: Potential to be out of sync with market.

EU 'exporters' reference price
Accept the average price in our main exporting competitors as the reference price for producers in NI and the RoI

Pros: Offers some consistency and minimises divergence from exporter average
Cons: Unlikely to be popular with producers
Doesn't address cyclical problems.

Contract price based on EU exporter reference price (range 10% + or -)
Accept the EU exporter reference price at a given time as the basis of a contract between producer and processor. Incorporate into this a contract facility to modify the price paid in the event of the EU exporter reference price moving by 10% or more in either direction. This could either be a rebasing of the contract at the new price or a phased reduction/increase by an agreed % of the change. This contract can be negotiated individually or by producer groups.

Pros: Allows for longer term planning
Reduces exposure to price volatility
Cons: Potential to be out of sync with market (though lesser).

Costs and margin 'open book system'
Agree either a contract or individual prices based on an agreed formula for calculating costs and then the allowance of a set margin. Similar costs and margins systems used in the US to tie costs basis to feed costs. Retailer may also seek to build a complete supply chain around production costs plus agreed margin principle. These systems could also build in a review clause with reference to EU exporter reference price.

Pros: Encourages producers to reduce costs
Guarantees a set income.
Cons: Constant improvements in costs sought
Reduced independence.

On contract
Pigs are owned by the processor/AI company/retailer and are grown on contract either on a producer or company farm. Producer given certain criteria to meet and paid a set wage with possible bonuses.

Pros: Assures set wage and conditions for producer
Makes use of producer knowledge
Price no longer an issue
Cons: Breaks connection with land
Reduces independence
Fundamental change called for.

The fact that Ireland accounts for only 1.4 per cent of European pig production means that the local industry is effectively a price-taker. Ireland has little influence over EU pig prices and the factors that influence pig prices on the island are increasing Europe-wide or even global factors. Domestic supply considerations are generally of lesser

importance, implying that we have little control over the pig cycle. Producers and processors in Ireland must deal with fluctuations caused by factors outside their control.

One of the difficulties with the practice as opposed to theory of putting contracts into place is the view held by farmers that some of the bigger processors are unwilling to consider such options. A secondary hurdle, is the fact that in the past both producers and processors have been known to refuse to honour contracts when it suited them.

In the absence of a high degree of trust between both parties to the contract, there would be a strong incentive for producers to break the contract as spot market prices rise above the contract price and sell to a processor not participating in the scheme. This of course raises the problem of legal enforcement of contracts that affect the commercial freedom of producers.

In RoI, a view has been expressed by some of the very biggest producers, that contracts are unwelcome because they favour all producers where the present system favours the larger producer and leads inevitably to the smaller or less efficient producer loosing out/being forced out.

As a first step, it will be necessary to assess whether processors in RoI and NI are now willing to consider the use of contracts. Our survey results show that producers are already willing to consider contracts but that they consider the relative bargaining positions and propensity of processors to ignore the contracts when it suits, are big barriers to their introduction.

The next step is to decide on the mechanisms that will be used in the contract process. How can processor and producer needs be satisfied and how can producers ensure sufficient strength in the bargaining that will lead to the agreement of contracts? Who will negotiate on behalf of the producer? Having decided these points, it will be necessary to assess which of the different contract models satisfies both the processor and the producer.

From a processor viewpoint, such a system may be seen as removing a risk from the producer and transferring it to the processor. As commercially driven organisations, it is unlikely that processors would easily accept this additional risk unless there is a clear upside for them.

The options open to Ireland to deal effectively with the pig cycle are limited by the small-scale fragmented nature of our industry and weak influence in international export markets for pig meat. As one of the few areas where some progress can be made it is crucial that this opportunity be realised.

The recommended course of action is for producer groups to be formed which amongst other things would aggregate supply and represent the interests of the producers in contract negotiations with the processors. As part of the contract negotiation process, processors would be able to include new conditions on the consistency of pigs, the quality of pigs and animal health. More important from the processor viewpoint, the

contracts would tie in a consistent supply of pigs, which should allow them to push capacity utilisation up towards 100%.

Potential barriers to contracts

- Unwillingness of processors to assume any prices risk
- Unwillingness of producers and processors to be out of sync with the market for any length of time

3. Measures to assist with environmental compliance

It is hard to argue that the wider social good requires that the environmental effects of pig production be reduced and that the environmental costs of pig production be borne by the general public. We must also recognise however, that a secondary consequence of the IPC and IPPC regimes will be to alter the nature, structure and cost basis of the intensive pig production sector in RoI and in NI where the scale is achieved.

It is our understanding that RoI may face very considerable fines from the European Commission if at the next evaluation of water quality in RoI there is any further deterioration in water quality. If water quality is allowed to deteriorate these fines will be imposed and the added costs associated with addressing water pollution will remain to be addressed. Given this, we would recommend that providing assistance to the pig and other intensive agricultural sectors to ensure full environmental compliance will in the long run be the least cost solution for Ireland Inc.

In the past, significant sums have been invested by central government by the EU and by the farmers themselves in improving environmental standards in the country and on farms. In the past decade, IR£400 million (STR£335M) was provided under the Farm Improvement Scheme, for improvement of environmental standards on farms and a further £400 million was provided between 1994-1999 under the Control of Farmyard Pollution Scheme. Additionally, the National Development Plan 2000- 2006 has allocated £180.9 million for a Farm Waste Management Scheme for 20,000 thousand farmers. Clearly, there is some willingness to engage the problem of agricultural based pollution.

Tax write-off for environmental compliance

If a sustainable and environmentally low-impact pig production sector is to exist in the next decade, some form of assistance is needed. We do not envisage, however, that the pig production sector should be given a new special grant scheme or a disproportionate share of the monies from the National Development Plan 2000-2006. Rather, we consider that the most appropriate mechanism may be some form of tax based allowances for spending on environmental compliance.

Research funding

In tandem with the allowance based approach for producers which tackles the issue of dealing with the pollution, we would recommend the provisions of specific further financial assistance for focused research into this area which would address the central cause of the problem. In particular, we would recommend the provision of funding for research into the area of load minimisation through diet, slurry minimisation and especially slurry treatment.

4. Improving the consistency of the animals

Both the processors and the producers recognise that the pigs supplied are inconsistent in terms of size. The difference is that the processors view this as a problem while the producers given current payment structures have no reason to.

This is because the grading of pigs in Ireland, unlike the in the UK or the Netherlands, is largely on the basis of fat measurement. In the Netherlands the classification of top grade pigs depends on both the back fat of the pigs and the consistency of the pigs within a narrow weight band.

In our survey of producers in both RoI and NI, we came across considerable variations in pig weights supplied to processors both between herds and within herds. Many farms had 20%+ of pigs varying by more than 5kg from the average weight. The introduction of a strong bonus/penalty for on-going consistent supply within a narrow weight band would be acceptable to most producers and would be the most efficient way to achieve the necessary consistency of pigs in NI and the RoI

We would recommend that as part of the process of co-operating with producers on price outline above, that processors build in an element of required consistency. An increase in the number of pigs marketed through co-operative structures could be used as a means to improve this consistency.

5. Improving animal health and food safety

The production of high quality healthy pork is essential for the future of pig production in Ireland. From a consumer viewpoint, there are three main issues at play here, the issue of the incidence of disease, the issue of the use of antibiotics in disease control and the issue of the use of antimicrobials growth promoters (AGPs).

Rather than the producers, it is the processors and retailers who feel that these are critical issues with the Irish herd. Uniformly high animal health quality will continue to be an important source of competitive advantage for pig producers in Ireland going forward but only if the comparisons with our main exporting competitors show our standards to be on par with or above theirs. It is imperative that animal health be maintained as a priority for producers and that programmes to improve animal health be supported.

While there are no critical animal health problems on a wide scale in Ireland, local problems with Aujesky's, Blue Ear or salmonella are of some concern to the industry. In both RoI and NI the issue of salmonella is particularly important given our status as net exporters of pork.

The results returned for the incidence of salmonella in RoI tests would appear to be higher than those in Denmark. In practice this reflects a different method of testing rather than a higher incidence of the disease. Unlike in Denmark where all farms are tested the practice in RoI is to test just those farms that are at risk. Taking this approach the number of positive results will inevitably be higher.

The actual incidence of salmonella is only part of the issue. The fact that relative to Danish pork, Irish pork appears to have a higher incidence of salmonella and this is now being used on a comparative basis as a marketing tool by the Danes. Given this, it is important that there is a unified commitment to reduce the incidence of salmonella and that the basis on which the tests results are arrived at are communicated to a wider community including retailers and consumers in both Ireland and the EU.

In the past, Aujesky's has been kept at bay by regular vaccinations. Over the last two years producers in receipt of lower prices have had to reduce their costs and one of the ways that producers have done this has been by reducing or eliminating their expenditure on vaccinations and medicines. This we regard as a short-term solution that will generate significant problems in the longer term in the form of increased incidence of Aujesky's.

We would have some concerns that over the last couple of years animal health has not been as central to production as its importance demands. In particular, producers we talked to in both RoI and NI have said that over the last couple of years vaccinations and animal medicine have had to take a back seat.

Now that there is little leeway left for improvements in physical productivity there needs to be an increased emphasis on animal health and food safety as a source of competitive advantage. In this regard, we would recommend that both central government and the producers and processors have an important role to play.

The role for producer groups is in assisting in the process of attaining and maintaining animal health that has the downstream effect of improving food quality. In particular, where producer groups are supplying pigs on contract to processors there should be contractual provisions on animal health, antibiotic residues etc. of the pigs.

While the producer groups in tandem with the processors have a role as a gate keeper of animal health, central government in both RoI and NI needs to develop a series of all-Ireland initiatives to address/ eradicate both salmonella and Aujesky's and to reduce the levels of antibiotic residues in pork. Given the all-Ireland nature of pig production, it is important that these measures are uniformly and consistently supplied across the whole of Ireland if any real advances are to be made.

2.8 EU and World production outlook

Production trends

World production of pigmeat has been forecast to increase from 76 million tonnes in 1997 to almost 100 million tonnes in 2002. The engine for this growth is however, not expected to be the EU but rather China and the EU's share of world pork production is expected to fall over this period from 21.5% to 17%

As the level of pork production increases, so too is the level of world trade in pork expected to increase. In her presentation to the World Meat Conference in Dublin in 1999, the MD of the Danish Bacon and Meat Council, Ms. Anne Brigitte Lundholt suggested that world trade in pork would increase from 2.6 million tonnes in 1997 to 3.8 million tonnes in 2007. Of this increase, EU exports are expected to account for 340,000 tonnes and the EU is expected to retain its 33% share of world trade in pork.

Up to 1997, EU production was stable and rising slowly to 16.3 million. A combination of high prices that were on offer in 1996/19997 and the return of production in the Netherlands after the Swine Fever outbreak added a further 1 million tonnes in 1998 bringing EU production up to nearly 17.4 million tonnes. In 1999 EU production rose a further 2% to 17.94 million tonnes.

In the year 2000, EU production is expected to fall by 3% to 17.4 million with a further fall in production of 5% in 2001 to 16.6 million tonnes. Some forecasts then show production stabilising at around 16.9 million tonnes in 2007.

Looking at the development of pig production over the decade 1997-2007, this would give a rate of increase of 0.2% per annum relative to the forecast growth rates in world production of 1.8% per annum over the same period. Stock numbers in the EU15 in December 1999 were just 0.8% lower than in 1998.

Pigmeat consumption

Production of pigmeat in Europe is primarily driven by demand. EU consumption of pigmeat has been gradually increasing over time up from 45% of all meat in 1979 to 49% of all meat consumed in 1997, assisted in part by the BSE fall-out. Within this however, both levels and trends in consumption have varied considerably between countries.

The UK and Germany have each experienced declining levels of pigmeat consumption. In contrast, consumption of pigmeat in Denmark, Italy, Belgium, the Netherlands and RoI has increased. Average European consumption was almost 41kg/head in 1997 and in 1999 consumption had increased to 44.3kg/head, helped by lower average prices

The outlook for future consumption is in general positive, since pigmeat is likely to continue to remain the favoured meat by consumers (in the absence of any extraordinary and unforeseen developments affecting the industry). The growing preference of consumers for value added products and the well-developed presence of pork in this sector should ensure continuing strong demand. Relative to 1998 –1999, the higher price levels now being charged may have a moderating influence on consumption in 2000. The

Meat and Livestock Commission (MLC) in the UK are forecasting a reduction in consumption to 43.2kg/head in 2000, but by 2002, the lower feed prices brought about by Agenda 2000 should have fed though into lower pork prices and thus stabilised consumption

Given the effect that the BSE crisis had on the beef sector and the image of beef, it is important to appreciate that issues such as the feeding of meat and bonemeal, use of growth promoters and antibiotics, use of GMO's and the welfare of the pig continue to have the potential to negatively impact on pig consumption patterns.

European outlook

The section below is not a comprehensive look at the EU market but rather a high level overview. As the main exporting competitor of RoI and NI both Denmark and the Netherlands have been examined in some detail. It was also felt that looking at France with its co-operative approach to pig production would also be of some benefit.

In the **Netherlands**, traditionally the lowest cost producer in Europe, the feed cost advantage has always been one of the key sources of competitive advantage compared with other European countries. Over the last number of years, this advantage has been reduced and with further CAP reform it will be reduced even more over the next 5 years.

Pig production in the Netherlands is undergoing a period of rapid change, involving reduction in numbers, hugely increased environmental regulations, concern over pig density, a shortage of land and some shortages in labour. Between 1995 and 1999 there was a reduction in Dutch pig production of 5.8%.

The Dutch pig production system is still largely specialised with breeding and finishing generally being separate activities practised by separate producers. Increasingly, however, concerns about animal health and the risk of exposure to disease are precipitating moves to increase the levels of integrated production in the Netherlands.

As in other countries, there has been increasing concentration of production in the hands of fewer farmers in the Netherlands. This has been a response to the swine fever outbreak in 1999, the increasing cost base and the investment required to develop integrated production. The current 'outgoer scheme' will only serve to underline this trend.

The Dutch authorities have set a target of reducing pig production and as a result phosphate and nitrate production, by 15-20% by 2004. To incentivise this process, the Dutch government have initiated an 'outgoers scheme' which will compensate producers who exit the industry and commit not to return to pig production in the same location for at least 10 years.

A reduction of the order of 15-20% would lower Dutch production by more than 220,000 to 300,000 tonnes of pigmeat and have the effect of reducing EU production by 1.3 to 1.6%. However, the pig farms that participated in the Scheme at the initial stages are considered to be marginal units, accounting for less than 5% of Dutch production.

Given the combination of environmental concerns, land, labour shortages and the availability of an attractive outgoers scheme, it appears likely that the government will achieve its aim and that the herd will decline by 15-20% by 2005.

The **Danish** pig industry remains probably the most integrated and best organised in Europe. Slatted systems for all kinds of pigs have long been the norm in Denmark. From January 1, 1995 pig producers in Denmark have had to have access to farmland for the disposal of manure, dependent on the size of the unit. There are also land ownership requirements related to herd size, which will have a constraining effect on development.

For new and expanding pig units with more than 250 pig units (equivalent to 475 sows), planning permission and an environmental impact assessment is required. For units smaller than 250 units, a notification to the local authority is all that is required. There are regulations governing siting and odour emissions. There are also regulations regarding slurry storage (minimum of 9 months sealed storage) and spreading.

Although, exports to Asian markets increased in 1999, some re-focussing of the Danish industry is taking place, away from direct competition with cheap meat from the USA towards the internal EU market with its increasing food safety and welfare requirements where they see long term possibilities. This change in direction has been given added impetus by problems with Far Eastern currencies and the near collapse of the Russian economy.

Commercial considerations are partly driving implementation of animal welfare changes and substantial investments in loose housing for sows have been made with an eye to the British market. There is also pressure coming from slaughter companies for straw based high welfare systems and payment of bonus (4p/kg) for pigmeat that complies with UK welfare requirements. Additional costs of high welfare systems can be partly offset by keeping pigs to heavier weights (up to 107kg versus 97kg liveweight). In the Danish system farms target their production at a particular market and closely tailor the specification of their pig to the requirements of that particular market

Pig production is fairly evenly distributed, so it does not have the problems of concentration evident in the Netherlands and parts of France. By preventing individual farms from getting too large, environmental problems are easier to deal with. Many areas of the country could sustain some further expansion of the pig population without causing environmental difficulties. Hence, in view of the relatively strong competitive position of the industry, there is some scope for further expansion of production when prices improve sufficiently, despite the level of environmental legislation governing the sector.

Currently pig production in Denmark is running at 23 million pigs per year. While the Danes have identified 30 million as being the absolute limit of production, environmental concerns and set aside requirements will limit this to 25 million. While some forecasts (Danish Meat and Bacon Council) have predicted an increase in production in Denmark to 24 million by 2002, the MLC notes that the April 2000 census of pigs shows a 2% drop in sows and a 4% drop in gilts in pig indicates that these forecasts may be some what

optimistic. If not an increase we would forecast a limited as opposed to significant decrease.

In **France,** pig production is highly concentrated in Brittany and the surrounding area where 73% of all French pig production is located. The pig industry is well organised in Brittany with twenty main producer co-operatives. In the past, the industry has also received considerable support from the French government.

Pig numbers in France expanded rapidly (34%) between 1985 and 1997 and self-sufficiency increased from 81% in '85 to 110% in 1997. With the level of domestic consumption remaining static, exports have grown in France, although during the recent crisis, discounting and promoting of pigmeat in French multiples helped increase domestic consumption.

The co-operative nature of pig production in France has benefited producers principally by reducing the impact that the generally small scale of farm has had on production costs. Producers have used the co-operative movement to centrally purchase feed for their members. With a strong cereal growing sector in France, grain prices have always be relatively low, but the co-operative structure has still ensured that producers enjoy the best possible price for feed. It is important to note that this structure also transfers the risk in providing credit from the feed company to the co-operative.

The co-operative movement also actively assists members in other ways. Co-operatives provide detailed information on best practice in pig production, they advise on environmental and construction problems and they provide marketing assistance. Another important factor is that the co-operative structure also provides a unified lobby for pig producers in France that is independent of competing agricultural interests.

Environmental issues are beginning to impact in France and there is considerable resistance to planning applications involving pigs from environmental lobby groups. The local authority must license all pig production in France and a condition of licensing for producers of all sizes is the prior completion of an environmental impact study.

The climate regarding development of the pig sector in France has changed and there is strong urban-based resistance to expansion of pig production on environmental grounds. For this reason, we are unlikely to see any further substantial increase in the size of the French industry.

In view of the considerable environmental constraints on development, the outlook for French pig production in the light of its relatively competitive cost situation is for some further reduction. The November 1999 pig census showed a 1% increase in the number of fattening pigs but a decrease in 2000 and into 2001 is likely, as the same survey showed a fall of 3% in sow numbers and 5% in maiden gilt numbers.

In **Britain** there has been a marked shake out in the pig sector during the recent crisis, as the effects of the UK pig welfare regime and the strengthening of sterling exacerbated the impact of the severe price reduction. High sow culling figures in early 2000 are an indication of further contraction.

From a high point of 8,036,000 pigs in 1998, the USDA has predicted that pig numbers will fall to just over 7,000,000 in 2000. In 1999 sows numbers fell by over 7% relative to 1998 and during the same period pig slaughterings were down 8%. In the first quarter of 2000, this trend has continued with a decrease of 12% in clean pig slaughterings and a high level of sow slaughterings.

Relatively strong pig prices in Britain in 2000 will have a moderating influence on the downward trend in production from 2001, as will the further concentration of pig production that will have taken place by that stage. The exchange rate is a double-edged sword however and the strength of sterling is also encouraging the increase in pork imports. In 1999, there was an increase in imports of 46,000 tonnes.

Without a dramatic change in the sterling exchange rate, further contraction in the size of the industry is likely. Even in the event of a more favourable exchange rate, little or no potential for production increases can be envisaged.

While **German** pig production is relatively high-cost, it has the advantage of a large home market. Unlike many other countries, Germany imports both weaners and pigs for slaughter so the level of domestic production does not necessarily tie in with the numbers of pigs in Germany at any one time.

The November 1999 census of pigs showed a 2% year-on-year fall in total pig numbers to 25.8 million. The same census showed a fall of 3% in sow numbers and 6% in gilt numbers since November 1998. This fall was not consistent across Germany. In the higher cost west of the country, numbers were reduced significantly, while in the lower cost east of the country, producers have retained sows in expectation of an increase in prices.

The level of domestic pig production is closely related to price levels although the degree of correlation between prices and production varies between production facilities in eastern and western Germany. Throughout 1999, pig prices fell in Germany with the reference Grade E pig price down 6% in 1999 relative to 1998. In early 2000, this price fell still further but has since recovered. Since the beginning of the year, prices for finished pigs have improved by over 30% and prices for sows have improved by over 40%

Given the increase in prices, live imports into German are forecast to be up 13% in 2000 but reflecting the lower sow and gilt numbers, German production is expected to be down this year and this decline is expected to continue into 2001.

Spanish pig production has benefited/suffered from the general tendency for pig production to move to areas of lower pig density. Indicative pig production costs for **Spain,** show that the principal pig producing area (Catalonia) is very cost competitive in an EU context and still has a relatively low pig concentration. With increasing investment in slaughtering capacity Spain is likely to become a major player on the EU exporting map.

Already, this trend has manifested itself in the investment by Dutch and Danish nationals of considerable sums in large-scale industrial pig units in Spain. This investment has been at the expense of the traditional small-scale family units, which had been the backbone of production in Spain.

In 1999, pig production in Spain stabilised after a three year period of growth which saw pig production increase by 25%. While the expanding breeding herd in 1998 gave rise to increased production in 1999, the fall in the numbers of gilts in pig in the December 1999 survey, would indicate a stabilisation and perhaps reduction of number in 2000 and into 2001. The current strong prices, up 40% from their low point in November 1999, may however, encourage some further growth towards the end of this year and into 2001.

The stabilisation of production masks however a significant social change in pig production in Spain with a large number of family based farms exiting in the face of competition from large scale new industrial entrants

New EU member states

Of the six countries that have been selected for first wave membership of the EU, four have significant pig production capacity. Hungary has a pig population of over 5 million and Poland has a pig population of over 20 million. Significantly, their accession to the EU will allow them full access to European markets.

While productivity levels in both Poland and Hungary are understood to be well below EU levels, they also enjoy a lower cost basis than is the case in the EU. In particular, this lower cost basis is reflected in lower feed costs and lower labour costs. Both these costs are significantly below those for most existing EU producers.

As significant as the accession of these new member states will be the effect that the entry into these markets of some of the major US producer/processor interests. Already, Smithfield farms has bought into the Polish market and other purchases by large US interests in both Hungary and Poland are likely.

While currently, much of the investment is in processing, the threat that US ownership of production capacity in both Poland and Hungary will pose to production in Ireland over the medium term is very real. Such a move would generate significant extra competition on exports markets and would likely also precipitate increased import penetration onto the domestic market.

US outlook

Since the EU is a surplus producer of pigmeat and taking into account increases in imports, export competitiveness is a prime concern in forecasting a future for the sector. With regard to future exports, the primary competitor will remain the US and to a lesser degree Canada which are both low–cost producers. While European exports to the Asian markets are currently facilitated by the relative weakness of the Euro vis-à-vis the US dollar, the future of an industry cannot be left to the whim of exchange rates

Despite the reduction in feed costs that Agenda 2000 will bring about, it will remain generally difficult for EU exporters to compete on price with the USA in third-country

markets. The difficulty will be based largely on cost and for markets in the Far East an inability to deliver a comparable fresh product.

The level and extent of export opportunities for EU pigmeat will be influenced by, inter-alia, the strength of Asian demand and the value of the Euro vis-à-vis the US dollar.

The fundamentals of production cost competitiveness and distance from markets will continue to make it generally more difficult for EU exports to compete with US pigmeat product in third country markets, as export refunds are progressively reduced.

Following a number of bad years in the US, prices in early 2000 have recovered and in April 2000 were up 55 % on April 1999. Breeding numbers in March 2000 were down 5% on March 1999 and 10% on March 1988. The knock-on effect of this fall in sow numbers was not felt in production until the end of 1999. Taken as a whole, the year 1999 was in fact a record year for pig production in the US.

Given the low sow levels in 1999, production in the first number of months of 2000 fell by 4%. Production through the rest of 2000 and into 2001 is likely to follow this trend with a continued fall in production expected but at a lesser rate. If however the strong prices persist production will begin to increase again in the US in 2001 but will not return to 1998 or 1999 levels for some time.

Agenda 2000

Though an unsupported agricultural activity, certain elements of the Berlin Agreement on Agenda 2000 will impact on pig production in Ireland. In its paper 'Outlook for the Irish pig industry', Teagasc has pointed out the main impact that Agenda 2000 will on pig production is related to the reduced support in it for cereals and beef.

The reduced support for cereals should result in a general reduction in pig feed prices in the EU over the coming years. Irish producers are unlikely to benefit much from this in terms of competitiveness however, as feed prices in relative terms, given its island geography and deficit in feed ingredients, are not going to fall anymore in Ireland than elsewhere.

The second element of Agenda 2000, which may impact on the level of demand for pig production, is the reduction in support for beef. As many people regard pork as a beef substitute the reduction in supports and thus prices for beef may have the effect of putting further downward pressure on pork prices. This effect may result in pork consumption falling back a point or two from 49% share of the meat market in 1997.

WTO

Between 1994 and 1998, pigmeat imports into the EU rose from 28,000 tonnes to 60,000 tonnes. While there may be some further increase in this number before the conclusion of the next WTO agreement, which is unlikely to happen before 2002, any increase will be limited. Considerable efforts are likely to be expended by the US during the next round of WTO negotiations to secure increased access to EU markets for US pork. The results of these negotiations will have a significant impact on the future of the pig industry in Ireland. The nature of any changes are however impossible to forecast.

2.9 Conclusions

What happens in the short term with prices will inevitably have a considerable impact on whether or not pig production in NI and RoI reduces further or stabilises this year. Looking beyond the short-term impact of prices on production however, the more important question is whether the structure of pig production in NI and RoI can be competitive on an EU and global basis.

NI

In NI, the underlying issue is that the current structure of pig farming cannot survive in the long term. In the short term, production may stabilise but farmers will continue to exit the industry and imports will continue to increase.

In NI, the pig production base must be regarded as being at risk in its current production efficiency, animal welfare regulation, currency and fiscal environment. Although, the recent price improvement is likely to slow down the rate of decline, the sector will continue to be under pressure and further reduction seems inevitable in the absence of a substantial weakening in the value of sterling, or some major external intervention. The size of the breeding herd is likely to be quite volatile and will depend on future price movements.

On a more positive note, NI producers have potentially better access to the GB market than any of their EU competitors. The challenge is realising that potential. Also the fact that the IPPC regulation will not be implemented until 2006 could be viewed as providing some leeway for the larger producers in the short term.

Implementation of the Animal Welfare Regulation is imposing higher capital costs and is liable to emphasise the apparent lower overall technical production performance. The recent reduction in the herd may however, have some positive effect on technical performance, as those ceasing are likely to include producers with poorer performance levels. The strength of sterling continues to impact negatively on competitiveness, while the existing fiscal regime does not encourage investment.

What it comes down to is the fact that even for the most efficient producers in NI, their achievable levels of profitability are constrained more by the actions of the rest of the industry and by factors entirely outside their control than by their individual productivity.

Taking an optimistic outlook sow numbers in NI are expected to fall by 10% between 1999 and 2003 to 39,500. The pessimistic scenario forecasts a further reduction of 32% between 1999 and 2002 to 30,000.

RoI

The impact of the further reduction in IPC thresholds and especially, the limits on spreadlands will become clearer towards the end of the year. Our survey of producers would suggest that reductions in or ceasing of production in some units is likely to exceed expansion in others. With the stricter thresholds for the establishment of new units, increases through new facilities coming online are likely to fall.

Increased labour cost and scarcity of skilled labour will add to the strains in the sector. Additional reductions are likely to arise as a result of the mismatch between the ageing demographic structure of farmers in both RoI and NI and the lack of new entrants to production.

Thus, after an almost continuous 15-year expansion of the herd, the prospect is for a reduction. However, predictions of a decline in production must be tempered by the realisation that there remains in pig production in RoI high levels of efficiency and labour productivity, while the large average size of production facilities will also operate against wide scale reductions in production capacity.

Taking an optimistic outlook the breeding herd in RoI will fall to 178,500 by 2004. Taken together with the optimistic reduction in NI this represents a total breeding herd of 218,000 sows, resulting in annual production of 4.8 million pigs and a weekly kill of 92,650 pigs.

Taking a pessimistic outlook the breeding herd in RoI will fall to 165,000 by 2004. Taken together with the pessimistic reduction in NI this represents a total breeding herd of 195,000 sows, resulting in annual production of 4.3 million pigs and a weekly kill of 82,700 pigs.

3. Primary processing sector

3.1 Introduction

The last 15 years was a period of dramatic growth and transformation in the pig industry in the Republic of Ireland

The pig meat industry in Ireland has experienced significant growth and change over the last 15 years. In the mid-1980s, the pig industry in RoI produced 40,000 pigs per week, which were slaughtered across 40 plants throughout RoI. In 1987, RoI commenced a comprehensive rationalisation scheme to bring its slaughtering plants up to competitive standards of modernisation and higher throughput levels. The plan aimed to reduce the 40 existing plants into 5 major plants in RoI. All 5 major plants were operational by the 1992. However, a number of smaller scale primary processing plants remained in the sector.

The operational efficiencies arising from the rationalisation scheme and the increased capacity, together with a transformation in the pig production provided an environment which saw a 75% growth in the RoI pig industry from 2.1 million pigs in 1992 to 3.6 million pigs in 1998.

There were a number of major shocks to the industry in the late 1990s

Through the 1990s, several events have impacted the Irish pig industry. In 1996, the BSE crisis in Britain caused the demand for pig meat to rise significantly as consumers switched from beef. An outbreak of foot and mouth disease in Korea (a major supplier of pig meat to Japan) created increased export opportunities for EU exporting countries such as Denmark and Ireland. These events led to a typical cycle of increased demand and increased pig prices leading to a significant increase in production globally in response to this increased demand, ultimately, leading to a surplus of pigs.

However, this particular boom and bust cycle was exacerbated by a number of additional factors:

- Japanese demand for imported pig meat declined dramatically in 1999.
- The financial difficulties in the Russian economy reduced demand in another important export market.
- The combination of increased production and reduced export markets for Danish, Dutch and Irish exports led to a collapse in pig prices.
- Additionally, a fire in the Lovell & Christmas plant in NI in June 1998 caused a severe short-term shortage of capacity.

With the over-supply of pigs in the market and a short-term shortage of slaughter capacity on the island, the price for pigs plummeted globally and the abattoirs ran their lines at peak capacity trying to kill all the pigs being presented for slaughter.

The negative impact on the industry was even greater in NI
This combination of events led to lowest pig prices in over 50 years and hit producers very hard. Producers in NI were also facing increased costs to meet animal welfare housing requirements, increased fifth quarter disposal costs as a consequence of the BSE crisis and a significant appreciation of the strength of sterling.

Many pig producers exited the market, unable to maintain profitability. However, there are many more producers who have endured the crisis and are anxious to move forward into the 21st century and remain in pig production. The effect of the crisis on processors has perhaps been less painful, but it has still resulted in challenges with profitability and competitiveness.

Key challenges for processors include:

- The growing competitive environment on international export markets
- The rising costs of raw materials relative to 1998 and 1999
- Inconsistent and reduced levels of weekly supply of pigs resulting in fluctuating throughput levels
- Labour shortages and rising wages

Processors are cautiously optimistic about the future of the industry
Irish processors appear to be cautiously optimistic as they look toward the future of the pig meat industry in Ireland. There is a commonly held view amongst processors that there is sufficient capacity within the industry currently and some would strongly believe that there is excess capacity, creating an extra cost burden for the industry. Investment in new additional capacity is not likely in the immediate future and any new investment is likely to focus on improving the efficiency of existing capacity. A number of Irish processors have struggled with low levels of profitability for some time and there is a noticeable lack of proactive investment in R&D and sales and marketing. This shortage of processor investment will be a key challenge to developing further value-added output.

3.2 Ownership structure

PLCs with primary processing operations are under greater shareholder pressure to achieve an adequate return on the capital invested

The current ownership structure of the primary processing capacity in Ireland varies between producer co-operatives, private companies, and public limited companies (PLCs). The differences in ownership structure contribute to differences in stakeholder opinion and requirements and these differences often contribute to a lack of cohesion when matters pertinent to the entire industry need to be addressed. PLCs are obviously under the most pressure from the largest variety of stakeholders. Shareholders in these companies want to see profits and a reasonable return on capital. Slaughtering operations generally are viewed as a low profit business. When a crisis like 1998 and 1999 hits the industry, shareholder response can often times be expected to take a "cut your losses, and get out" turn.

Glanbia and Malton Bacon Company control a significant proportion of the pig slaughter on the island

Many industry participants are concerned with the current high dependence of the Irish industry on the two largest slaughterhouse operations, both of which are PLCs. Combined the Malton Bacon Company and Glanbia represented 43% of the total island pig kill in 1999. If either of these two public companies chose to exit the business, the Irish pig industry would face a severe shortage of slaughter capacity. Exit by either Glanbia or Malton (owned by Unigate) would result in a reduction in overall slaughtering capacity, which would be unlikely to be replaced to the same level. This would likely lead to a significant contraction in Irish pig production and an increase in the level of pig meat imports.

Neither Glanbia nor Malton have indicated that they have any plans to exit from the industry and both companies are continuing to invest in their plants. A challenge for primary processors (particularly, the larger, public companies) to overcome is to increase profitability, so that shareholder discontent does not drive a potential exit. If either company did decide to exit its pigmeat operations, a sale, rather than an exit, would be critical to ensure continued viability of the Irish pigmeat industry.

The current structure of primary processing ownership on the island of Ireland is represented in the tables below. We have grouped the different operations into different tiers for the purposes of analysing the capacity. In RoI, we have grouped them into four tiers: tier 1 represents the largest operators (top 5 plants) who operate a full working week, tier 2 RoI operators only operate for part of the working week, tier 3 RoI plants are smaller EU approved slaughtering plants, and tier 4 are the non-EU approved abattoirs in RoI. In NI, we have just two tiers: tier 1, represents the 4 main plants and tier 2 the smaller abattoirs.

Table 28: Republic of Ireland Slaughtering Operation Ownership

Company	Ownership	Share of Annual Kill in 1999	Stakeholders
Tier 1 Slaughtering companies			
Glanbia	PLC		Shareholders
Galtee	Co-operative		Producer Members
Dawn	Private		Private
Tier 1 Total		**69%**	
Tier 2 Slaughtering companies			
Greenvale	Private		Private
McCarren's	Private		Private
Macmine	Private		Private
Ballon	Private		Private
Bergin	Private		Private
Dromone Meats	Private		Private
Tier 2 Total		**18%**	
Tier 3 Slaughtering companies			
Balladerreen	Private		
Stauntons	Private		
Green Pastures	Private		
Doyles	Private		
Sean Duffy	Private		
Denny[2]	PLC		
Tier 3 Total		**9%**	
Other Non-EU approved abattoirs	Private	**4%**	Private

Source: Enterprise Ireland

Table 29: Northern Ireland Slaughtering Operation Ownership

Company	Ownership	Share of Annual Kill In 1999	Stakeholders
Tier 1 Slaughtering companies			
Malton Bacon Co.	PLC.		Shareholders
William Grants	Private		Private
Stevenson's	Private		Private
Crewe	Private		Private
Tier 1 Total		**99.8%**	
Tier 1 Slaughtering companies			
Abattoirs		0.2%	
Total – NI		**100%**	

Source: DARDNI

[2] Denny part of the Kerry Group exiting from slaughtering in April 2000 and have been grouped as a tier 3 operator for analysis purposes

3.3 Pig kill numbers

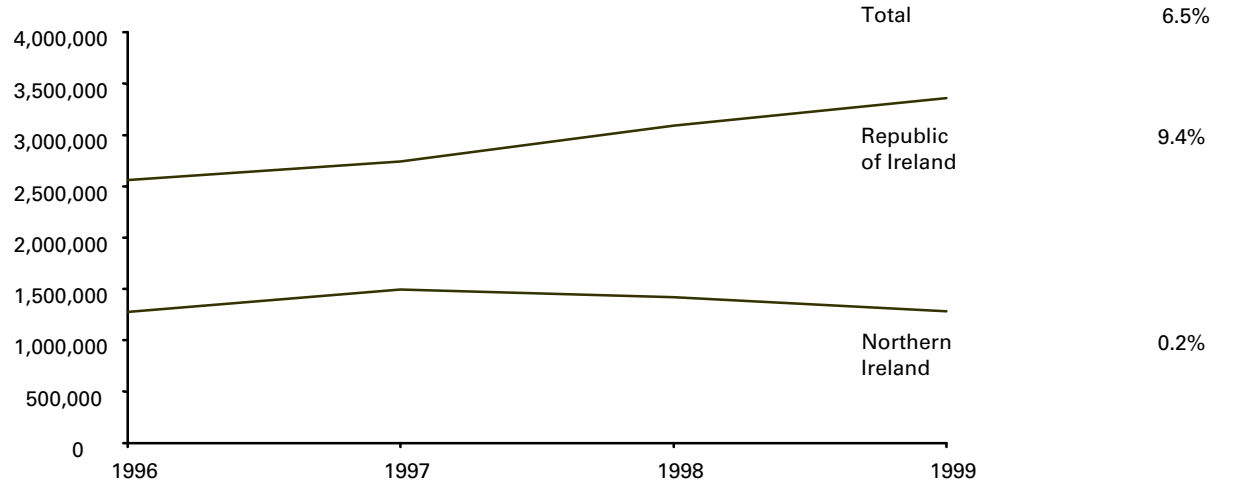
Taken as one region, the island of Ireland has undergone dramatic changes in pig production and processing over the last 5 years. Processing volume and profitability has experienced significant growth and decline over this period. Both RoI and NI processing industries have seen new entrants and exits of various slaughtering concerns.

On an island of Ireland basis, pig kill numbers have increased from 1996 - 1999; however, NI kill figures have fallen back in 1998 and 1999 after a number of years of growth

As a whole, the island experienced growth in slaughter numbers of 6.5% per annum from 1996 to 1999. However, the slaughter numbers must be examined in a segmented manner to capture the different regional challenges that the industry is currently facing.

When taken as separate industries, RoI experienced 9.4% annual growth in pig slaughterings from 1996 to 1999, while NI growth was flat.

Graph 1: Annual Pig Slaughterings: NI and RoI 1996-1999



Source: DAFRD and DARDNI

Table 30 below shows the trends in pig kill numbers on the island of Ireland from 1996 – 1999.

Table 30 Pig kill numbers 1996 - 1999

NI Pig Kill	**1996**	**1997**	**1998**	**1999**
Bacon factories	1,275,769	1,488,256	1,377,550	1,162,763
Abattoirs	2,851	8,768	44,099	123,051
Total for year	**1,278,620**	**1,497,024**	**1,421,649**	**1,285,814**
Weekly average	24,589	28,789	27,339	24,727
Year on year change	+23%	+17%	-5%	-10%
RoI Pig Kill	**1996**	**1997**	**1998**	**1999**
EU Approved Processors	2,559,234	2,741,140	3,088,784	3,357,941
Non-EU Abattoirs	365,766	321,860	266,116	144,559
Total for year	2,952,000	3,063,000	3,354,900	3,502,500
Weekly Average	56,250	58,903	64,517	67,355
Year on year change		+7%	+11%	+8%
Total Island Pig Kill	**1996**	**1997**	**1998**	**1999**
Total for year	4,230,620	4,560,024	4,776,549	4,788,314
Weekly Average	81,358	87,692	91,856	92,082
Year on year change		+7%	+5%	0%

Source: DAFRD and DARDNI

Key messages:

- NI pig kill numbers began their decline in 1998, while RoI kill numbers increased over the period. The number of pigs killed by NI processors began to decline significantly in 1998, with the annual kill figures in 1999 declining by 211,210 pigs or 14% over the 1997 pig kill. RoI processors experienced growth in pig kill numbers from 1996 to 1999.

- The exit of Lovell & Christmas in June 1998 due to fire impacted the entire island processing industry. While the decline in NI pig kill numbers represents significant change from the high throughput levels of 1997 and 1998, the 1999 pig kill numbers were at the same level as in 1996. It is important to note that the Lovell & Christmas (L&C) factory was destroyed by fire on 20 June 1998. This removed significant processing capacity from the industry. In 1997 L&C killed 404,338 pigs. This represented 27% of the Northern Ireland and 10% of total island slaughtering for that year. L&C had only recently increased its slaughter capacity to 12,500 pigs a week, so the true effect of the loss of this capacity was around 40% of the total NI capacity.

- Although its exit occurred in 1998, the impact of the loss of L&C was not really felt until 1999. Pig kill numbers in that year only declined by 5%. This was due to the increased pig production and slaughtering by the other main NI bacon factories (Malton, Grants and Stevensons). These plants increased their combined 1998 average weekly kill by 20% from 16,775 in 1997 to 20,197 in 1998. Also Crewe Pork started slaughtering in August 1998 and the numbers of the pigs slaughtered by abattoirs increased by 35,294.

RoI pig kill figures in the year 2000 to date show a significant decline

While the above table and graph depicts historical growth in pig kill figures, the year on year figures for 1999 to 2000 year to date paint a different picture showing an overall decline in the total pig kill numbers.

As discussed in the production chapter of this report, the NI herd has declined 40% from June 1997 to June 2000. RoI pig numbers increased by 4% for June 1997 to December 1999. However, recent figures show that RoI has begun to experience a decline in pig numbers (just over 2%) from December 1998 to December 1999. We expect this trend to continue, resulting in a total decline of 10% in NI and 2% in RoI over the next 3 years. The declining pig numbers have already begun to make an impact at the primary processing level and will continue to do so by limiting the available supply of pigs to primary processors and therefore, constraining average throughputs in the plants.

Table 31 below shows the pig kill numbers for the first 27 weeks of 2000 and contrasts them with the same period in 1999.

Table 31: Total Island Pig Kill 1999 – 2000 (First 27 weeks)

Time period	NI Kill	RoI Kill	Total Island	Weekly average
2000 (27 weeks)	658,513	1,676,915[3]	2,335,428	86,497
1999 (27 weeks)	667,803	1,799,961	2,467,764	91,399
% change	**-1.4%**	**-6.8%**	**-5.4%**	**-5.4%**

Source: DARDNI, DAFRD, & CSO

Key messages:

- The rate of decline in NI pig kill numbers appears to be stabilising while in RoI after three years where pig kill numbers increased, there is significant decline.
- Hidden in this NI stabilisation, is the fact that NI processors are importing 17% of their average weekly kill from RoI.
- A major question for the processing sector is whether this decline can be reversed or if it is a permanent contraction. Our analysis of the production sector in the previous chapter would suggest that pig numbers are unlikely to recover in the short to medium term.
- The decline in RoI slaughter figures appears to have been absorbed by the tier 1 group of processors with the kill numbers in the tier 2 and 3 processors as a group increasing.

A large number of live pigs are imported from RoI to NI for slaughtering

A feature of the primary processing sector in NI is the volume of imported pigs from RoI that are slaughtered by NI plants.

[3] RoI figures for 2000 consist of 1,559,351, which is down 9.6% on the same period in 1999, for the EU approved plants and 117,564 for the other plants based on an estimated weekly average of 4,354 calculated from CSO figures for the first four months of 2000 (the latest figures available to the study team).

Table 32, shows that on average, seven and a half thousand pigs a week were imported in 1996 and 1997. This figure began to decline in 1998 and dropped significantly in 1999. The slaughter numbers for NI have not reflected the full impact of the decline in the NI herd, and this is primarily because imports of pigs from RoI have increased in 2000[4].

Table 32 Live Pig imports into NI 1995 – 2000 (First 27 weeks only)

Year	Number	% of total slaughtered	Year on year change on the numbers imported	Weekly average
1995	134,247	13%	N/A	2,582
1996	404, 561	32%	+ 201%	7.780
1997	386,958	26%	- 4%	7,442
1998	333,195	23%	-14%	6,408
1999	153,170	12%	-54%	2,946
2000 (27 weeks)	111,650	17%	+31% (on same period in 1999)	4,135

Source: DARDNI

Key messages:

- The level of live imports of slaughter pigs in NI is increasing in 2000. The figures in the above table show a dramatic fall in the number of live pig imports for 1998 and 1999. This decline was driven by a number of factors:

  – L&C accounted for 40% of the imported pigs in 1997 and L&C ceased slaughtering on 20 June 1998.

  – The loss of the L&C capacity meant that there were more homebred pigs available to meet the requirements of the other NI bacon factories and abattoirs and, therefore, a reduced need for imported pigs.

  – NI pig production was up about 7% in 1998 over 1997 adding to the supply of homebred pigs available.

  – 1999 was the first full year that the loss of L&C fully impacted the level of imports. For example, the level of pig imports by Malton in 1999 was down 46% on the 1998 level.

  – Malton have only relatively recently increased their slaughtering capacity significantly and their increased demand for RoI pigs to meet their increasing pig supply requirements will only really take effect from the second quarter onwards in 2000.

  – The overall number of pigs slaughtered in 1999 fell by 10% on the 1998 figures and by 14% on the 1997 figures.

[4] The actual level of live pig imports is probably much higher than the official reported figures. On the basis of a sow herd of 44,000 in NI, the weekly number of "home bred" pigs would be around 16,000 – 18,000. The average weekly kill for the first 27 weeks was around 24,000. The use of dealers who operate on a cross border basis may be a factor in the lower official figures.

- NI processors have imported 17% of their kill for 2000 year to date. Imported pigs represented only 12% of the NI total kill for the same 27-week period in 1999.

- Prospectus have been unable to reconcile the differences between the total NI and RoI kill in 1999, the reported number of live pig imports to NI, and the pig production base of number of sows in the RoI and NI herds. The discrepancies would indicate an under reporting of live imports by as much as 100% and/or inaccuracies in the reported herd numbers.

Malton's import of live pigs in Q2 2000 has increased 15.2% over Q1 2000, indicating that the recent ramp-up in Malton's throughput levels has been supplemented by live imports from RoI. The figures for NI bacon factory imports in the first half of 2000 are displayed in Table 33:

Table 33: Imports of Live Pigs at NI Bacon Factories

	Top Operator	Next 3 operators	Top 4 Bacon Factories
Quarter 1 2000	32,179	11,391	43,570
Quarter 2 2000	56,820	11,260	68,080
% Change	**76.6%**	**-1.2%**	**56.3%**

Source: DARDNI

Key messages:

- Malton's represents 80% of the total number of imported pigs to NI in 2000.

- Malton accounts for all the current growth in live pig imports to NI slaughtering facilities.

The recent increase in NI live pig imports is likely to continue for the following reasons:

– NI production has continued to decline significantly in the last year (40%), and we do not foresee an immediate recovery in pig numbers.

– Malton has recently ramped up its processing capacity by specialising in primal cuts and increasing its carcass chill capacity and therefore will require a greater supply of pigs which cannot be met from NI production.

  – Quarter 2 imports have increased 56.3% over Quarter 1 2000. Malton represents all of this growth.

  – The continued strength of sterling provides greater purchase power for NI processors.

Live imports from RoI can depress prices for NI farmers and provide producers in RoI with alternative buyers

One of the key impacts of the level of NI imports of live pigs from RoI, is the greater range of supply sources for the slaughtering plants. This can enable them to pay a lower price per pig to secure their required supplies of pigs.

The impact from the RoI perspective is that farmers have greater competition for their pigs in that they have alternative buyers in NI and, therefore, can get higher prices in the NI or encourage their buyers in RoI to pay comparable prices. This factor is enhanced by the current strength of sterling that allows NI buyers to pay a slightly lower sterling price than the NI price and still be price competitive in RoI. The effect for RoI slaughtering plants is that they need to pay similar price levels or reduce the numbers they purchase from week to week.

Tier 1 RoI are processors suffering from the flow of pigs to NI, the drop in pig numbers and growing share of Tier 2 operators

The flow of pigs to NI and the decline in pig numbers has had a negative impact on pig throughput levels in individual RoI slaughtering plants. This impact has been greatest on the larger plants in RoI. Figures comparing the first 27 weeks of 1999 and 2000 show the top five RoI plants experiencing significant declines in pig slaughter numbers, down by 118,515 (10%). The drop in kill numbers range from –5.4% to –26.4%. Only one of the top five plants showed an increase in slaughter numbers for the same period; it was an increase of less than 2% in average weekly throughput.

The tier 2 plants increased their kill numbers by 60,451 (21%) over the same period. While the tier 3 companies increased the kill numbers by 29,030 (49%), if the Denny figures are excluded from the tier 3 group figures. Table 34 below shows the tier 1 and tier 2 operators and their average weekly kill as well as their share of the kill.

Table 34 Comparison of Average Weekly Throughput at RoI Tier 1 and 2 Plants 1999-2000 (for first 27 weeks)

(First 27 weeks)	Tier 1 (5 plants)	Tier 2 (6 plants)	Tier 1 & 2 Total
1999	**45,914**	**10,897**	**56,811**
Share of total kill	69%	18%	87%
2000	**41,525**	**13,136**	**54,661**
Share of total kill	67%	21%	88%
% Change (Average Slaughter)	**-10%**	**21%**	**-4%**
% Change (Share)	-2%	+3.0%	-1%

Source: DAFRD

Key messages:

- The top 5 plants in RoI are absorbing the loss of throughput resulting from the declining herd on the island of Ireland and the increase in level of NI live imports.
- The net additional supply of pigs resulting from Denny's exit from slaughter activities has not benefited the larger plants in terms of increasing their weekly kill numbers.
- The larger, exporting primary processors are struggling to maintain sufficient throughput against the smaller, primarily domestic operators and NI buyers.
- The larger RoI processors will find it increasingly difficult to procure sufficient supplies of pigs to meet their requirements for 8,000 to 10,000+ pigs per week.

- However, the smaller processors are somewhat insulated from immediate declines in pig production numbers, given their smaller weekly kill requirements.

- The planned expansion of Malton's slaughter activities in the North has begun to impact the larger RoI primary processors' pig supplies.

- As the herd declines further, the larger RoI processors will find it difficult to grow in share or volume unless there is a consolidation or rationalisation in the industry.

The decline in production has applied pressure to throughput levels in NI and RoI primary processing plants

The decline in pig production has been most significant in NI. However, the pig population of the entire island is in decline. Falling pig numbers will apply increasing pressure on processors to maintain throughput levels. It is unlikely that historical growth in Irish processing throughput levels will be matched in the coming years. In the short-term, the decline in the NI herd is expected to be offset somewhat by imports of RoI pigs. However, as the total island herd shrinks, processors on both sides of the border will feel the pressure and capacity utilisation levels will suffer significantly. The decline in herd size, both in NI and RoI will not produce appropriate numbers to maintain 1999 throughput levels.

Figures for the first 27 weeks of 2000 indicate a 5.4% decline in overall pig slaughter numbers over the same period in the previous year (6.8% decline for RoI). There is no reason to anticipate a turnaround in this trend. Overall, Prospectus expects that over the next three years, slaughter numbers will stabilise at around 4.8 million pigs annually, down 15% from the 1999 figure, with a total island weekly average slaughter of about 92,000 pigs. This eventual stabilisation will be a net decline of 11% from current year to date slaughter numbers. Implications for capacity utilisation and processing efficiency are discussed in the future outlook section of this chapter.

This anticipated decline in total island production would have significant implications for key success measures in Irish primary processing including:

- Capacity utilisation
- Processor productivity
- Scope (and business case) for automation
- Future outlook for Irish processing

The next chapter discusses the maximum achievable throughputs in Irish primary processing, both NI and RoI. By comparing the results of current throughput levels with the maximum achievable throughputs, we can assess whether there is sufficient primary processing capacity in the pig meat processing industry in Ireland.

Pig kill numbers - summary key messages:

- After four years of growth (6.5% p.a.), total island slaughter figures are declining.
- A comparison of the first 27 weeks of 2000 shows NI slaughter down 1.4% and RoI slaughter down 6.8%.
- Imports of live slaughter pigs from RoI are currently masking the decline in NI production.
- 2000 year to date figures show that 17% of the NI slaughter is imported; this figure is up 31% on the same period in 1999.
- Malton's Q2 2000 imports figure has increased by 15% on Q1, indicating that the Cookstown plant is driving the growth in imported pigs.
- The strength of sterling will continue to drive RoI pigs to NI and apply downward price pressures to NI producers.
- RoI processors are experiencing declining throughput levels.
- Exports of live pigs to NI is creating two clear procurement pressures for RoI processors:
    - Sufficient supply of pigs
    - Increased price competition against sterling buyers in NI

Implications

The decline of the pig kill numbers driven by the decline in pig production levels for the slaughtering sector of the industry, particularly, if the Prospectus predictions on the further decline in production prove to be correct, will:

- Exacerbate an already weak position in the sector regarding the utilisation of existing capacity and excess capacity in the industry. (See next chapter)
- Leave primary processors short of product and as a result they will be unable to meet in full their customers requirements which will mean loss in market share and increase in imports by domestic secondary processors.
- Put pressure on profitability due to reduced revenues as a result of the decline in throughput levels.
- Lead to a reluctance or lack of confidence to invest due to pig shortages, excess capacity and reducing operating margins.
- Lead to the exit of some of the current capacity from the industry as a result of the predicted decline to between 82,000 and 92,000 pigs per week.

Recommendation

There needs to be an industry wide agreement regarding the rationalisation of excess capacity to prevent further loss of competitiveness of the primary processing sector due to the cost of carrying this excess capacity. A key component for the recommended rationalisation of excess capacity will be the need to negotiate and agree equitable supply arrangements with producers to ensure a stable supply of pigs for the remaining capacity.

However, given the level of distrust that exists between the different players in the industry and the difficulties experienced in other Irish processing industries in securing agreement for a planned voluntary rationalisation of excess capacity, achieving an agreed industry-wide island of Ireland programme to rationalise excess slaughter capacity in the pig industry may also prove to be elusive.

The alternative to an agreed programme will be the reliance of market forces to drive out poorly performing processors (suffering from insufficient volumes of pigs, loss of markets and low or negative profitability) in an unplanned manner. This could create major upheaval and uncertainty in the industry and further damage confidence of the industry players and possibly leading to further exits from the industry by producers and processors.

3.4 Profile of slaughtering capacity

Total island slaughter capacity is dominated by 2 companies
NI slaughter capacity is characterised by one large operator (Malton), and 2 smaller operators (Stevensons and Grants) who currently dominate slaughtering capacity. Crewe Pork is the only other operator of significant size and there are also a number of other smaller abattoirs. This has meant that NI slaughtering capacity is very concentrated and the loss of L&C in 1998 has meant that there is now one plant which is responsible for more than 50% of the yearly pig kill.

RoI slaughter capacity is characterised by 5 large plants and a number of smaller operators, which focus predominantly on the domestic market. There are 16 EU licensed slaughtering plants in RoI currently operating and a number of non-approved abattoirs.[5] Ownership of the 5 large plants is spread across three companies: Galtee, Dawn, and Glanbia. The smaller plants are privately owned companies. Glanbia had a 39% share of RoI pig kill in 1999.

There is a major strategic dependency on Malton in the North and Glanbia in the South
Malton and Glanbia account for 43% of the total island pig kill. Any event that resulted in the Malton or Glanbia capacity being taken out of the industry would cause major problems for farmers in getting their pigs killed and also is likely to have a negative impact on the price they would obtain for their the pigs.

Table 35 below, highlights the importance of Malton's slaughter capacity to the NI industry.

Table 35: Analysis of pig slaughtering by the major NI plants 1997 –2000 year to date)

% of the total pig slaughterings	1997	1998	1999	2000 (year to date)
by the largest operator	37%	42%	54%	55%
by the top 3	84%	82%	90%	92%
by the top 4	96%	97%	99.8%	99.9%

Source: DARDNI

Key message:
- NI slaughtering capacity is highly concentrated, with four plants accounting for practically all the kill numbers.

The RoI slaughtering industry is not as concentrated as NI primary processing. However, there is a similarly strong dependence on the largest operator. Table 36 below reflects this dependence, and the concentration of slaughtering in the RoI industry.

[5] Denny ceased slaughtering on the week ending 8 April 2000.

Table 36: Analysis of pig slaughtering by the major RoI plants (1997 –2000 year to date)

% of the total pig slaughterings	1997	1998	1999	2000 (year to date)
By the largest operator	42%	42%	39%	38%
Tier 1 plants (the top 5)	72%	73%	69%	67%
Tier 1 & 2 plants	79%[6]	84%[7]	85%	88%

Source: DAFRD

Key messages:

- Like the NI industry, RoI slaughtering is heavily dependent on the largest primary processor.
- The top 5 plants have fluctuated from 67% of the kill to 73% of the kill.
- The top 10 plants represent 88% of the annual kill for 2000 year to date.

Potential processing capacity

As mentioned in the previous chapter, comparing the current throughputs in Irish processing to the maximum achievable levels of throughput will have significant implications for the following success measures:

- Capacity utilisation
- Processor productivity
- Scope (and business case) for automation
- Future outlook for Irish processing

The pig processing industry in Ireland (NI and RoI) has experienced significant changes over the last five years including changes in volumes, profitability, structure, and efficiency. Processors experienced a record year in 1999, slaughtering 4.8 million pigs for the 32 counties. This record came on the back of record numbers in pig production for RoI and NI, and the numbers of pigs that had to be slaughtered. The adequacy and efficiency of the current level of processing capacity on the island is a question that must be addressed before the future outlook for the Irish pig industry as a whole can be examined.

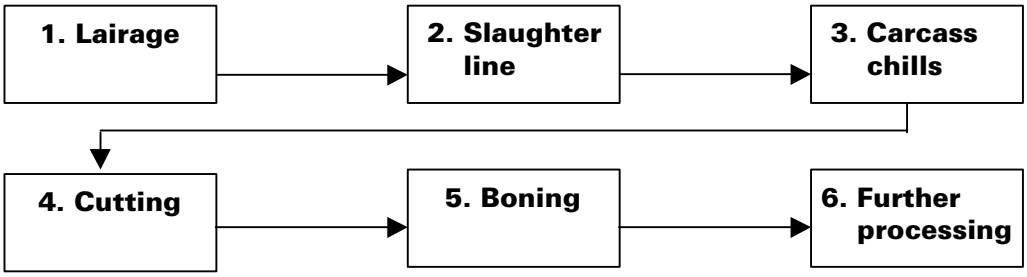
This section of the report seeks to quantify the maximum achievable capacity for pig processors on the island of Ireland. We have used data from the individual processors, as well as officially reported figures to Enterprise Ireland, the Department of Agriculture Food and Rural Development, IDB, and the Department of Agriculture and Rural Development for Northern Ireland.

[6] Dromone, Macmine, Bergin and Ballon were not classified as EU approved plants in 1997. Greenvale was the only tier 2 plant operational as an EU approved plant and included in the tier 2 kill figures.

[7] Only Greenvale and Ballon were operational throughout 1998 as EU approved plants. Dromone and Bergin only commenced slaughtering at the end of 1998 as EU approved plants. Macmine was not classified as an EU approved plant in 1998.

Potential or theoretical capacity of the industry is an important performance factor to assess when looking at the primary processing sector
This requires an assessment of the capacity of each stage of the processing cycle. There are a number of key stages in the processing cycle.

Stages of Processing



Not all plants are involved in all six processing stages
Plants that are involved in slaughtering will be involved in stages 1- 3 and are most likely to be involved in stage 4. In NI, Malton, Grants and Stevensons are involved in all 6 stages but their level activity in stage 6 is very low. Some of the secondary processors in NI are involved in stages 4 and 6 and again the level of activity in stage 6 is low.

In RoI, all Tier 1 operators are involved in all stages of processing, however, their involvement in stage 6 is again limited. Tier 2 operators are primarily involved in stages 1, 2, 3, and have limited activities in stage 4.

Lairage capacity – number of pigs that can be held in the holding pens
The capacity at each of these stages will have specific upper limits, which determines the maximum or peak processing production for that stage. In lairage, it is the number of pigs that can be held in holding pens each day that will place an upper limit on the number of pigs that can be killed in a day. The three main NI and all Tier 1 and 2 RoI plants have sufficient lairage capacity to meet their peak or theoretical maximum slaughtering capacity.

Slaughter-line capacity – pigs killed per hour
For the slaughter line, it is the number of pigs killed per hour and the number of hours per day/week that the slaughter line is operational. In theory, the line can be operational 24 hours a day 7 days a week (with some down time built-in for cleaning, preparation and maintenance) but no slaughtering plant on the island of Ireland operates longer than a single shift. Malton have introduced a 10.25-hour a day shift operational over 5 days. The other plants in Northern Ireland tend to operate the slaughter line for about 4-5 hours a day.

RoI plants range from 4 to 7.5 hours a day for slaughter line operation. Tier 1 plants range from 32-39 kill hours per week, while Tier 2 ranges from 15-39 kill hours per week. This wide range of operating hours for the kill lines is well below competing nations such

as Denmark, Holland, and the US, where many plants are operating 10 hours a day or double kill shifts.

Carcass chill storage capacity – number of carcasses that can be stored per day

The carcass chill storage capacity for the slaughtered carcasses is another peak constraint. The practice is to kill on day 1 and place the carcass in chill storage overnight and either ship the carcass to a further processor or cut/bone it on day 2. Therefore, the amount of carcasses that can be held in the carcass chill storage sets the upper limit on the number of pigs that can be slaughtered on a given day.

Only one of the main NI plants has sufficient chill space for its theoretical maximum slaughter capacity. Two of the top 3 NI plants have recently invested in additional chill capacity to meet increased weekly throughput goals. 2 of the top 5 plants in RoI are constrained from reaching their theoretical maximum capacity by the amount of chill space that currently exists in their plants. Three Tier 2 operators are constrained from reaching their theoretical maximum by the availability of chill capacity.

Cutting and boning capacity - tonnes per day/week

Cutting and boning capacity is determined largely by the:

- Number of operators places in the cutting and boning halls
- Number of operators
- Productivity of the individual operator (e.g. kg.s/pieces per hour)
- Number of operating hours per day/week.

There can be wide variances between plants in the amount and type of cutting and boning that is done and the customer specifications that they adhere to making cross plant comparisons difficult. Therefore, at its simplest level, the cutting and boning capacity constraint is usually described in terms of tonnes per day/week that the plant can handle given the number of operator spaces and operators they have available.

However, another constraint on the cutting/boning volume capacity is the amount of chill storage space available to hold the finished product until it is shipped.

Further processing capacity - tonnes per day/week

If the plant also does further processing, the capacity constraints are, again, largely determined by operator productivity, operator space available, number of operators available and number of operating hours. Another capacity constraint is the number of pieces/kg that can be packed in an hour. The packing constraint also applies to cutting and boning.

The focus of the theoretical capacity assessment has been on slaughtering capacity

There are a large number of factors that can impact the potential or theoretical capacity of a plant. Also, not all plants are involved in all stages of production (and those that are, do not process their entire product through all 6 stages and there is considerable

variation in what is done in stages 4-6 by different plants). Because of these factors, we have focussed on assessing the potential or theoretical slaughtering capacity of the industry.

NI theoretical weekly slaughter capacity calculation:
The top 3 NI plants have a theoretical capacity of 36,340 pigs per week or 1.9 million pigs per year.

Table 37: Weekly Slaughter Capacity of the Top 3 Northern Ireland slaughtering plants

Current capacity[8]	**Top 3 Plants**
Current Line Speed / Hour	**670**
Current Kill Hours	96.25
Current Weekly Throughput	**23,675**
Realistic possible capacity[9]	**Top 3 Plants**
Maximum Line Speed / Hour	**840**
Current Kill Hours	96.25
Realistic Weekly Throughput	**30,350**
Maximum capacity[10]	**Top 3 Plants**
Max Line Speed / Hour	**840**
Max Possible Kill Hours	123.25
Max Possible Weekly Throughput	**36,340**

Source: Information provided by individual bacon factories

Only Malton is near the length of the operating week in countries like Denmark, the Netherlands and the USA
The two smaller plants only operate 20 and 25 hours respectively. Therefore, the realistic capacity maximum based on current operating hours for the three plants is reduced to 30,350 pigs per week or 1,578,200 pigs per year. However, the plants currently are not operating near this capacity level with the average weekly pig kill in the year to-date (27 weeks ending 1/07/00) of 22,759 pigs per week, 25% below the realistic possible capacity based on current operating hours or 37% below the theoretical maximum.

If any of the island of Ireland plants were to operate like Danish and US plants on a shift and half or double shift basis and/or go to a six-day operating week, this theoretical maximum would be increased further.

[8] The current capacity calculation is based on the line speeds and number of operational hours the plants are operating at present

Note: The capacity is calculated at individual plant level. The above table represents the total of the three plants. The capacity cannot be calculated by simply multiplying total line speeds and total operational hours because of the different weightings that need to be applied for the different plants

[9] The realistic possible slaughtering capacity is based on the plants operating at the maximum line speeds that the slaughter lines are capable for the number of hours that the plants are operating at present

[10] The maximum capacity is based on the plants operating at the maximum line speeds and that all plants are operational for at least 36 hours. The Malton plant is based on a planned operational week of 51.25 hours

Current carcass chill storage capacity limits the weekly kill of the top 3 NI plants to a maximum of 32,000 pigs a week or 1.66 million pigs a year
While the theoretical maximum may be 36,340 (based on slaughter line speeds operating to full capacity potential and operating for a full working week), the maximum the 3 plants can handle within existing carcass chill storage capacity is 32,000 pigs per week.

To be able to reach the theoretical slaughtering capacity, capital investment to increase carcass chill capacity would be required. Other constraints such as availability of sufficient skilled labour, additional operating space and sourcing profitable outlets for the increased output would have to be addressed before this capacity level could be attained.

The full theoretical capacity of the NI industry needs to include the factories and abattoirs that currently kill pigs
Detailed information on the specific processing capacity capabilities (line speed capabilities, chill capacity and operating hours) of the other slaughter plants was not available to the study team. However, the average weekly kill of these plants for the year 2000 to-date was 1,630 and this figure can be used to determine an approximate theoretical capacity for the industry.

The annual NI pig slaughter capacity under the above 3 scenarios are:

1 – **Total NI current capacity:** Based on current line speeds and current operating hours (51.25 – 20)

Top 3 plants	1,231,100
Other plants	84,772
Total slaughter capacity	1,315,872

2 – **Total NI realistic possible capacity:** Based on max possible line speeds and current operating hours (51.25 – 20)

Top 3 plants	1,578,200
Other plants	84,772
Total slaughter capacity	1,662,972

3 – **Total NI theoretical maximum capacity:** Based on max line speeds and operating a full week with a minimum of 36 operational hours for the slaughter line (51.25 – 36)

Top 3 plants	1,889,680
Other plants	84,772
Total slaughter capacity	1,974,452

Total NI capacity: Based on current carcass chill capacity

Top 3 plants	1,664,000
Other plants	130,000
Total slaughter capacity	1,794,000

There is sufficient slaughter capacity to meet NI production needs
The capacity ranges from 1.3 millions pigs a year to 2 million. The table below shows actual kill levels for the last 3 years, and reflects the fact that current slaughter capacity is sufficient for even historical levels of production, which was much higher than current levels.

Table 38: Annual NI kill figures 1997-1999

	1997	1998	1999	% change per annum 1997-1999	1999 (27 weeks)	2000 (27 weeks)	% change 1999-2000 (27 weeks)
Total NI Kill	1,497,024	1,421,063	1,285,814	-**7.3%**	667,803	658,513	**-1.4%**

Source: DARDNI

Key messages:

- Total NI kill figures have not exceeded total realistic possible capacity levels for the last 3 years. (The removal of the Lovell & Christmas capacity in June 1998 reduced the total NI capacity but it is still sufficient to meet the annual kill needs)

- The rate of decline in kill numbers from 1997 to 1999 was –7.3% per annum. However the decline appears to be slowing, with 2000 year to date figures showing only a -1.4% rate of decline over the same period in 1999. This is due in part to the increase level of live pig imports.

Given the dramatic drop in pig production numbers there is more than sufficient capacity even at the lower base to meet the slaughter requirements of NI production. Only about 16,000 - 18,000 home bred pigs are being supplied currently each week to the bacon factories and abattoirs and this number is expected to fall further. The issue for NI is securing a sufficient supply of pigs and not slaughter capacity.

RoI theoretical weekly slaughter capacity calculation:

The top 5 RoI slaughter plants (Tier 1 operators) have a weekly theoretical slaughter capacity of 52,780

When combining Tier 1 theoretical maximum slaughter capacity with that of Tier 2 plants, the weekly theoretical slaughter capacity is 80,670 across 11 plants. The table below shows the calculation of current actual throughput as well as theoretical (maximum) weekly slaughter capacity.

Table 39: Weekly Slaughter Capacity of Tier 1 and 2 RoI slaughtering plants

Current capacity	**Tier 1 Combined Total**	**Tier 2 Combined Total**
Current Line Speed	1,180	677
Current Kill Hours	178	95
Current Throughput	42,080	13,414
Realistic possible capacity	**Tier 1 Total**	**Tier 2 Total**
Max Line Speed	1,400	745
Current Kill Hours	178	95
Realistic Possible Throughput	**49,860**	**14,550**
Maximum combined	**Tier 1 Total (5 plants)**	**Tier 2 Total (6 plants)**
Max Line Speed	**1,400**	**745**
Max Possible Kill Hours	188	177
Max Possible Throughput	**52,780**	**27,890**

Source: Based on information provided by individual plants

The combined weekly chill capacity of Tier 1 operators is 59,250, which would seem to indicate that chill space is not a capacity constraint in RoI. However, this chill space is mismatched to individual slaughter plant throughput levels.

When examining theoretical capacity within the context of chill space constraints for each individual plant, the maximum theoretical weekly slaughter capacity for Tier 1 operators is 51,895. This is just below the chill capacity needed to cover the maximum theoretical throughput level identified in the table above (52,780 per week). Two Tier 1 operators would need to invest in chill capacity to reach their maximum theoretical weekly slaughter capacity.

A number of Tier 2 operators are constrained by chill capacity. The maximum theoretical capacity when individual plant carcass chill storage capacity is factored in is 21,675 and it would need significant investment to achieve a theoretical capacity level of 27,890.

Calculation of the maximum theoretical capacity of the RoI industry needs to include all EU approved and local authority licensed abattoirs that currently kill pigs

Again, detailed information on the specific processing capacity capabilities (line speed capabilities and operating hours) of the other EU approved slaughter plants was not available to the study team. However the average weekly kill of these plants for the year 2000 to-date was 2,009 (excluding the kill figures for Denny who exited out of slaughtering in April).

The most recent available figures for non-EU approved abattoirs (through April, 2000) indicate a forecast weekly average of 4,354. The weekly average for 1999 was 2,780, and 1998 was 5,118. We have used these weekly average figures for 2000 year to-date to determine an approximate capacity for these segments industry

The annual RoI pig slaughter capacity under the above 3 scenarios are:

1 **– Total RoI current capacity:** Based on current line speeds and current operating hours (15-39)

Tier 1&2 plants	2,913,508
Other plants	104,493
Non-EU approved	226,419
Total slaughter capacity	3,244,420

2 – **Total RoI realistic possible capacity:** Based on max possible line speeds and current operating hours (15-39)

Tier 1&2 plants	3,402,620
Other plants	104,493
Non-EU approved	226,419
Total slaughter capacity	3,733,532

3 – **Total RoI theoretical maximum capacity:** Based on max line speeds and operating a full week with a minimum of 30 operational hours for the slaughter line (30-39)

Tier 1&2 plants	4,211,740
Other plants	104,493
Non-EU approved	226,419
Total slaughter capacity	4,542,652

Total RoI capacity: Based on current carcass chill capacity

Tier 1&2 plants	4,231,500
Other plants	104,000
Non-EU approved	234,000
Total slaughter capacity	4,569,500

The theoretical maximum capacity with individual plant carcass chill storage capacity limits factored in is 4,154,640. (This is based on a capacity of 3,816,640 for tier 1 and 2 plants, 104,000 for other EU approved plants and 234,000 for non-approved plants)

There is sufficient slaughter capacity on the island to meet RoI production needs

The slaughter capacity ranges from 3.2 million pigs a year to 4.5 million. Given the current decline in pig production numbers there is sufficient capacity even at the lower base to meet the slaughter requirements of RoI production. Current RoI weekly kill is

62,108 pigs per week or 3.2 million pigs annualised against a realistic possible weekly capacity of 67,444 or 3.5 million annually. The following table reflects total RoI kill figures for the last 3 full years.

Table 40: Annual RoI kill figures 1997-1999

	1997	1998	1999	% change per annum 1997-1999	1999 (27 weeks)	2000 (27 weeks)	% change 1999-2000 (27 weeks)
Total RoI Kill	3,063,000	3,354,900	3,502,500	**-7.3%**	1,799,961	1,676,915	**-6.8%**

Source: DAFRD and CSO

The total island of Ireland capacity, using the realistic possible measure (plants operating at maximum lines for the number of hours they currently operate at) is 5.3 million pigs (103,779 a week). The 1999 record kill was 90% of this available capacity and given that pig kill numbers are down overall by over 5% in 2000 to date with further declines expected, there is more than sufficient slaughtering capacity currently in island of Ireland.

Key messages:

- Despite a growth rate of 6.9% per year from 1997 to 1999, RoI total kill figures did not exceed the maximum theoretical capacity in the industry, or even the realistic possible capacity.
- 1999 had the highest annual kill figure, and the 3.5 million pigs that were killed could be accommodated through existing slaughter capacity, if kill lines were run at max speeds.
- The recent growth in kill figures from 1997 to 1999 appears to have dropped into decline, with the 2000 year to date number of pigs slaughtered down –6.8% from the same period in 1999.

RoI and NI slaughter capacity is sufficient for current production. However, is the geographic distribution of slaughter capacity appropriate for the island of Ireland's production? This issue is discussed later in this chapter.

3.5 Capacity utilisation levels

The effective utilisation of plant capacity is a key competitive performance benchmark in the industry.
This relates to how effectively the plant is using the capital invested. The capacity utilisation measure is the actual production volume in relation to the theoretical capacity expressed as a percentage. As with all benchmarking measures, it is important that you compare like with like and the use of industry level benchmarks needs to be treated with a degree caution given the risk of variances in definition and interpretation that can occur in an individual company or country. But they are useful indicators of relative comparative performance.

After a pig has been killed, there are so many potential processing variables that it is extremely difficult without a detailed and in-depth analysis of the comparable steps in the process to develop credible benchmark measures at an industry level. However, on the slaughter line process, there are a number of standard steps which facilitates the use of performance benchmarks and the capacity utilisation of the slaughter line is an important one.[11]

The difference between actual and theoretical capacity on the slaughter line is typically caused by the following conditions:
- Stops/down time on the line due to technical faults
- Empty hooks
- Excessive time taken on formal breaks
- Insufficient supply of pigs or poor planning to meet the demands of the processing flow.

Poor or inefficient capacity utilisation increases the average overhead per pig slaughtered
The effect of poor/insufficient capacity utilisation can be illustrated by looking at the impact of 1% down time on a standard slaughter line employing 40 operators on a 36-hour week:
- 40 operators working a 36 hour (2,160 minutes) week
- 1% downtime on the slaughter line = 21.6 minutes

When multiplied by the 40 operators it equals 864 minutes or 14.4 hours. Therefore, for every 1% downtime on the slaughter line a week the effective loss to the plant is 14.4 hours productivity. This increases the average pig slaughter cost.

[11] It is important to note that the slaughtering process is just one process in primary processing and it does not absorb the greatest proportion of processing costs. Productivity, yield or value-added improvements in other processes such as boning and cutting can have a greater impact on the competitiveness/profitability of the plant. However, given the difficulty with the wide variation possible in processing specification in these processes and with obtaining accurate and comparable data from individual plants, it was not possible to include benchmark comparisons for those processes.

Best practice capacity utilisation is 98.2%
The Danish Meat Research Institute's experience from benchmarking studies shows a best practice slaughter capacity utilisation of 98.2% and the poorest is about 92%. On a medium-speed pig slaughter line with 225 pigs/hour, the difference of 6% constitutes approximately 86 hours per week, which is the equivalent of 2.4 persons. At the same time, the number of pigs slaughtered is reduced by 513. This is an additional cost that the more inefficient plant has to bear against its more efficient competitors.

The primary processing sector on the island of Ireland is operating below best practice for both theoretical and realistic levels of capacity utilisation
Prospectus has used two key measures for capacity utilisation to demonstrate Ireland's current rates. The first measure is of the **theoretical** capacity utilisation, or TCU. This TCU figure measures the current throughput levels in the industry against a capacity with an assumed minimum slaughter line operational time (36 hours per week in NI and 30 hours in RoI[12]) and at the maximum lines speeds possible for the plants. This rate is equal to the following formula:

Theoretical Capacity Utilisation (TCU) =

(Current pig kill rate) / (Max line speed * Standard operating week with a minimum number of hours in all plants not less than 30)

A second measure, the **realistic** capacity utilisation, has been calculated to understand realistic utilisation levels under a scenario of RoI processors running their throughput levels to maximum line speed while maintaining current operating hours. This measure is calculated by using the following equation:

Realistic Capacity Utilisation (RCU) =

(Current pig kill rate) / (Maximum line speed * Current kill hours)

However, we do not believe RCU is an appropriate measure for international primary processing competitiveness, because the current level of operating hours in RoI and NI plants is below the growing international trend toward 50+ slaughter hours per week.

Table 41 below shows the calculation of two capacity utilisation measures for 13 plants in RoI and NI primary processing sectors.

[12] Two of the RoI plants slaughter sows one day a week, so the minimum hours for those plants was set at 30 hours. All the other Tier 1 and Tier 2 plants in RoI were set at 39 hours to calculate the TCU rate. The minimum hours in the NI plants was 36 hours.

Table 41: Island of Ireland Primary Processing: RoI (10 plants) and NI (3 plants) Realistic and Possible Capacity Utilisation Figures (2000 year to date)

Capacity Indicator:	RoI	NI	13 plants[13]
Max Line Speed (a)	2,145	840	2,985
Max Theoretical Kill Hours (b)	365	123.25	488.25
Max Theoretical Weekly Throughput (c)	**79,045**	**36,340**	**115,385**
Current Line Speed (d)	1,857	670	2,527
Current Kill Hours (e)	273	96.25	369.25
Current Weekly Throughput (f)	**53,151**	**22,759**	**75,910**
Realistic Weekly Throughput (g)	**62,785**	**30,350**	**93,135**
(TCU): Max Theoretical Capacity Utilisation (f / c)	67.2%	62.6%	65.8%
(RCU): Realistic Capacity Utilisation (f / g)	**84.6%**	**75%**	**81.8%**

Source: Prospectus analysis based on information supplied by plants

Key messages:

- 10 RoI slaughter plants (Tiers 1& 2), which represent 86% of the total RoI kill, are running at a theoretical capacity utilisation rate of 67% for 2000 year to date.
- Realistic capacity utilisation, (current throughput / max line speeds * current operating hours) for RoI plants is 84.6%.
- The top 3 NI plants, which represent 93% of the total NI kill, are running a TCU level of 62.6%.
- The RCU level for NI is 75%.
- 13 slaughter plants across the island, representing 88% of the total island kill (2000 year to date) are operating at TCU level of 65.8% and RCU of 81.5%.
- If the pig numbers were to decline to the Prospectus predicted level of 82-92,000 a week for the island of Ireland and the current capacity was left unchanged, the RCU rate would fall to 74%.

The smaller RoI plants are achieving better utilisation levels - if a current operational hours basis is used

Again, the RCU is not an appropriate measure for competitiveness because it only compares the plants in question to Irish operating hours, which are significantly below the growing international industry norm of 50+ kill hours per week. Tier 2 operators are killing for much fewer current hours, ranging from 14 to 32 weekly slaughter hours. Table 42 below reflects the various levels of slaughter capacity utilisation for Tier 1 and Tier 2 operators.

[13] Note: The capacity utilisation figures are based on ten RoI plants (Tier 1 & 2, excluding one tier 2 plant for which detailed slaughter line information was not available), representing 86% of kill; and top three NI plants representing 93% of the total NI kill for 27 weeks (2000).

Table 42: RoI Tiers 1 & 2 (10 plants) Breakdown of Capacity Utilisation Figures

Current	**Tier 1 Total**	**Tier 2 Total**
Current Line Speed	**1,180**	**677**
Current Kill Hours	178	95
Current Throughput Capacity	**42,080**	**13,414**
Current Kill numbers (2000 to date)	**41,525**	**11,626**
Realistic possible	**Tier 1 Total**	**Tier 2 Total**
Max Line Speed	1,400	745
Current Kill Hours	178	95
Realistic Possible Throughput	**49,860**	**14,550**
Maximum theoretical	**Tier 1 Total (5 plants)**	**Tier 2 Total (6 plants)**
Max Line Speed	**1,400**	**745**
Max Theoretical Kill Hours	188	177
Max Theoretical Throughput	**52,780**	**27,890**
Utilisation[14]	**Tier 1 Total**	**Tier 2 Total**
Theoretical Capacity Utilisation	78.7%	44.3%
Realistic Capacity Utilisation	**83.3%**	**90%**

Source: Prospectus analysis based on information provided by individual plants

Key messages:

- When Tier 1 primary processor utilisation levels are calculated separately from Tier 2 plants, the TCU is 78.7% and RCU is 83.3%.
- Tier 2 operators, are operating at an even lower theoretical capacity utilisation level (44.3%) than Tier 1 plants, however their RCU (90%) level is higher than Tier 1 operators.
  - This is due to the limited number of slaughter hours that Tier 2 plants are currently operating.
- Tier 1 operators are the primary RoI exporters for Irish pigmeat, and their capacity utilisation levels both theoretical and realistic are well below the international best practice of 98% (RCU).

In Denmark and the Netherlands, the slaughter line operating window is increasing from a standard 35 hours to 50 hours plus.

The Danish slaughter plants are trying to maximise the use of their plant capacity by operating double shifts, a 6 day working week and /or ten hour day shifts. They are trying to "sweat" their capital assets as effectively as possible and to improve cost and productivity efficiencies in their plants. Similar developments are occurring in Holland. Both Danish Crown and Dumeco has announced plans to develop green field plants with slaughtering capacities of 80,000 – 100,000 pigs per week operating on a double shift.

In NI, the Malton plant is the only one which is/plans to match the competitive norms being established in Denmark and elsewhere by increasing their operating week to 51.25 hours and to get their weekly kill numbers to about 20,000. This is now the minimum norm for slaughter plants in Denmark and it is the minimum level that the Malton Group wants to have for all its slaughtering plants.

[14] The utilisation rate calculations are based on the actual pig kill figures for the tier 1 & 2 plants in year 2000 to-date (first 27 weeks)

None of the RoI plants currently operate more than 40 hours per week. With pig numbers down, throughput levels falling and with difficulties for some plants to get consistent level of supplies, running the slaughter line for more hours cannot be justified. There is excess capacity in the industry, so sweating the slaughter assets is a difficult objective for RoI processors to achieve.

Competitive capacity utilisation is of particular importance to export focused plants

If the focus of the plant is to mainly serve the local domestic market with very little of the output being exported and the plant's capital financing costs are relatively low, then the need to achieve international best practice is not as critical as long as reasonable efficiency levels are maintained and there is acceptance of lower returns/margins. However, where the plants are not as efficient as international competitors it makes gaining access to export markets more difficult and makes the domestic market more vulnerable to imports.

The Malton plant in Cookstown needs to be cost efficient in the pig meat it supplies to its parent the Malton Group

The Cookstown plant is in competition from other Malton plants in GB and from product that Malton can source from other processors in countries like Holland and Denmark. It needs to achieve capacity utilisation, productivity and output price levels, which are internationally competitive. The competitiveness of its cost raw materials, productivity, cost of the labour force and the effective use of capacity are critical to its long-term survival.

Tier 1 RoI plants should be aiming for utilisation levels on par with competitors like Denmark and Holland

Unlike the Malton plant, no single RoI plant is currently slaughtering more than 12,000 pigs per week, and no RoI plant is currently operating 50+ kill hours per week. Despite these limitations, improvements in utilisation levels are possible. However, the excess capacity and the large number of slaughtering plants in the industry currently hinder primary processors from improving utilisation levels, even on their current low slaughter line operating hours week.

The larger and export dependent Tier 1 operators lack a sufficient supply of pigs to get slaughter efficiencies up to the level of international competitive developments.

Implications of the slaughter capacity utilisation figures:

- The island of Ireland is operating at low utilisation rates (TCU: 65.8%) and (RCU: 81.5%).
- International best practice realistic slaughter capacity utilisation is 98%.
- Irish capacity utilisation rates are falling behind international best practice.
- There is sufficient capacity in the processing industry. The current year to date slaughter levels and predicted further decline in production has led to an excess of slaughter capacity in the industry.

- Assuming no exit of processing capacity, the current production levels are not adequate to meet the current throughput needs of RoI and NI processors.
- The use of the RCU measure improves the utilisation picture somewhat. However, it is becoming less of an appropriate measure for comparison on an international competitiveness scale for the following reasons:
    - Excess capacity and small-scale plants in other competing nations (such as Holland and Denmark) is being rationalised in an effort to streamline efficiencies and increase scale.
    - International competitors are ramping up throughput levels and operating hours, not maintaining the status quo.
    - Most processors on the island are not operating on a standard of 39 kill hours per week.
        - The "standard" slaughter week is extending in competing nations like Denmark, Holland, and the US, where the industry norm is becoming 50+ kill hours per week.
- Prospectus expects pig numbers to continue their decline for the foreseeable future. This decline will cause throughput levels to drop, resulting in one of the three following scenarios unless there is a change in the structure of capacity:
    - Plants will either run at max line speeds, for fewer hours (kill line operators will lose wages due to reduced hours and possibly leave the slaughtering industry).
    - Plants will run lower line speed across the standard workweek (taking longer to kill fewer pigs, dragging down productivity and other competitiveness measures).
    - One or more slaughtering plants will exit the industry.

Recommendations

- Primary processing plants need to get to slaughter line capacity utilisation levels of at least 95% if there are to be comparable and competitive with best practice of their main competitors. This will require a rationalisation of excess capacity and supply agreements with producers.

- Irish slaughter plants will need to increase the number of weekly operational slaughter line hours closer to the new international industry norm in competitor countries of 50+ hours. Otherwise they risk being at a competitive disadvantage to the competitors in Denmark and Holland who are making more effective use of their slaughter line assets and achieving greater operator productivity.

- The scale of the remaining Irish plants will need to increase if they are to achieve the levels of capacity utilisation, operator productivity and slaughter line operating hours of their international competitors. Exporting slaughter plants would need to kill an average of 17,000 pigs a week to achieve 95% capacity utilisation on a 50-hour slaughter line week (based on a slaughter line capacity of 360 pigs per hour). Only Malton is currently approaching this level of throughput.

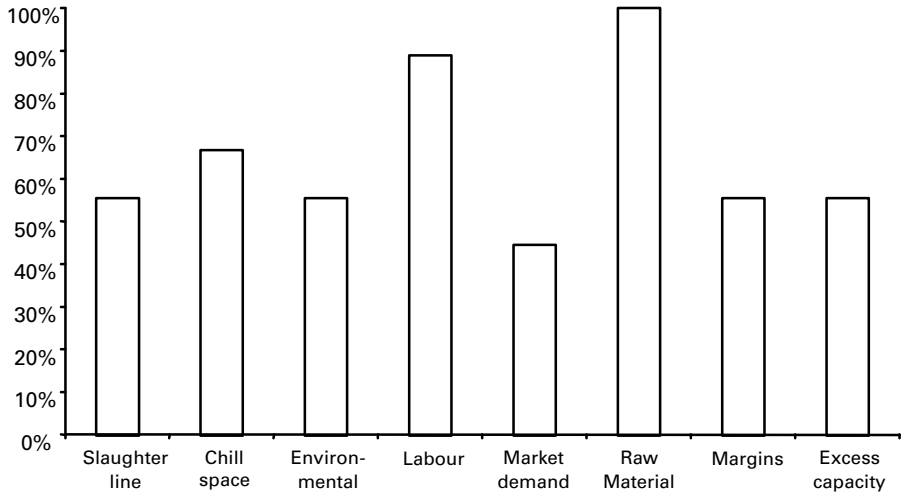
3.6 Constraints on capacity and industry growth

The capacity indicators discussed in the previous section provide an overview of the maximum possible capacity. However, this potential maximum capacity level will be effected by several possible capacity constraints:

- Number of veterinary inspectors on site
- Capacity of chill space
- Availability of labour
- Limits of possible number of slaughter operational hours
- Consistent availability of pigs
- Physical plant condition/location/equipment
- Environmental/effluent regulations
- Lack of labour supply and retention of labour particularly, skilled staff
- Limited profitability on slaughtering operations

In the graph below, a profile of responses to our survey of primary processors reveals the relevance of each of the above constraints to current capacity utilisation levels.

Survey Responses of 9 Primary Processing Plants RoI and NI



Source: Prospectus interviews and processor surveys

Key messages:

- Two issues are clearly dominating current capacity constraints in the Irish industry:
    - Consistent availability of qualified, skilled labour
    - Consistent availability of quality raw materials

Most primary processors are in a position to manage the other constraining factors on processing capacity. However, the labour and pig supply issues are key challenges that are currently inhibiting consistency and profitability within the industry as a whole.

Inconsistent supply availability hampers processor efficiency and the ability to meet customer product requirements

The lack of consistent supply of raw material creates a number of serious threats to the primary processing sector:

- Loss of competitiveness due to inconsistent throughput levels and slaughtering efficiencies
- Lack of focus on customer and market issues due to poorly utilised time and resources for procurement activities
- Lack of effective supply chain management, particularly as the need to meet customer requirements regarding product specifications, quality, price, traceability and delivery are becoming increasingly important

Processors have expressed concerns about the wide range in pig weights, levels of PSE and other inconsistencies in the pigs supplied which gives rise to processing inefficiencies and customer dissatisfaction.

The current levels of supply uncertainty and shortfalls of throughput indicate that there is sufficient processing capacity in the industry. However, there is not enough co-operation or communication between producers and processors. While most processors expect to get 90% of their necessary weekly supply on a regular basis, the remaining 10% seems to be the amount that is not under some type of "gentleman's agreement" to a specific processor. There is a view within the processing sector that six to seven thousand pigs a week are floating around for price competition between the processors. The weekly negotiations regarding price between producers and processors absorb considerable time on procurement activities.

While these "floating" pigs are only 10% of the weekly slaughter, they can inhibit smooth operation at the primary and secondary processing level, when supplies are not filled. The unfilled supply issue can cause particularly acute problems at the larger processing plants. A drop of 1-2,000 pigs has a major impact on capacity utilisation and negatively impacts the profitability of the plant. Furthermore, the inconsistency of supply can lead to customer satisfaction issues further down the chain. Secondary processors and retailers who are counting on consistent and high quality supplies can hardly be satisfied by the fluctuating levels of available pig meat and the variance in product outputs. Additionally, the absence of a consistent supply chain can cause discrepancies in the consistent quality of raw material, particularly those pigs that are floating from processor to processor on a weekly basis.

The need for effective supply chain management from producer to retailer will force change

The increasing importance of supply chain management and traceability will demand better communication between all parties in the pig meat value chain. The growing trend for retailers to approve products, beginning at the producer level, will drive better

co-operation between producer, primary processor, and secondary processor. If the Irish industry is unable to resolve the supply issue by entering into some type of agreement, it will harm its competitiveness at the customer level, and will struggle to supply the top retail groups.

Lessons from international competitors, would indicate that many of the major pig producing industries, including the US, Denmark, and the Netherlands are moving into some form of improved supply chain management. Large fluctuations in supply are not tolerated anymore, as processors cannot maintain unutilised capacity to accommodate variations in supply. Quality, consistency, and competitiveness from breeding through to retail are key to the success of competing on the international market going forward. Uncertainties of supply and constant shifting of relationships are primary constraints to the consistency and competitiveness of the Irish pig meat sector. For a processor to run at optimal capacity utilisation, there must be an assured supply, and this appears to be the single greatest constraint to optimising capacity utilisation in the Irish market.

Processing plants are experiencing labour shortages high turnovers rates and increasing labour costs

The second key constraint facing the Irish processing sector is the growing tightness in the labour market as the unemployment rate falls to 4%. The current economic boom in Ireland has attracted many of the traditional meat packing labour force (new recruits and existing staff) out of the industry to other, "cleaner" jobs. Ireland has traditionally had a large available pool of labour; however, recent developments in the economy have led younger people away from the type of physically demanding jobs on offer in the processing plants. The available labour pool for meat processing plants is declining.

Another aspect of the labour issue is the growing cost of labour. The growing Irish economy has led to improved compensation packages for employees in most industries. The meat processing industry must maintain a competitive level of compensation to attract staff. The rising labour cost will have a negative impact on the competitiveness of Irish processing, particularly when some Eastern European countries such as Poland and the Czech Republic begin to compete in the EU pig meat market place. These countries have lower production cost bases, and an abundant labour pool with lower compensation expectations.

Eighty percent of the processors we interviewed confirmed labour shortage at some stage in their processing chain. The attraction and retention of qualified staff are key challenges processors are facing in both the primary and secondary processing sectors. A common shortage reported by the processors is occurring at the highly skilled positions of boning and cutting. The shortage of qualified cutting and boning workers not only effects processors' current output, but also constrains opportunities to develop further value-added outputs.

The labour shortage in pig processing is expected to become more acute as the Irish economy continues to grow. The resulting lack of available, qualified processing labour will inhibit opportunities for growth in the sector unless some strategy is undertaken to counter the shrinking labour pool. Suggestions for a training school and employment

visas for non-Irish nationals are two strategies that processors would like to have explored further.

Key messages:

- Processors on the island of Ireland are facing two main constraints to effective utilisation of slaughter capacity:
  - The consistent availability of quality raw materials
  - Availability of skilled labour

- The current procurement practice of securing supply on a weekly basis is threatening processing competitiveness.
  - Fluctuating throughput levels negatively impact utilisation and in turn profitability.
  - Valuable time and resource are spent on procurement rather than focussing on customer requirements and market development.
  - Smaller processors appear to have strong supplier relationships. However larger operators are struggling to fill weekly supplies.
  - Integrated supply chain management is becoming the international industry norm with increasing emphasis on traceability and customer specifications.
  - Continued resistance to even medium – term supply agreements will negatively impact market opportunities for processors, particularly the larger export oriented operators.

- The pool of skilled, dependable labour that was once available to processors is shrinking rapidly.
  - RoI and NI processors are competing with other industries, such as construction for qualified staff.
  - Competitive compensation packages are becoming increasingly difficult for processors, as rising wages and more attractive (cleaner) jobs compete for qualified staff.

- Increased labour costs will reduce the competitive advantage that Irish processors had over international competitors such as Denmark and Holland. This labour cost advantage was historically used to offset disadvantages on other competitive measures such as operator productivity and scale.

Geographic distribution of slaughter capacity

The current geographic distribution of primary processing capacity is adequate and appropriate for the current distribution of production

Geographically, slaughter capacity is well placed in Ireland. There is slaughter capacity within 2 to 3 hours of road transport from every major pig-producing region in Ireland. The question of appropriate geographic distribution of capacity must be examined in the context of the total production of the island.

The table below reflects the current geographic allocation of slaughter capacity throughout the island of Ireland.

Table 43: Geographic Allocation of Slaughter Capacity - Provinces of the Island of Ireland

Province	Slaughter[15] Capacity (annual)	% of Island Slaughter Capacity	Pig production[16]	% of Island Production Capacity	Slaughter as % of production capacity
Munster	1,822,519	28%	1,456,400	31%	125%
Connacht/ Ulster[17]	1,169,409	18%	1,172,050	24%	100%
Leinster	1,324,305	20%	1,218,690	25%	108%
Northern Ireland	1,974,452	30%	935,550	20%	211%
Total (EU)[18]	**6,290,685**	**96%**	**4,782,690**	**100%**	132%
All capacity	**6,517,104**	**100%**	**4,782,690**		136%

Sources: Based on data from a number of sources: DAFRD, CSO & DARDNI

When viewed on a national level, the geographic distribution of slaughter capacity is excess capacity in Munster and there is a substantial excess capacity in NI. There is sufficient potential capacity in both Leinster and Connacht/Ulster.

Probably a more appropriate way to assess the geographic distribution is to divide the island in two half by drawing from Galway to Dublin with those counties above the line being in the Northern half and those below in the Southern. Table 44 below shows how this distributions looks.

Table 44: Geographic Allocation of Slaughter Capacity - Provinces of the Island of Ireland

Province	Slaughter Capacity (annual)	% of Island Slaughter Capacity	Pig production	% of Island Production Capacity	Slaughter as % of production capacity
Southern half	3,015,005	47%	2,202,090	46%	137%
Northern half	3,275,680	49%	2,580,600	54%	127%
Total (EU)	**6,290,685**	**96%**	**4,782,690**	**100%**	132%
All capacity	**6,517,104**	**100%**	**4,782,690**		136%

Sources: Based on data from a number of sources: DAFRD, CSO & DARDNI

[15] Theoretical slaughter capacity is based on current year 2000 operating plants (max lines speeds standard working week of not less than 30 hours)

[16] Pigs production is based on 1999 number of sows figures multiplied by average profligacy 22 pigs per sow in RoI (January 1999 CSO figures) and 18.9 for NI using a yearly average sow herd of 49,500.

[17] Only includes the RoI counties of Ulster

[18] A regional breakdown of the location of the non approved abattoirs was not available

Key messages

- By splitting the island into two regions there is a much better match between production capacity and slaughter capacity.
- The match is tightest in the Northern half with considerable spare capacity in the Southern half of the island.
- The continued rapid decline of the breeding herd in Northern Ireland will ease the tight capacity somewhat.
- The slaughter capacity needs to be seen in an all Ireland context otherwise there are significant slaughter/production capacity mismatches in Connacht/Ulster and the northern counties in Leinster and a major excess capacity in NI.
- Without the trade in live pigs from RoI to NI there would not be sufficient slaughter capacity in RoI and a major shortage of pigs in NI.

Status and modernity of primary processing plants

The rationalisation scheme that was completed in 1992 was the last industry-wide investment effort in Irish processing. The RoI processing industry spent roughly £IR100 million on modernisation and equipment for the sector for the ten-year period from 1985 to 1995. The challenge for Irish processors is the lack of recent capital investment, particularly, with regard to automation. In interviews with the study team, processors identified a number of issues that they face when considering capital investment in processing plant:

- The lack of profitability in recent years (cash poor operations)
- Limited ambition and optimism regarding the future of the industry particularly in the area of consistent and sufficient supplies of pigs
- Internal competition for capital investment within some of the larger companies can be very competitive, particularly in the PLCs

The larger processors are facing capacity constraints, some of which are directly related to capital investment needs. Four of the top five plants list chill space as a primary capacity constraint. At this point in time, increasing throughputs in the top five RoI plants would be inhibited by insufficient chill space. Only one RoI plant currently has capital investment allocated for expansion of chill capacity. Another of the top five plants has capital investment allocated for slaughter capacity ramp-up and improvements in food safety and productivity.

There has been some investment of capital in NI, which has been focussed on the addition of slaughter equipment and chill capacity, however automation has not been an area of large investment focus. The argument for automation can only be made on the back of sufficient supply of raw materials (to achieve consistently high levels of throughputs) and the cost and productivity benefits over manual labour. The current state of NI production would not justify further significant investment in automated kill lines or cutting equipment, although shortages of qualified, skilled labour in some areas may create the necessity for automation in the near future.

The Danish and Dutch industries have dedicated significant amounts of capital to processing improvements including rationalisation schemes, automation and productivity over the last 18 months. There is some concern that the Irish industry will fall behind in terms of plant efficiency and modernity and will eventually lose further ground in processing competitiveness on international markets. The key challenge for processors is the currently cautious level of ambition and optimism in the processing sector. This cautious optimism seems to indicate that while Irish processors continue to try and sell their products on increasingly competitive export markets, there is a limited level of commitment to additional investment in plant and equipment. However, unless there is significant change and investment, they will not be equipped with the latest technologies and processing efficiencies to compete effectively with international leaders in the pig meat sector.

Profile of processing capacity – summary key messages

- Two main slaughtering operators dominate the island of Ireland: Malton in NI and Glanbia in RoI.
    - These two plants represent 44% of total-island slaughter.
- Only the Malton plant operates on a 50+ slaughter hours per week basis, which is becoming the norm in plants in major competing countries.
    - Other NI bacon factories kill 20-25 hours per week.
    - RoI processors (Tiers 1&2) kill for between 15-39 hours per week.
- There is sufficient slaughter capacity for existing production on the island of Ireland.
    - NI Tier 1 processors are currently running 20% below max capacity (based on current operating hours).
    - RoI processors (Tier 1&2) are operating at 15% below max capacity (based on current operating hours).
- Total-island annual capacity is 6.5 million pigs (based on max line speeds and a standard workweek of not less than 30 hours).
- The high throughput levels of 1998 and 1999 only saw slaughter levels reach 4.8 million pigs.
- Pig production numbers have declined, particularly in NI and are unlikely to exceed the current available slaughter capacity. The projected further decline in pig numbers over the next 3 years will contribute to even further excess capacity in the industry.
- The distribution of slaughter capacity to production capacity is sufficient if the island is divided into 2 regions with a dividing line from Galway to Dublin.

3.7 Profile of primary processing outputs

Stages of processing and types of product output

There are four main stages of processing. Each stage of processing contributes a certain amount of value to the product output. Output that is sold on after stages 1 and 2 is considered commodity product output. These products: carcasses, primal, and secondary cuts, are typically low margin products (<2%).

The boning stage (stage 3) is where the processor begins to "add value" to the output and can make low to average margins (2-5%) on fully boned out cuts of meat.

The further processing stage (stage 4 in the table below) is where processors produce value – added outputs. There are several sub stages of further processing and a variety of potential product outputs. The margins attained on these outputs can vary. However, the highest value-added margins (5%+) reported by Irish processors (total island) came from cooked meats and ingredients.

Table 45: Stages of Processing and Key Product Outputs

Stage	Processing Stage:	Primary Product Output:	Secondary Product Output:	Disposal Items:
1.	Slaughter	Carcasses	Red offal, blood, head, casings, feet, etc.	Spinal cord, green offal
2.	Cutting	Primal cuts (shoulders, legs, middles) Secondary cuts: joints, chops	Offcuts for sausages and puddings	
3.	Boning	Hams, bellies, loins	Offcuts for sausages and puddings	Bones
4.	Further Processing	Rashers, sausages, hams, bacon, cooked & sliced meats, ingredients, convenience foods.		

The product output from the main NI processing plants is predominately primal cuts with very little of the product going through a further processing stage

The NI plants have a heavy focus commodity processing, with the majority of outputs going through only the first 2 stages of processing: slaughter and primal cutting. Only one plant shows a significant amount of output going through the cutting stage. Table 46 below shows the current average daily quantity of product that goes through the latter stages of production in the top 3 NI plants:

Table 46: Product profile by stage of production for the top 3 NI plants (current average weekly quantities)

Slaughter line stage (carcass tonnes)	Cutting stage (tonnes)	Boning stage (tonnes)	Further processing stage (tonnes)
1,998	1,298	368	107
% of carcass total	65%	18%	5%

Source: Based on data supplied by the different plants

Analysis of the output from these NI plants reveal a very high proportion (over 60%) of output in the form of carcasses and about 75% of in the form of carcasses and primal cuts. Only about 10% of the output is in the form secondary cuts (joints, chops etc) and value-added products (rashers, hams, pre-packed etc). Carcass and primal cuts output attract the lowest values for the output. This impacts the price it can pay to suppliers and the level of profit margins it can achieve.

The output in RoI also has a high proportion of primal cuts, but does not have the same volume of carcass stage output as in NI

The RoI plants have a lower dependence on commodity products at the carcass and primal cuts level. The level of carcass and primal cuts output in 1999 accounted for just over 50% of the output compared to around 75% in NI.

While the extent of the focus on carcass output appears less significant in the larger RoI plants than in NI, the focus on commodity type products by the slaughter plants is still a key message when examining output data for the sector. This industry aggregate commodity focus is illustrated in table 51 below which shows the average weekly output at each stage of production for the top 5 plants in 1999. These plants accounted for 69% of total pig kill in 1999.

Table 47: Top 5 RoI plants product profile by stage of production (current average weekly quantities)

Slaughter line stage (carcass tonnes)	Cutting stage (tonnes)	Boning stage (tonnes)	Further processing stage (tonnes)
3560	2976	1885	522
% of carcass total	84%	53%	15%

Source: Data provided by the slaughtering plants based on product throughput in 1999
(Note: carcasses are based on an average dead weight of 72kg to convert the number of carcasses into tonnes)

Key messages

- Only 15% of the product in the top 5 RoI plants goes to the further processing stage and therefore, the additional value-added from this stage is lost to the plant.
- The slaughtering plants are operating at a lower output value level for their product and therefore, they need to be very efficient and cost effective in the purchase of raw materials (pigs) and in their processing operations if they are to be competitive and profitable.
- The primary processed output from the slaughter plant is generally sold on to other secondary processors or wholesalers in the domestic market or in export markets. The low proportion of further processed product by the slaughtering plants is due mainly to the lack of buyer demand or market outlets that the plants can generate for further processed product.
- The lack of skilled staff available is also becoming a contributing factor to the low level of value-added processing, but it is not as significant as the lack of buyers or markets.

- Just over half (53%) of the product goes through the boning stage. This is perhaps a more realisable opportunity for the plants to increase the value of their output. From discussions we have had with secondary processors, there is a demand for greater quantities of boned-out meat, which they claim they cannot source in sufficient quantities from Irish suppliers. As a result, they have to de-bone the meat themselves or source it through imports. The shortage of skilled labour in a number of slaughtering plants is a major contributory factor to the relatively high levels of bone-in meat that leave the slaughtering plants.

The smaller RoI slaughtering plants (less than 6,000 pigs a week) have even greater concentrations of commodity type output

An examination of seven RoI slaughtering plants (accounting for 73% of the 1999 kill) reveals a similar picture. In table 48 below, the actual amount of product that goes to further processing has fallen to 13% while the amount of product that goes through boning is only 48%. This decline in output from the boning and further processing stage is driven primarily by the focus of the smaller plants on carcass and primal cut outputs. The two smaller slaughtering plants would have a much higher proportion of product that only goes to the carcass stage with only 13% of product going to the cutting stage and the percentage of product that goes through the boning stage is only 3%. None of the product in these two plants goes through further processing. Table 52 below reflects this impact of the smaller plants' commodity processing focus:

Table 48: Product profile of 7 RoI plants by stage of production (current average weekly quantities)

Slaughter line stage (carcass tonnes)	Cutting stage (tonnes)	Boning stage (tonnes)	Further processing stage (tonnes)
3938	3026	1895	522
% of carcass total	77%	48%	13%

Source: Data provided by the slaughtering plants based on product throughput in 1999

The price per kg of value-added product can be nearly 4 times the price per kg of carcass. The price obtained in 1999 for a kg for carcass was around IR£1.04 (STR87p) compared to an average cost of IR81.63p (STR68p) per kg for pigs in 1999 only gives the processor a margin of IR22.37p (STR18.7p) to cover slaughtering costs and transport

There is a critical dependence on developing export market outlets for Irish pigmeat products. An important factor therefore which needs to be assessed when looking at the output profile of the slaughtering plants is the level of exports and the prices obtained for the various pig meat products in the different export markets. RoI is self-sufficient in pigmeat, and over half of the output has to be exported.

Domestic processors tend to command higher prices for their product compared to imported product. The recent increase of food nationalism in many countries in the wake of BSE is leading for even greater price differentials. This puts Irish processors at significant disadvantage compared to processors in countries who are self-sufficient and who are net importers of pig meat.

Output by market destination

The market destination for NI output is primarily the local market or Great Britain

Table 49 below provides an aggregate profile analysis of the market destination by product type of two NI plants.

Table 49: Aggregate output analysis of 2 NI plant's by market destination

	Carcass	Primals	Secondary cuts	Value-Added	Edible by-products	Inedible by-products
NI Domestic	78%	44%	67%	92%	42%	55%
Great Britain	.5%	42%	14%	0%	52%	0%
RoI	21.5%	14%	19%	8%	0%	0%
Other EU	0%	0%	0%	0%	4%	45%
Other	0%	0%	0%	0%	2%	0%

Source: Based on data supplied by the plant

The market destination of the output produced by the above two plants highlights the predominate focus of the NI plants on supplying the domestic market, particularly for their value-added output. The primal outputs are sold to secondary processors in NI, GB and RoI. There are almost no exports to other EU or non-EU markets. (Details of the market destination of the Malton plant in Cookstown were not available to the study team but it assumed that the vast majority of the output is shipped to Malton secondary processing plants in GB.)

An analysis of NI secondary processors also revealed a predominate focus on the local and GB markets.

Large and mid-size RoI plants have developed a number of export market opportunities, while smaller RoI operators focus on serving the domestic market

Table 50 below, profiles the product destination in 1999 of the larger plants.

Table 50: Aggregate market breakdown of the main RoI slaughtering companies

Market	Aggregate Output %
Domestic	52%
GB	25%
NI	4%
Other EU	10%
Japan	7%
Other	2%

Source: Based on data supplied by the plants

Key messages

- Export markets are of critical importance for these companies particularly, when you contrast the dependence of the smaller slaughtering plants on supplying the domestic market where 95% plus of their output is sold locally.

- Without a significant export outlet for Irish pigmeat products the price would collapse due to excess supply on the domestic market.

An analysis of the prices obtained by RoI plants in different markets for the main product groupings (carcasses, primals and value-added products) revealed that:

- Products sold into GB were at a discount on the prices obtained on the domestic market. For carcasses the discount was 11%, primals 50% and for value-added products it was 17%.

- A premium price (+33%) over the domestic price was obtained for primals in other EU market.

- However, the price obtained for value-added products in other EU markets were discounted by 37% from the price obtained on the domestic market. The other EU markets only accounted for 2% of the overall product output value and the quantities of products sold into these markets were small.

- A major premium (+49%) was obtained for value-added products in the non-EU markets but the value of these markets was only 3% of the company's total output value.

Profile of outputs - summary key messages

- The dependence of Irish plants on primarily commodity product outputs will constrain the level of achievable margins for the primary processors.

- NI has the highest dependence on commodity output at processing stages 1 and 2 with only 5% of output going into boning and further processing.

- Lower margin product output requires tight control on operational costs and higher volume throughputs.

- This decision has driven the increased focus on scale and operational efficiencies, which are critical to profitability in lower margin output scenarios.

- Although they are less dependent on commodity product than NI plants, large and mid-size RoI plants do not have as high a dependence on stage 1 and 2 output as NI plants.

- Smaller RoI plants appear to be limiting their activities to commodity stage processing, much like the NI plants.

Value-added output

Primary processors find it difficult to increase their levels of value-added output

Galtee and Glanbia to a lesser extent have been trying to develop a market for some of its branded outputs in the area of rashers, sausages and cooked sliced meats. The branded product is value-added and attracts a greater margin. The branded products are primarily sold in the domestic market with a very small quantity going to export markets.

Galtee are seeking to increase their proportion of higher margin value-added products. None of the other primary processors in Ireland have developed retail brands for their pig meat.

Does it make good business sense for a processor to try to excel and be competitive in both primary and secondary processing?
A number of industry participants argue that primary and secondary processing are substantially different businesses in terms of the processes involved and the buyer/supplier relationships. It is difficult for one organisation to achieve all the necessary efficiencies and skills to be competitive and successful across all aspects of the business. This has led to specialisation and separation between primary processors and secondary processors.

Some companies try and achieve the necessary specialisation and market focus by having separate business units or companies. Tulip, the secondary processing and marketing arm of Danish Crown, is an example of this strategy. However, for this strategy to be effective and successful, the secondary processing arm must have the commercial freedom to source its raw materials from the most competitive supplier and not be obliged to source its raw materials from with the group. Otherwise, it can lead to the secondary processing arm subsidising or masking the lack of competitiveness/ efficiency of the primary processing arm and put it at a disadvantage against its competitors who can source the raw materials from cheaper/higher quality suppliers. Dawn Farm Foods, a secondary processor that is part of the Queally Group of companies, operates on this business basis and source only small quantities of pigmeat from its sister company Dawn Meats.

Secondary processing sector
There are a significant number of secondary processors operating in Ireland who buy-in pigmeat in commodity form and further process the meat by cutting, boning, cooking, slicing and packing it and selling it on to retail or food service buyers. The majority of the secondary processors are small in scale serving local domestic markets with very little of their output exported.

The two major secondary processors are Kerry Foods (part of the Kerry Group who operate under the Denny and Ballyfree brands in Ireland) and Dawn Farm Foods. Both companies focus exclusively on secondary processing and source their raw materials from Irish primary processors and from imports.

Kerry exited from slaughtering in April 2000 for a number of reasons but the key one was to allow them to the focus on the value added end of the processing cycle and play to their strengths in product development, marketing and brand development. The Denny brand dominates the domestic market and is the market leader in prepacked sausages and cooked meats. The Denny brand has over three times the market share of the number two brand and it is the number two brand in prepacked rashers. It also a major supplier of private label product to major multiples in Ireland and GB. Kerry's GB brands includes Walls, Richmond and Mattessons.

Kerry Foods have four pig meat processing plants in Ireland. These are:

Kerry Foods Shillelagh	Cooked meats (bulked and sliced), rasher and sausage
Denny's Tralee	Bacon
Denny's Portadown	Savoury rashers and sausages
Kingsway Fresh Foods	Rasher, sausage and cooked meats

Kerry Foods also have a number of production facilities in GB from where it supplies most of the product to its GB customers. It does supply some product from its Irish plants to its GB plants and customers but the majority is supplied from its GB plants. It is a significant supplier of private label pig meat products to Tesco in the UK. The UK retailers impose very strict sourcing requirements on its suppliers, particularly, for its private label products. In many cases, they insist that their suppliers use British pork and the pork must come from approved producers and primary processors.

These requirements regarding sourcing and using British pork, restrict secondary processors and prevent them from using Irish pig meat for their UK private label customers. (Shortage of British pig meat and the resistance by retailers to pay the higher cost for British pig meat has led to some relaxation of this requirement recently. However, it is still a major barrier to Irish pig meat getting direct access to the value-added end of the market in the UK.) Kerry are free to source pig meat from wherever they wish for their own branded products that they sell to the retail multiples as long as it meets their quality and cost requirements.

Dawn Farm Foods (DFF), the second major Irish secondary processor, specialise in the food ingredients sector of the industry. DFF export over 90% of their output so they have to be competitive. This means they will source their product requirements on a competitive basis. They are the biggest pre-cooked meat ingredients company in Europe. DFF supply to the ready-meal, frozen and chill pizzas, sandwiches and foodservices markets. They export to over 44 markets. They are a sub-supplier to the food industry. They design and deliver an extensive range bespoke food components to the industry on a just-in-time (JIT) basis.

DFF say that they have difficulty finding Irish suppliers who can meet their quality, quantity and consistency requirements at a competitive price. DFF requirements are for leg meat, shoulders and bellies. A significant proportion of these requirements is imported. Their main Irish suppliers can command higher prices for their output in exports markets than DFF are willing to pay. DFF can buy the same product in those markets at prices lower than those that the Irish plants are getting. DFF believe that the exporting Irish primary processing plants are good sellers and get better than average prices in the export markets than other exporters. This is probably due to the relatively small-scale tonnage involved compared to the high volume Danish and Dutch exporters. This allows plants identify niche or smaller scale markets and has the flexibility and responsiveness to meet buyer requirements at a price premium over their volume oriented Danish and Dutch competitors.

The margins obtained in the secondary processing, particularly, by the larger operators tend to be significantly greater than in the primary processing. Some of the secondary processors are achieving 10% plus margins.

Increasing the proportion of your output that is value-added and attracts a higher return to the business makes good commercial sense, but it is very difficult to achieve in significant quantities

Developing a strong export oriented value-added sector within the industry is very desirable from a strategic perspective but is very difficult to achieve. It requires major investment in product development, marketing and branding. There are very few examples of companies who have managed to develop strong brands for value-added products outside of their own domestic markets. Kerry's Denny brand is the dominant market leader in Ireland but they have been unable to translate that domestic strength to develop strong export markets for its Denny branded products. Its strategy is to develop a local brand in its main market, GB, with some potential to source some product from its Irish plants under the brand.

Dawn Farm Foods is the only secondary processor where the vast majority of its output is exported. It has adopted a strategy to focus on and achieve major scale and market leadership in the food ingredients segment and operates mainly business to business. This removes the need to invest heavily in developing and supporting a retail brand and allows it to invest more in product development and innovation, which is a key requirement for success in this sector.

However, it is important that there is a strong domestic secondary-processing sector supplying the local market ensuring a strong demand for Irish pig meat and to minimise the volume of imported product.

3.8 Competitiveness of the primary processing sector

Will the Irish pig meat industry be able to compete successfully in the home and export markets against other operators?

There are many measures that can be used to assess the competitiveness of the industry. However, the major areas of competitiveness are centred on:

- Price competitiveness of its cost raw materials
- Productivity and cost of the labour force
- Effective use of capacity
- Ability to maximise the value of output (getting the maximum value possible for each piece of pig output) and obtain markets for the output

Plants need to achieve a competitive advantage (or at least parity) in one more of the above four factors. An advantage in one factor may be able to offset disadvantages (or lack of advantage) in the other factors. For example, a plant may be able to afford a higher price for its raw materials if it has productivity or labour cost advantages over its competitors.

Price competitiveness of raw materials

Table 51: Average cost profile of the top 5 slaughtering plants in RoI

Cost element	Average % cost
Raw materials	67.0%
Labour	11.6%
Packaging	3.6%
Operating overhead	4.6%
Maintenance	1.6%
Admin overhead	1.6%
Financing costs	0.3%
R&D	0.2%
Insurance/depreciation	2.0%
Sales & Marketing	2.3%
Distribution	4.8%
Other	0.3%
Total	100.0%

Source: Data supplied by operators

Cost profile - key messages:

- The cost of the raw materials is by far the greatest cost element for the slaughtering plants. It is also probably one of the more easily adjusted cost elements, given that prices are agreed with suppliers on a weekly basis. However, downward adjustments on price will be constrained somewhat by prices being paid by competing processors.

- The labour costs for the top 5 plants are very consistent varying from 11-12% of total costs.

- The low % spend on R&D is reflected in the largely commodity/primal nature of the outputs.

- The greater the level of output that the plant further processes and / or supplies directly to retailers the higher the plant's sales & marketing and distribution costs.

(Note: There may be differences in how the different plants define the cost elements and what costs they include under each heading.)

The price paid by slaughtering plants for pigs has to be competitive with those paid in Denmark and Holland

The price that RoI plants pay for their main raw material needs to be competitive with that paid in the main competing export countries i.e. Denmark and Holland and not with the price paid to domestic producers for pigs in the countries the Irish plants export their product. Higher prices are typically paid to domestic producers (for food nationalistic and other reasons) in those countries and the Irish plants are competing directly against the Danes and the Dutch to achieve markets in importing countries.

The exporting countries are essentially price takers in those markets and an importer, typically, will source product from the cheapest source. There are opportunities to obtain some price premium by differentiating on quality, adherence to specifications (quality and quantity), delivery reliability and customer relationship management. However, the size of the potential premium is limited given the commodity nature of the product being supplied.

NI being part of the UK, should in theory, receive similar prices to those obtained by producers in GB. However, in practice, the output of NI producers and processors are effectively treated as imported product and are subject to the same price sensitivities as other exporting countries and need to be price competitive against those countries.

Table 52 below compares the prices paid in these countries compared to RoI in 1999.

Table 52 Average price per 100kg dw in Euros paid in RoI, Denmark, Holland, GB and the EU average price in 1999

1999	RoI	Denmark	Holland	GB	EU
Jan	90	90	69	93	93
Feb	89	88	82	103	101
Mar	95	93	85	119	101
Apr	97	95	82	127	101
Mat	99	95	87	131	108
Jun	104	106	108	133	126
Jul	113	115	105	132	125
Aug	112	110	109	130	126
Sep	113	116	107	129	125
Oct	113	115	100	125	118
Nov	110	113	94	121	113
Dec	110	113	98	122	114
Yearly average	104	104	94	122	113
ECU/kg	1.04	1.04	0.94	1.22	1.13

Source: Bord Bia

Average pig prices - Key messages

- The Danish and RoI prices tracked very closely over the year with the average price paid for the year being the same. This means that Irish exporting plants did not have a raw materials cost advantage or disadvantage against the Danes in 1999.

- The Dutch, who are a major exporter of pigmeat, particularly to the main RoI and NI export market - GB, had generally a lower raw materials cost over the year. The average price for the year was almost 10% lower than the RoI or Danish average price. This puts the Irish plants at a significant input cost disadvantage that they have to counter through better productivity, processing efficiencies, product quality or marketing to compete successfully against the Dutch.

- The price in GB was on average, 17% higher than the RoI average price and the EU average was almost 9% higher. This reflects the higher prices paid to producers in countries that are net importers or self sufficient in pigs.

Productivity and cost of labour

There are a wide range of productivity and cost measures that can be used to assess competitiveness of slaughtering plants For example:

- Pigs killed per hours per operator
- Pieces/kg of output cut/boned/packed per operators per hour
- Output tonnes per employee
- Yield per pig

As with all performance/competitive benchmarking measures, it is important that you compare like with like and the use of industry level benchmarks needs to be treated with a degree of caution given the risk of variances in definition and interpretation that can

occur at individual company or country. But they are useful indicators of relative comparative performance. After a pig has been killed, there are so many potential processing variables that it is extremely difficult without a detailed and in-depth analysis of the comparable steps in the process in each operator/country to develop credible benchmark measures at an industry level.

The limited availability and/or access to detailed productivity and cost information at individual plant level and cross-country level restricted the range of comparative measures that the study team could use. Also the effort required to develop accurate measures was not within the scope of the study.

The key productivity and cost of labour measure selected in this study are:
Pigs killed per hour per operator on the slaughter line

Pigs killed per hour operator

The more pigs that can be slaughtered per hour by each operator employed on the slaughter line the lower the average cost of slaughtering each pig. There are a number of factors that influence this productivity measure. These include skill levels of the operators and the efficiency of the flow of pigs from lairage.

However, two factors which are increasingly impacting this competitiveness measure are plant scale (number of pigs the plant can kill per week) and the use of automation or robots in the slaughter line to reduce the number of operators on the line. In the early 1990s, a plant with the capacity to kill 10,000 pigs per week was considered to be at a sufficient scale to compete successfully on international markets. In countries such as Denmark, Holland and GB, the minimum size for a competitive plant is now regarded to be 20,000 pigs per week. In the US, plant scale is even greater.

Table 53: Average pigs killed per operator (lairage to chill) for Top 5 RoI Plants

Year	Hourly average	Daily average
2000 year-to-date	6.2	44
1999	6.9	49
1998	7.0	50

Source: Based on manning data supplied by plants and DAFRD pig kill data

The number of pigs killed per operator hour is much lower in Irish plants compared to Denmark

The average number of pigs slaughtered a day per operator in the RoI is significantly lower than in Denmark. In the top 5 RoI slaughtering plants, the average daily pig kill per slaughter line operator in 2000 (first 6 months) was 44. This is down from 49 in 1999 and 50 in 1998. The equivalent figure in Denmark was 84 pigs per operator or between 11-12 per hour, over 70% higher than the RoI 1999 figure.

Increased use of automation and plant size in Denmark will widen this gap even further

In Denmark, the slaughtering plants are well advanced in their plans to increase the level of automation in the slaughtering process, including the introduction of robots on the slaughter line to reduce the number of operators and de-skill some the remaining manual

tasks. Also the move to a 10 hour working day shift in Denmark, has the potential to increase the average number of pigs killed/operator per hour to 18 –25, more than three times the rate currently being achieved in RoI plants.

The introduction of robots (already available) will reduce the number of slaughter-line operators to 19. The standard Danish slaughter line has a line speed capacity of 360-400 pigs per hour. The Danes are getting 95%+ up time on the slaughtering line and this together with the longer working hour day will substantially increase operator productivity and plant throughput. These productivity levels are enabling Danish plants to achieve payback on the capital investment in automation in 2-3 years. The payback on the capital investment for plants operating at 220-260 pigs/hour line speeds and for 7.5 or less hours a day is likely to take over 5 years to achieve.

Cost of labour has been an important driver of the use of robots in Danish plants

The introduction of automation and the use of robots in Danish slaughtering plants has been driven mainly labour costs and the emergence of labour and skill shortages. The average hourly rate for an operator in a slaughtering plant is 300Dkr (IR£33).

Other factors behind the drive for automation include:

- Increased consistency and quality (which can vary over the working day using manual input).
- Better hygiene and food safety (The use of robots reduces the number of times a pig is handled by humans and there reduces the risk bacteria spreading. Also the sterilisation of blades and other equipment is 100% with the use of robots).
- Greater yield maximisation (For example, SFK claim that a 100 grams greater yield per pig is obtained with the use of their finer robot).
- Potential to lower the level of personal injury claims.
- The further introduction of robots into a 360 per hour clean line stage of the slaughter line can reduce the number of operators from 15 to 4. For example, use of the auto evisceration robot will eliminate 3 people.

Higher productivity on the slaughter line gives Danish plants a competitive advantage over Irish plants

These improvements in operator productivity will provide Danish plants with a significant competitive advantage over Irish plants. Traditionally, the high labour costs (which can be up 3 times the Irish rates) in Danish plants gave Irish slaughtering plants a significant cost advantage that was not fully offset by higher productivity levels in Danish plants. However, the increased productivity from increased scale and automation will give Danish plants a strong advantage that Irish plants will have to address by either increasing their own productivity levels, increasing the value-added to their output or reducing the cost of the raw materials below Danish levels.

The capital investment required by Irish plants to introduce similar types of automation would require a major increase in plant scale to achieve a reasonable payback period

The increasing cost of recruiting and retaining employees in Irish processing plants will necessitate plant management to look at increasing productivity, automating certain tasks and increasing the scale of the slaughtering operation. The capital investment required is significant. To achieve a payback period with 3-5 years will need a substantial increase in the scale of current operations where 18-20,000 pigs per week is likely to become the minimum scale necessary to make a business case for the investment.

Capacity utilisation levels

Irish slaughtering are falling behind some of their major competitors in terms of effective utilisation of slaughter capacity

In the previous chapter, we saw that the level of slaughter capacity utilisation of Irish plants was below the international best practice rate of 98.2%. The island of Ireland is operating at slaughter utilisation rates of 65.8% using a theoretical utilisation measure and 81.5% using a realistic capacity utilisation (RCU) measure. In 2000 to date, the utilisation rates have fallen even further behind due to excess capacity/shortage of pigs.

As discussed in the capacity profile chapter, the use of the RCU measure is becoming less of an appropriate measure for comparison on an international competitiveness scale. Excess capacity and small-scale plants in other competing nations (such as Holland and Denmark) are being rationalised in an effort to streamline efficiencies and increase scale. International competitors are ramping up throughput levels and operating hours, not maintaining the status quo. The "standard" slaughter week is extending in competing nations like Denmark, Holland, and the US, where the industry norm is becoming 50+ kill hours per week. Most processors on the island of Ireland are not operating on a standard of 39 kill hours per week. This short operating day/week together with a forecast decline in pig numbers will put Irish slaughtering plants at a disadvantage against their Danish and Dutch competitors.

The Cookstown plant needs to be cost efficient in the pig meat it supplies to its parent the Malton Group

The Malton plant in Cookstown is in competition from other Malton plants in GB and from product that Malton can source from other processors in countries like Holland and Denmark. It needs to achieve capacity utilisation, productivity and output price levels, which are internationally competitive. The competitiveness of its cost raw materials, productivity, cost of the labour force and the effective use of capacity are critical to its long-term survival.

Glanbia is the dominant player in the slaughtering sector in RoI accounting for 39% of the total pig kill in 1999. It also has the highest proportion of its output exported with 56% of its output exported in 1999. Therefore, the competitiveness of Glanbia's product on export markets is of vital importance. Therefore, if its capacity utilisation levels are significantly below that of its main international competitors, it is carrying an extra cost which will reduce its profitability margins and force it to keep the cost of its raw materials as low as possible.

Being the largest buyers of pigs in Ireland, Malton and Glanbia have a major role in the price set for pigs. Both of these operators have a very high proportion of primal output and therefore, their operating margins are very tight, requiring them to achieve cost effective raw materials and efficient processing. Malton have been adopting a strategy to improve the processing efficiency of its Cookstown plant by increasing the throughput scale and concentrating the operating on slaughtering and cutting.

Similar measures are not as apparent in the Glanbia plants and with falling capacity utilisation levels in 2000 to-date, its operating efficiency is declining somewhat. In these circumstances, options available to Glanbia include trying to reduce raw material costs, accepting lower margins and/or taking initiatives to improve operating efficiency and increase the value of its output. The first two options can only be sustained in the short term and does not address the fundamental problem of declining competitiveness.

Maximising the value of the pigmeat output

Only 15% of the product of RoI primary processors and 5% of NI processors goes to the further processing stage and therefore, the additional value-added from this stage is lost to the plant.

The slaughtering plants are operating at a lower output value level for their product and therefore, they need to be very efficient and cost effective in the purchase of raw materials (pigs) and in their processing operations if they are to be competitive and profitable.

The primary processed output from the slaughter plants is generally sold on to other secondary processors or wholesalers in the domestic market or in export markets. The low proportion of further processed product by the slaughtering plants is due mainly to their difficulty in developing sufficient buyers or market outlets. The lack of skilled staff available is also becoming a contributing factor to the low level of value-added processing, but it is not as significant as the lack of buyers or markets.

Just over half (53%) of the product goes through the boning stage. This perhaps, is a more realisable opportunity for the plants to increase the value of their output. From discussions we have had with secondary processors, there is a demand for greater quantities of boned-out meat, which they claim they cannot source in sufficient quantities from Irish suppliers and as a result they have to de-bone the meat themselves or source it through imports. Shortage of skilled labour in a number of slaughtering plants is a major contributory factor to the relatively high levels of bone-in meat that leave the slaughtering plants.

The dependence of Irish primary processing plants on primarily commodity product outputs will constrain the level of achievable margins for the primary processors. Lower margin product output requires tight control on operational costs and higher volume throughputs.

Galtee and Glanbia to a lesser extent have been trying to develop a market for some of its branded outputs in the area of rashers, sausages and cooked sliced meats. None of the other primary processors in Ireland have developed retail brands for their pig meat.

The secondary processors segment in Ireland consists of small players serving local domestic markets with very little of their output exported. Only two operators, Kerry Foods and Dawn Farms have the scale to compete effectively in export markets and meet the product specifications and quantities required by large buyers such as retail multiples. The rationalisation by multiples in the number of suppliers they use will reduce even further the export market opportunities for Irish produced value-added product.

The bulk of the further processed product that they do produce is sold in the domestic market. To increase their levels of value-added or further processed product, the processors need to displace some of the import product in the domestic market and to increase or develop export markets. This requires the Irish processors producing products that are competitive against international products in terms of price, quality, consistency and attractiveness to the customer. Increasingly, scale of operations and investment in R&D, product innovation and logistic management will be success factors in the competitiveness battle.

Given the small scale of Irish processors, they will have to compete harder to retain and develop the domestic markets and possibly using the food nationalism card to defend local market share against price competitive and large scale international processors. The small-scale of Irish processors can in certain market segments be an advantage over the large-scale volume orientated exports in Denmark and Holland. There will continue to be opportunities export markets the Irish plants to seek out and foster small scale (relatively), niche or specialist buyers where their size, flexibility and responsiveness in meeting buyer requirements give them a competitive advantage.

Plant profitability is another useful indicator of operating efficiency and output value maximisation

Again, looking at cross plant profitability needs to be done with a degree of caution given the potential for different accounting definitions or measures used by the various companies to calculate their operating figures. The figures available to the study team were obtained from annual accounts statements and we were not in a position to determine if the measures/calculations used were consistent across the different companies. However, given their limitations, they still provide useful indicators of the relative competitiveness and efficiency of the plants.

Table 54: Plant profitability for a number of plants/companies.

Year	Company	Profit per pig (range) IR£	Operating profit (range) %
1999	A number of RoI plants	£2.40 - £6.72	1.7% - 7.3%
	Danish Crown	£6.32	2.5%
	Tulip	N/A	7.8%
	Steff Houlberg	£4.65	3.4%
	Tican	£6.70	7.0%
1998	A number of RoI plants	£1.90 - £8.03	1.8% - 8.1%
	Tulip	N/A	9.3%
	Steff Houlberg	£5.76	4.0%
	Tican	£6.13	5.6%
1997	A number of RoI plants	£1.78 - £10.20	1.5% - 11.2%

Source: Annuals accounts of the different companies sampled.

Note: A number of the slaughtering companies surveyed declined to provide annual accounts information to the study team and as a result it was possible to compare profitability for a limited number of companies.

Key messages

- In 1999, some of the Irish companies had profit per pig figures, which were comparable, and in some cases, better than their Danish competitors. But those at the bottom of the range were significantly below their domestic and international competitors. The operating profit margins produce a similar message. It should be noted that Tulip is a secondary processor. Comparable financial information for Irish secondary processors was not available to the study team. However, the larger secondary processors would compare favourably with Tulip's operating margin.

- The profit per pig for the better performing Irish operators declined in 1999 compared to 1998 and 1997 in spite of the fact the price of pigs was significantly lower in 1999. This was probably due to lower prices that the processors were able to obtain for their pig meat output.

Danish Meat Research Institute paper on competitive benchmarks

To assist in the assessment of the competitiveness of the Irish primary processing industry we commissioned the Danish Meat Research Institute (DMRI) to provide benchmark on Irish competitiveness in the following main areas:

- Capacity utilisation
- Incentive payment system/Productivity
- Slaughter line speed/Productivity
- Automation.

The key figures used in this section of the report are DMRI proprietary data. They have been collected through their consultancy work for the international meat industry.

Capacity utilisation, slaughter line

Definition of Capacity Utilisation

The figures below are based on a throughput-based definition of capacity utilisation. Actual throughput is related to maximum achievable throughput per time unit.

Sample Calculation: a slaughter line is manned for a line speed of 300 pigs per hour. The line is actually operated for 40 hours per week and the actual throughput per week is 11,000 pigs. So the actual throughput per hour is 11,000/40 = 275 pig/hour. The capacity utilisation is thus 275*100/300 = 92%

The capacity utilisation in a number of EU countries is shown below:

Country	Capacity utilisation	Slaughter rate pigs/hour
Denmark (DK 1)	98.2 %	
Scandinavia excl.DK 1	92.2-97.7 %	280-400
Germany	93.2 %	

Key messages:

- International best practice capacity utilisation is 98.2%
- The Prospectus calculation of capacity utilisation for the top 5 RoI plants ranged from 83 –99% and from 72-103%[19] for the top 3 NI plants in 1999.
- In the first 27 weeks of 2000, the range for the top 5 RoI plants was 63% to 91% and 68 - 94%. The Irish plants are falling behind international best practice capacity utilisation, which is 98%.

High capacity utilisation

If high capacity utilisation is to be achieved the conditions must be optimal in the following key areas:

- Planning and control of in-coming live pigs
- Systematic maintenance of technical equipment
- Registration of stop periods and stop reasons
- Securing no incidents of drop fingers without pigs
- Securing that formal breaks are not exceeded

Key messages

- Often, the primary reason for low capacity utilisation rates is insufficient planning and control of the supply of live pigs.
- Additionally, ineffective driving and stunning of pigs can influence capacity utilisation significantly.

[19] The standard operating week for the slaughter line for 2 of the plants is 25 and 20 hours. This can lead to a seemingly, very high utilisation rate. If the utilisation level was measure on a normal 36 hour week, the 103% rate would drop to 57%

- Capacity utilisation is not correlated to line speed but dependent on the above mentioned conditions.

Incentive payment system/productivity
Payment systems can be divided into two main groups:

a) Fixed hourly wage
The hourly wage is fixed and not affected if the productivity rises or falls.

b) Variable hourly wage
The hourly wage is variable and affected if the productivity rises or falls.

Payment systems that are primarily based on variable hourly wage and where the variable part of the hourly wage is changed proportionally with the productivity can be defined as incentive payment systems.

Incentive Payment Systems
Incentive payment systems are applied by the slaughter industry in most EU countries. But the principles on which the incentive payments are based are often different. The payment systems consist of various elements and factors influencing productivity. An important element in a payment system is how the hourly wage is composed.

Fixed/variable wage part
The hourly wage can be divided into two parts:
- A fixed part (related to each working hour performed).
- A variable part (related to each unit produced).

The fixed part may vary from 0 to 90 % of the total hourly wage. In Denmark the fixed part constitutes approx. 20 %, and the variable part approx. 80 % of the total hourly wage. In the other Scandinavian countries the variable part constitutes only approx. 20 % of the total hourly wage. In countries like Germany and Holland – especially for boning – it is common practice to hire personnel from external companies to perform those activities. Here the variable part constitutes 100 %.

Key messages
- Incentive payment systems are applied to the slaughter industry in most EU countries.
- Denmark's incentive payment scheme is based on a split fixed and variable hourly wage.
- 20% of operator hourly wage is fixed (i.e. payment is based on the number of hours worked).
- 80% of operator hourly wage is variable (i.e. based on the number of units produced).
- Slaughter companies try to maximise labour yields by building in the appropriate amount of variable component to the hourly wage.
- Internal operators receive a higher fixed wage component.
- External (contract) hire operators receive higher variable wage components to drive performance levels.

Influence of incentive payment systems on productivity
The influence of the incentive payment variable part on the productivity can be summarised as follows:

Variable part of the payment system	Countries	Productivity level	Productivity index
Above 70%	Denmark Germany 1 Holland 1	High productivity	115
30 – 70%	Germany 2 Holland 2	Medium productivity	100
Below 30%	Sweden Ireland Norway Finland	Low productivity	85

Note Germany 1/Holland 1 cover slaughterhouses using hired personnel
Germany 2/Holland 2 cover slaughterhouses employing own personnel.

Key Message:
High variable level incentive payment systems show a direct correlation with productivity levels. High variable part = high productivity.

The Danish payment system
The following conditions characterise the Danish payment system:
- In the slaughter industry, the incentive pay system (piece-work and bonus systems) comprises 90-95 % of the working hours
- Piece-work and bonus systems are implemented in all slaughterhouses.
- The basis for all piece-work and bonus systems is standard data based on time studies.
- Rules and procedures for the working out of a standard basis are the same for all slaughterhouses.
- All slaughterhouses apply identical payment systems.
- The administration of the payment systems is identical.
- All slaughterhouses employ their own work study technicians.
- All work study technicians in the slaughter industry (employees as well as employers) who work with time studies are trained currently and tested twice a year.

Key messages
- The Danish payment system contributes to ensuring a high uniform productivity level in the whole slaughter industry.
- The payment system also makes it easy to calculate, control and check the wage expenses.
- In addition, the payment system contributes to making it possible to benchmark on the wage expenses.

Internal benchmarking
Danish Crown, which is the biggest slaughter company in Denmark, makes weekly internal benchmarking on wage expenses, and all the production departments in the company are included.

On the basis of this the company management has a precise impression of the wage expenses for slaughter, cutting, boning and packing.

Internal benchmarking is a necessary management tool for control and check of the wage expenses in a big slaughter company, which includes several production departments. Especially in connection with boning it is important that the wage expenses are under control because this activity is very wage heavy.

Maximum bonus
In the endeavours to improve working environments in the slaughterhouses in Denmark the majority of these have introduced a maximum bonus for how many units an employee may prepare a day. In addition, a "speed equalisation" has been introduced, which ensures that the production is distributed evenly on the working day.

Comparison of productivity
A comparison of key figures for productivity has been made between a number of selected countries, comprising:
- Slaughter
- Pre-cutting
- Boning.

The productivity in a number of countries is shown schematically for each of the three main activities.

Slaughter
The comparison of the productivity on the slaughter line covers the activities from and including receipt to chilling room and including cutting of plucks.

The key figures for productivity (the identical slaughter process is constructed) in the individual countries are distributed as follows:

Country	Number slaughter lines	Chain speed Pigs per hour	Manning Operatives*	Productivity Pigs/oper. Hour	Productivity Kg/oper./ Hour
USA	1	1000	75	13.3	1001
France	1	660	54	12.2	1049
Denmark 1	2	636	53	12.0	912
Denmark 2	2	620	52.5	11.8	897
Denmark 3	1	325	29.5	11.0	836
Denmark	average			11.6	882
Germany	1	600	55	10.9	1003
Holland	1	500	46	10.9	954
Scandinavia excl. DK	2	720	76	9.5	770
England	1	430	45	9.5	679
Ireland	1	276	41	6.7	485

Note*: Includes receiving and lairage

If the various countries are distributed on three productivity levels the distribution will be as follows:

High productivity level	USA – France
Medium productivity level	Germany – Holland – Denmark
Low productivity level	Scandinavia excluding Denmark – England - Ireland

France, Germany and Holland obtain better productivity calculated in kg/operative/ hour because the slaughter weight is from 86 to 94 kg in proportion to the Danish weight of 76 kg and the Irish of approx. 72 kg.

There is to a certain extent, correlation between slaughter quality and productivity. It has thus been recognised that the slaughter quality in the USA is somewhat lower than e.g. in Denmark. This is also the case in the example with France although to a smaller extent.

Slaughter rate/productivity
The industry key figures show that there is a correlation between high slaughter rate and high productivity.

Cutting
Comparison of the productivity in cutting covers the activities from and including pushing out of chilling room until and including suspension of cuts on racks, transport activities and weighing.

The key figures for productivity (the identical slaughter process is constructed) in the individual countries are distributed as follows:

Country	Number cutting lines	Chain speed Pigs per hour	Manning Operatives	Productivity Pigs/oper./ Hour	Productivity Kg/oper./ Hour
Denmark	1	530	23	23.0	1,748
Holland	1	500	22	22.7	1,951
Ireland	1	326	16	20.4	1,403
Scandinavia excl. DK	1	223	12	18.6	1,507
Germany	1	250	14	17.9	1,647

If the various countries are distributed on two productivity levels the distribution will be as follows:
High productivity level Holland – Denmark
Low productivity level Ireland – Germany – Scandinavia excluding Denmark

Lower cutting speed is estimated to be the main reason for lower productivity.

Boning
Comparison of the productivity at boning comprises boning of fore-ends, ham, belly and loins processed with low and high degree of processing.

The key figures for the productivity in the individual countries at boning of almost identical products are distributed as follows:

Productivity (low processing degree)

		Ireland		Denmark	
Product	**ESS Food Specification**	**Piece/opr./ hour**	**Kg/opr./ hour**	**Piece/opr./ Hour**	**Kg/opr./ Hour**
Ham	1229	19	163	28	292
Index		(68)	(56)	(100)	(100)
Middle	1607	29	278	35	470
Index		(83)	(59)	(100)	(100)
Fore-end	1320	24	235	48	490
Index	1310	(50)	(48)	(100)	(100)
Pig		3,9	224	59	401
Index		(66)	(56)	(100)	(100)

Denmark = Index 100

Productivity (High processing degree)

		Ireland		Denmark	
Product	**ESS Food Specification**	**Piece/opr./ hour**	**Kg/opr./ hour**	**Piece/opr./ Hour**	**Kg/opr./ Hour**
Ham	1233	15	129	15	158
Index		(100)	(82)	(100)	(100)
Fore-end	1320	15	142	22	230
Index	1313	(68)	(62)	(100)	(100)
Loin	1604	37	238	40	258
Index		(93)	(92)	(100)	(100)
Belly	1863	28	108	36	244
Index		(78)	(44)	(100)	(100)
Pig		25	145	31	176
Index		(81)	(82)	(100)	(100)

Productivity in various EU countries

	Products with low processing degree			Products with high processing degree		
Country	**ESS Food Spec**	**Pig/opr./ Hour**	**Kg/opr./ hour**	**ESS Food Spec**	**Piece/opr./ hour**	**Kg/opr./ hour**
Denmark	1229	59	401	1233	31	176
Index		(100)	(100)		(100)	(100)
Germany	1607	56	431	1313	29	189
Index		(95)	(107)		(94)	(107)
Ireland	1320	39	224	1604	25	145
Index		(66)	(56)		(81)	(82)
Scandinavia (excl	1310	45	324	1863	24	144
Denmark) Index		(76)	(81)		(77)	(82)

Application of useful incentive payment systems in Denmark and Germany, respectively, are estimated to be the main reason for higher productivity in these countries.

Automation

The number of automated processes on the slaughter lines related to productivity in the various countries is shown below:

Country	**Number slaughter lines**	**Line speed Pigs per hour**	**Productivity Pigs/oper. Hour**	**Productivity Kg/oper./ Hour**	**No. of Automatic processes**
USA	1	1000	13.3	1001	4
France	1	660	12.2	1049	7
Denmark 1	2	636	12.0	912	7
Denmark 2	2	620	11.8	897	11
Denmark 3	1	325	11.0	836	9
Denmark	average		11.6	882	
Germany	1	600	10.9	1003	9
Holland	1	500	10.9	954	5
Scandinavia excl Denmark	2	720	9.5	770	7
England	1	430	9.5	679	5
Ireland	1	276	6.7	485	4

Automation and productivity

As shown by the productivity figures there is no unambiguous correlation between a high degree of automation and a high productivity.

The reason why the slaughter lines (excl. USA) with high degree of automation do not generally have the highest productivity, is among other things the fact the manning levels have remained static with the implementation of new automatic equipment. When the automatic equipment is fully implemented the manpower savings will take effect.

Another reason for lack of productivity improvement is that current automation is local and incremental changes. DMRI believe that a future new integrated automation concept will provide significant productivity increases.

Reasons for automation
The reasons why automation should be implemented are as follows:

1. Lack of manpower
2. Improvement of quality/yield
3. Improvement of working environments
4. Improvement of the productivity/reduction of wage expenses
5. Improvement of hygiene

In Denmark these are the five factors that are focused on. What other countries focus on will depend on their status for the points mentioned. Denmark is characterised by having the highest wage expenses in the EU per production hour.

General cost/benefit considerations

Based on the factors focused on in Denmark the general cost/benefit considerations on automation show that it is not feasible to establish slaughter lines with a high degree of automation at slaughter line speeds below 300 pigs/hour in one shift.

The ideal slaughter line speed at automation is 360 pigs/hour or multiple hereof, e.g. 720 pigs/hour. Maximum capacity for complicated automatic machines is 360 pigs/hour.

When investing in automatic equipment you should consider working in more than one shift, alternatively e.g. one shift of 10 hours for six days a week.

Implementation of automatic machines comprises the following conditions in the cost/benefit calculation:

- Investment
- Yield improvement at slaughter as well as at the succeeding processes
- Manpower savings
- Maintenance
- Additional consumption of energy and water

Traditionally the meat industry's demands on pay back time for investments has been approximately three years. But considering the problems attached to manpower and

work environments, a relatively short pay back period is no longer decisive for the decision on investment in automatic equipment.

Actual cost/benefit considerations

Automatic evisceration and automatic fin cutting are examples of automatic equipment where the pay back period is less than three years in Denmark. For automatic evisceration manpower savings solely influence the short pay back time. For free-cutting also yield improvement influences cost/benefit positively besides the manpower saving.

A survey of automated slaughter processes and processes expected to be automated during the next 6 years, comprises the following processes.

Automation of:	Time for completion of the development of automatic equipment
Automatic pen system	Has been developed
Division and driving at stunning	Has been developed
Taking out of knife at rotation sticking	2005
Reading of producer number	2001
Brisket opening	Has been developed
Boring out fat end	Has been developed
Belly opening	Has been developed
Evisceration	2002
Taking out heart plucks at larynx separation	2004
Sticking out jowls	2004
Fin cutting machine	Has been developed
Middle splitting	Has been developed
Loosening of leaves	Has been developed
Sucking leaf remnants and spinal cord	2005
Cleaning of neck and removal of heart fat	2004
Cutting off whole heads	2005
Cutting off fore-toes	2005
Cutting down plucks	2004
Carcass classification	Has been developed
Veterinary stamping	Has been developed

When all these processes have been automated the productivity is estimated to rise from the present 10-12 pigs/operative/hour to approx. 25 pigs/operative/hour. These evaluations cover a slaughter plant with a capacity of 720 pigs/hour (two lines of 360 pigs/hour).

Competitiveness: summary key messages:

- The cost of the raw materials is by far the greatest cost element for the slaughtering plants. The price paid by slaughtering plants for pigs has to be competitive with those paid in its main competing countries for its export markets i.e. Denmark and Holland.

- The number of pigs killed per operator hour is over 60% lower in Irish plants compared to Denmark. The higher productivity on the slaughter line gives Danish plants a competitive advantage over Irish plants.

- Increased use of automation and plant size in Denmark will widen this gap even further. Cost of labour has been an important driver of the use of robots in Danish plants.

- Irish slaughtering are falling behind some of their major competitors in terms of effective utilisation of slaughter capacity.

- The dependence of Irish primary processing plants on primarily commodity product outputs will constrain the level of achievable margins for the primary processors. This lower margin product output requires tight control on input and operational costs and higher volume throughputs. The excess capacity and poor utilisation rates are putting Irish processors at a disadvantage in highly competitive commodity export markets.

- Both Malton and Glanbia being the largest buyers of pigs in Ireland have a major role in the price that set for pigs. Both of these operators have a very high proportion of primal output and therefore, their operating margins are very tight, requiring them to achieve cost effective raw materials and efficient processing. Their low margins leave them with very little room for manoeuvre if they experience negative shifts in competitiveness.

- The operating profit margins of Irish processors have performed and compare well against their international competitors. In 1999 for example, some of the Irish companies had profit per pig figures that were comparable, and in some cases, better than their Danish competitors. But those at the bottom of the range were significantly below their domestic and international competitors. The strong competitive performance of Irish processors has been due mainly lower labour costs and good marketing and selling skills. However, the competitiveness bar is being increased in countries like Denmark, which are investing heavily in achieving scale and automation.

- The DMRI benchmarking analysis of Irish industry indicates that Ireland is below best international performance in terms of
    - Slaughter capacity utilisation
    - Pigs slaughtered per operator per hour
    - Cutting kg per operator per hour
    - Boning piece operator per hour

- The DMRI view is that the business case for automation is difficult to make for plant with slaughter line speeds below 300 pigs per hour operating one shift.

3.9 Markets served

The primary processing sector on the island of Ireland serves a mixture of market outlets. These outlets may be classified in two main categories of customers:

Intermediary customers
Intermediary customers represent an additional element of the value chain prior to the final market outlet. These intermediary customers are usually wholesalers, distributors, or secondary processors. Wholesalers and distributors add no value to the actual pigmeat product. Their service is one of logistical convenience. They provide consolidated transport services for a variety of smaller (less easily served) final market customers such as individual retail shops, small hotels, bed and breakfast operations, and secondary processors in export markets.

Final outlet customers
There are also final or ultimate market outlets, which serve as the last step in the chain before the consumer purchases the product. These outlets are also "customers" and they fall into the sub-categories of: retail supermarkets, retail shops, butcher shops, hotels, restaurants, and other food outlets. The final outlet customer segment tends to be a large customer account with a good of amount of purchase power, due to the size of their consumer markets, and the number of operations consolidated into one organisation.

This diverse customer base presents a wide variety of challenges to the product development, product output, and customer service functions in the primary processing sector. The study team interviewed a number of customers in each category to identify the customer perception of Irish pigmeat, including the strengths and weaknesses of the existing product and service offering. We also asked customers to address the challenges facing Irish pigmeat in the future within the context of the following key issues:

- An increasingly competitive international marketplace
- Evolving consumer tastes, including convenience, speciality, and organic products
- Increasing market share of retail supermarkets
- Growing public concern over food safety and product traceability
- The development of multi-national retail outlets

These issues were at the forefront of customer concerns, and the insights provided by various customers expressed a variety of strengths in the image of Irish pigmeat, but also a number of areas for focus and improvement against the backdrop of the evolving marketplace.

The intermediary customer category is a strong element in the Irish pigmeat value chain, due to its expertise in addressing logistics and transport issues, both on the island of Ireland, and in export markets. While this customer category is quite strong at the moment, industry participants expect the segment to lose strength and market share

over the next few years, as more and more retail outlets move to central distribution and as larger corporate organisations begin to move into the Irish foodservice market.

Wholesalers to independent shops

The current strength of the intermediary customer segment is their ability to deliver to a wide variety of final outlet customers who processors would find quite difficult to service on an individual basis. The fragmented nature of many independent retail shops creates a logistical challenge for large primary and secondary processors who need to service large central retail and corporate accounts. Individual independent retail shops would find poor levels of service (due to the number of customers) and high prices (due to frequent and small batch delivery requirements).

Price is a primary driver for customers operating in this segment, because they are an additional step in the value chain, providing very little added value, and also taking another cut of an already limited margin. The challenge for processors who serve the wholesaler segment is to deliver quality products at cost competitive prices.

In many rural communities, independent shops are the primary retail outlets for pigmeat. There is a potential for consumers who shop at independent retail shops and butchers to switch to large retail supermarkets in the longer term. However, the current strength of independents makes serving their suppliers a key requirement for processors.

Retail multiples like Tesco, Dunnes, Superquinn and Supervalu are expected to continue to gain market share in Ireland. This expansion presents an opportunity for processors to shift some of their wholesale business to centralised retail service.

Wholesalers to catering and foodservice outlets

The second key market for wholesalers is the catering and foodservice sector. Due to its highly fragmented nature, this sector is likely to be served by wholesalers and distributors for the foreseeable future. Catering and foodservice have grown significantly in the past 5 years, and food industry experts expect this growth trend to continue. Bord Bia expects catering and foodservice in Ireland to grow significantly over the next 5 to 10 years, driven by a strong economy, growing consumer tastes for speciality foods, and changing lifestyles (trend toward more dining out).

Research by Bord Bia has found that quality, traceability, and price are the primary selection criteria of wholesalers when choosing a pigmeat supplier. Caterers' selection criteria are largely the same, with quality, hygiene, traceability and price rating highest in this customer group. Realising that wholesalers are the main channel to independent caterers, the importance of price at the wholesaler level is, again, an indication that cost competitive production of pigmeat products is essential to reaching the catering sector.

In the medium term, the intermediary customer segment will remain a key element to reaching smaller independent outlets as well as a significant portion of the catering segment. Primary processors will need to focus on a segment strategy that addresses the price consciousness of wholesalers while establishing and maintaining strong final customer relationships through quality products, which address customers' needs.

Final market outlets
The final market outlet segment can be categorised into the following primary segments:
- large multiple retailers
- caterers (including restaurants and hotels)
- other food outlets (including fast food)

Each of these segments purchases pigmeat products with the objective of serving the final product to the consumer. The requirements for serving each of these final outlets are addressed in the discussion below.

Catering (restaurants, hotels, and other foodservice)
Caterers are a specialised segment with specific convenience needs for its pigmeat products. From discussions with catering suppliers and caterers, the study team has identified a few key feedback issues:
- Not all processors are addressing the specific product and service needs of the catering sector
- Some caterers feel that their business is of secondary importance to Irish processors, while import suppliers are attentive and cost competitive
- Low levels of product development in terms of convenience of packaging and product preparation
- Visible specifications of Irish product are not always on par with imported product

The catering sector is preparing meals for consumers who are dining away from home. The caterer must provide the highest quality as well as safe food products. The following are crucial requirements for a product being served by a caterer:
- Quality
- Visual presentation
- Convenience (ease of preparation)
- Price

The visual presentation is vitally important to the catering experience, in addition to the technical specifications of the product. The catering segment is particularly sensitive to visual presentation, as consumers tend to be much more critical of the visual presentation of the product.

A common observation made in our discussions with customers was that often the Irish pigmeat product is of a very high quality, but its visual presentation was not always on par with some of the imported product – particularly Danish pigmeat. Bord Bia's research found that many catering customers thought the larger eye muscle of some imported rashers was more pleasing in its visual presentation.

Convenience (ease of preparation and packaging) are key purchase criteria for catering products. In terms of preparation, caterers want more product development aimed at quicker and simpler meal preparation. With the shrinking availability of staff, caterers are looking for ways of minimising preparation times, while maintaining product quality and visual presentation.

If Irish processors are to develop stronger relationships with the catering and foodservice segment, there will need to be a greater focus on the product and service needs of the segment. Processors should work closely with Bord Bia to identify and improve the ways in which the needs of caterers are addressed.

Large food retail outlets

As large food retail multiples strengthen their position in the marketplace, the provision of products and services to this segment will have key implications for Irish processors' long term viability. The market strength of retail supermarket chains such as Tesco, SuperValu, Dunnes, and Superquinn is growing. As they expand the number and size of their retail locations, their buying strength is continually increasing, as is their consumer reach. Smaller outlets such as Spar also have considerable strength, and serving the entire retail segment is key to establishing a strong relationship with the domestic consumer market.

The internationalisation of the food-retailing segment is also a key issue of which processors need to be aware. As food-retailers are increasingly becoming multi-national (i.e. Tesco, ASDA, and Lidl), the supply opportunities for these companies are widening. Their multi-national status does not mean that they are not committed to local sourcing. However, the options for international sourcing are there, if local suppliers do not rise to meet the challenge of supplying highly specified customer expectations.

The key feedback messages arising from our research on the food-retailing segment are as follows:

- Irish product is preferred over imported pigmeat
- The market and buying strength of retailers is increasing
- Supply chain management is increasing in importance
- Own label is growing its share of the market
- Production needs to be market driven
- Processing efficiencies need to improve
- Food safety and traceability throughout the value chain is absolutely critical
- Producing to specification will become increasingly important to maintain competitiveness
- Welfare – friendly production will become increasingly important

Retailers are committed to stocking Irish pigmeat

Our discussions with retailers have indicated a strong commitment toward stocking Irish product. The quality and taste of Irish pigmeat makes it the preferred product for retailers to stock. However, there are growing concerns around the lack of effort that is being focused on production and processing in terms of understanding and matching emerging market (consumer) trends.

Retailers feel that there could be a greater effort on producing and processing pigmeat to specifications earlier in the value chain. Producing to specification is viewed as an opportunity to build stronger relationships throughout the chain and result in a product

that is more closely aligned with the tastes of consumers. Ultimately, retailers anticipate higher consumer satisfaction from more consumer-focussed products.

Retailers' purchasing power is increasing
Retailers are growing larger and across international borders. This growth has given them an increasingly strong buying position against suppliers. Most major retailers are either undergoing or have already completed some type of rationalisation of their supplier base. The desire for retailers is to have as few suppliers possible, while still maintaining a healthy level of competition within the supply base.

Supply chain management is becoming the industry norm
Many of the retail chains have centralised their distribution, creating the need for even greater concentration in the supply chain. Supply chain management is becoming the industry norm, and is usually led by the retailer. Retailers see no other way forward, except a more integrated supply chain effort. By "integrated", the retailers do not mean ownership must shift; there is simply a feeling that the historical lack of communication and co-operation has limited the competitiveness of the Irish pigmeat industry. The fact that retailers have taken the initiative to organise their supply chains better indicates that adoption of this concept is the way forward for suppliers who wish to have an outlet in large, multiple retail shops.

Retailers have made a concerted effort to get all elements of the chain working in synchronisation from producer to primary processor, through to secondary processor and eventually final outlet. Producers must be Bord Bia Quality Assured and the retailer must approve primary and secondary processors. Increasingly, retailers expect to see production to specification, hence the greater need for communication, which will begin at the farm level, with retail agri-experts helping to co-ordinate production efforts with emerging consumer tastes.

Own label continues to grow its share of the market
Own label, particularly on the fresh pork side of the business is growing in importance. Retailers view meat as a "hero category". This means that if they get their meat offer right, they have managed to attract consumers to their outlet in a highly competitive market. People are willing to shop for other grocery items in a place that has a strong "hero" offer like high quality meats.

The strength of the own label category places additional pressure on the retailer. Because they are not actually producers of a product that has their name on it, they must be especially rigorous in providing every assurance that the product is safe and of the highest quality. Retailers feel they are putting their name on the line everyday, and thus traceability and quality assurance are absolutely critical to their relationship with producers and processors in the value chain.

Production needs to be market driven
As mentioned earlier in this chapter, retailers feel there is a certain amount of resistance to producing pigmeat to a retail specification. The retailer is closest to the consumer, and therefore, has a strong insight into the evolving tastes and consumer trends in pigmeat. The retail segment feels this insight should be leveraged at the producer level

so that a product, which is closer aligned with the tastes of the consumer, can be developed. The growth of the supply chain management concept will drive this message home, as more and more producers and processors become aligned with specific retail supply chains. The key to meeting this challenge is to use the change toward production to specification, to grow closer to the customer and finally the consumer. This will have benefits throughout the chain, and retailers are willing to pay for a high quality product, produced to their own specification levels.

Processing efficiencies must improve

Retailers are very aware of the lagging competitiveness of Irish processing. There are a few key issues that repeatedly arose during our discussions:

- Inconsistency of supply
- Little short to medium term flexibility
- Fluctuating prices

The above issues have retailers slightly worried that Irish pigmeat may become uncompetitive with imported product. The likelihood of this happening is growing in the minds of some retailers who want to deal with one processor for a certain product, but cannot do so because there is no guarantee that the supply of pigs will be consistent from one week to the next. Retailers desire for a streamlined supplier base has already been discussed. However, with a lack of consistent supply, relying on a consolidated supplier base becomes more and more difficult for retailers. Equally, if retailers want to increase the supply of a product on short notice (even a week), the inconsistent supply of throughput can make meeting that increase a significant challenge for the processor. This lack of flexibility is identified as a key weakness of Irish processors against import suppliers.

Finally, the issue of fluctuating prices makes the relationship between retailers and processors more difficult to manage in the longer term. This difficulty perpetuates the short-term focus of the pigmeat industry. It damages the potential for long-term customer relationships, and draws valuable resource and time away from focusing on the consumer.

Food safety and traceability are becoming absolutely critical

The demand for quality pigmeat, which can be traced back to the farm is a consumer reality. Retailers agree that consumer concerns have highlighted the importance of food safety, and it has become a competitive differentiator in most international markets. The Danish pigmeat industry has pushed the topic to the forefront of its competitive positioning and the US industry is ramping up its communications on the issue.

Retailers have responded to this consumer demand by proactively advertising their commitment to food safety. Tight controls over traceability in the food chain are viewed as critical to the relationship between suppliers and the retailers. Retailers are unwilling to relax this standard, and producers and processors can expect the standard to become one of supply chain agreements throughout the value chain.

Key messages:

- A successful future in the pigmeat industry will be driven by the ability of producers and processors to focus on their final markets
- Market driven production and processing will require increasingly close communication and collaboration between producers and processors
- The growing competitiveness of the international marketplace will make the ability to meet customers' selection criteria absolutely critical to Irish industry success
- The diversity of markets served will require significant strategic planning and a shift in supplier thinking toward the desire to meet customer expectations at every level

Implications:

- Market-led production and processing will demand close collaboration with retailer and other final customers. Efforts toward aligning within specific supply chain schemes should be undertaken sooner, rather than later, to meet this emerging demand.

- Consistency, price, and availability are key purchase criteria for customers. The current difficulties that processors have in securing supplies, as well as the fluctuations in capacity utilisation, are contributing to volatility of price and supply. Significant, industry-wide effort should be made to achieve supply agreement, and supply chain co-operation, before the lack of such agreements pushes key customers to source from elsewhere.

- A market-driven approach to production and processing will require investment in R&D. Producers and processors must turnaround current profitability levels to be able to contribute appropriate amounts of capital to the development of consumer driven product demands.

3.10 Overview of imports

The 1990s have been a period of growth for both imports and exports in the RoI pigmeat sector. To date, RoI pigmeat processors have been able to capitalise on the two-way flow of trade, with the export surplus growing to 90,000 tonnes in 1998 before falling back to 77,000 tonnes in 1999.

Volumes of pigmeat imports and exports have grown significantly throughout the 1990s. Volumes of imported pigmeat have doubled since 1990, reaching an import level of 34,700 tonnes in 1998 and falling back slightly in 1999. Exports also doubled, from 1990 to 1999, and they grew from a larger volume base than imports. 32,500 tonnes of pigmeat was imported into Ireland in 1999, however 109,600 tonnes were exported. RoI pigmeat production was 250,700 tonnes in 1999 and the level of imports were 13% of total RoI production volumes. The growth of imports and exports of pigmeat into the RoI is depicted in Table 55 below:

Table 55: Imports and Exports: RoI Pigmeat (tonnes) 1990-1999

	Imports	Year on Year Change %	Exports	Year on Year Change %
1990	17,000	-	54,000	-
1991	17,000	0.0%	78,000	44.4%
1992	19,000	11.8%	99,000	26.9%
1993	16,000	-15.8%	89,000	-10.1%
1994	22,000	37.5%	96,000	7.9%
1995	30,000	36.4%	100,000	4.2%
1996	34,548	15.2%	100,964	1.0%
1997	31,342	-9.3%	97,961	-3.0%
1998	34,728	10.8%	107,483	9.7%
1999	32,508	-6.4%	109,570	1.9%
Total Change 1990-1999	**15,508**	**91.2%**	**55,570**	**102.9%**

Source: CSO

Key messages:

- Imports of pigmeat to RoI have increased by 91% since 1990, however exports have increased by 103%.
- Import volumes averaged 25,400 tonnes per year from 1990 to 1999.
- While the volume of pigmeat imports has grown, the year on year changes fluctuate regularly, indicating that import volumes are susceptible to market (price and supply) fluctuations.
- Since 1995, import volumes have represented roughly 30% of RoI export volumes.

Imports represent roughly a quarter of pigmeat consumption in RoI. Table 56 reflects the ratio of imports to total production and Irish consumption for 1999.

Table 56: RoI Production, Imports, Exports, and Domestic Consumption 1998 - 1999

	RoI Production tonnes*	RoI Exports tonnes*	Exports as % of Production	RoI Imports tonnes*	Imports as % of Production	RoI Consumption tonnes*	Imports as % of Consumption
1998	204.6	107.5	52.5%	34.7	17.0%	131.8	26.3%
1999	218.2	109.6	50.2%	32.5	14.9%	141.1	23.0%
% Change	**+6.6%**	**+2.0%**	**-2.3%**	**-6.3%**	**-2.1%**	**7.1%**	**-3.3%**

Source: DAFRD and CSO

Key messages:

- Imports represented 15% of RoI production and 23% of RoI consumption of pigmeat in 1999.
- While consumption grew 7% in 1999, imports as a percentage of total pigmeat consumption have shown a decline of -3% from 1998 figures.
- RoI processing volumes grew nearly 7%, while import levels declined 6% from 1998 to 1999.
- Exports showed a 2% increase in 1999 over the previous year.

Type of imports to RoI

The use of imported pigmeat often varies from customer to customer. The primary customers of imported pigmeat are secondary processors and foodservice wholesalers who use imported product to supply various foodservice outlets, including hotels, and other food outlets, locally and overseas. The varying levels of specific category imports, and the range of outlets through which imports are channelled can make it difficult to understand the reasons behind import substitution. However, there are some trends that emerge when examining the import of specific cuts of pigmeat. Table 57 below reflects the breakdown of imported pigmeat by specific cut from 1995 to 1999.

Table 57: Breakdown of Imported Pigmeat by Cut 1995-1999 (tonnes)

	1995	1996	1997	1998	1999	% Change 1995-1999
Pork Carcasses	369	758	761	7,289	8,689	2255%
Pork Cuts	8,629	11,884	10,694	7,586	5,803	-32.8%
Bacon & Ham Cuts	6,647	7,014	6,789	2,553	2,673	-59.8%
Edible Offal	8,567	8,421	5,695	5,493	3,130	-63.5%
Prepared	3,617	4,381	4,981	9,787	8,757	142.1%
Sausages	1,708	2,189	2,422	2,020	3,456	102.3%
Total	**29,537**	**34,647**	**31,342**	**34,728**	**32,508**	**10.1%**

Source: CSO

Key messages:

- Pigmeat imports to RoI have shown an overall increase of 10% since 1995.
- The growth categories were carcasses, prepared meats, and sausages. Pork cuts, bacon cuts, and edible offal have experienced significant declines in imported product.

Table 58: Breakdown of Imported Pigmeat by Cut Category 1999 (tonnes)

	1995	Share of Total Imports 1995	1999	Share of Total Imports 1999	% Change in Share of Imports
Pork Carcasses	369	1.2%	8,689	26.7%	**+25.5%**
Pork Cuts	8,629	29.2%	5,803	17.9%	**-11.3%**
Bacon & Ham Cuts	6,647	22.5%	2,673	8.2%	**-14.3%**
Edible Offal	8,567	29.0%	3,130	9.6%	**-19.4%**
Prepared	3,617	12.2%	8,757	26.9%	**+14.7%**
Sausages	1,708	5.8%	3,456	10.6%	**+4.8%**
Total	**29,537**	**100%**	**32,508**	**100%**	

Source: CSO

Key messages:

- The carcass category represented only 1% of total imports in 1995, whereas it represented 27% of total imports in 1999.
- The growth in carcass imports implies that a significant amount of imports are going through at least some additional (RoI) processing before being sold into the marketplace.
- Prepared products grew from 12% of total 1995 imports to 27% of all imports in 1999, indicating growing tastes among Irish consumers for speciality products.
- The imported bacon and ham category lost 14% of its share of imports from 1995 to 1999.

Research by Bord Bia[20] has found a number of reasons for the varying levels of imports across different categories:

- Edible offal: an inexpensive source of protein often used in the production of canned meats and pet food manufacture. The Irish market has a net import requirement for this product, as not enough is produced domestically for processing requirements. In recent years, edible offal has declined by nearly 20%, and some industry observers believe that the BSE scare could have contributed to this decline.

- Prepared/Preserved products: these are predominantly deli meats and speciality products, which are not produced in large amounts by domestic RoI processors. Examples from this category are: Parma ham, pate, salamis, etc. Steady growth in import levels in this category indicates growing speciality tastes of Irish consumers.

- The sausage category has shown a 5% increase in imported products since 1995, indicating a growing popularity of continental sausages.

The differences in fresh and frozen imports reflect an increase in fresh pork and a decline in frozen pork. Figures from the CSO indicate an increase in fresh pork of 28% from 1998 to 1999, while frozen imports showed a decline of 13% for the same period. Fresh,

[20] Pigmeat Import Penetration in Irish Foodservice Market, August 1999, Bord Bia

boneless pork showed an increase of nearly 50% for the year. The bacon and frozen pork categories each reflected declines in import levels.

Channels to market for imports

Understanding which markets imported pigmeat is penetrating can provide insight to opportunities for Irish processors to address the level of displacement. Research by Bord Bia[21] has resulted in the following conclusions:

- 70% of all pigmeat consumed in Ireland is sold through retail channels.
- 30% of pigmeat consumed in Ireland is sold through foodservice channels.
- Roughly 37% of imported pigmeat ends up in the catering/foodservice market, while 63% ends up in the retail market.

Although only 37% of imports are sold through the foodservice channel, import penetration is more significant in this channel because it only represents 30% of consumption reaching an estimated 42,000 tonnes in 1999. The retail sector accounted for roughly 99,000 tonnes of pigmeat consumed in RoI in 1999.

Imported pigmeat enters the RoI market through a number of potential routes:

- Direct sales (retail and catering)
- Secondary processors
- Distributors and wholesalers

Of the above channels, distributors and wholesalers are the only intermediary operators. Because wholesalers' customers are not the direct buyers of pigmeat products, confusion about the origin of pigmeat products is common at this level. Many customers of wholesalers (primarily the catering segment) can be unaware that they are buying imports, unless they are rigorous and attentive in their purchasing function.

Additionally, some imported pigmeat will go through additional stages of further processing before being sold for consumption. The levels of this imported raw material are difficult to gauge. However, Bord Bia estimates that imports have an approximate share of 23% of the retail market and 31% of the food service market. Due to the large volumes of pigmeat, which reach the market via the retail route, most imports are likely to have been through at least one stage of additional processing prior to reaching Irish consumers.

Origin of Imports to RoI

Great Britain and NI represent nearly 50% of total imports into RoI. However, in recent years, the share of GB and NI has declined as, the Netherlands and Germany have increased their share. From 1995 to 1999, the Netherlands increased their share of total imports to RoI by approximately 8%, while Germany's increase was 4%. The declines for GB and NI were -6% and –4% respectively over this same period. Table 59 below demonstrates the growth in share of various importing countries from 1995 to 1999.

[21] Pigmeat Import Penetration in Irish Foodservice Market, August 1999, Bord Bia

Table 59: Origin of imports 1995-1999

Country	1995 Imports (tonnes)	1996 Imports (tonnes)	1997 Imports (tonnes)	1998 Imports (tonnes)	1999 Imports (tonnes)	Growth per annum 1995-1999
Great Britain	11,099	12,290	10,948	11,296	10,308	-1.8%
Northern Ireland	5,757	6,757	6,453	6,640	4,997	-3.5%
Netherlands	3,724	5,174	3,910	5,245	6,622	15.5%
Denmark	4,624	5,015	5,008	4,189	3,902	-4.2%
France	2,031	1,983	2,572	3,658	2,329	3.5%
Germany	892	1,631	1,019	2,451	2,419	28.3%
Other	1,409	1,797	1,311	1,245	1,930	8.2%
Total	29,536	36,647	31,221	34,724	32,507	2.4%

Source: CSO

Key messages:

- Overall import volume growth was 2.4% per annum from 1995 to 1999.
- Germany and the Netherlands each experienced double-digit growth in import volumes to RoI at 28% and 16% respectively.
- France also experienced import volume growth, increasing its import levels to RoI by 3.5% per year over the same period.
- Denmark experienced a decline in import volumes to the RoI market, with its imports to RoI falling 4.2% per year over the last 5 years.
- GB and NI import levels were down by -1.8% and –3.5% reflecting declining production levels in both regions.

The decline in imports from GB and NI can be attributed somewhat to the declining production in each of these countries, but also to the strength of sterling. Similarly, the increase Dutch imports can be largely attributed to significant price competitiveness. The increase in German imports is a combination of factors including price competitiveness and increasing sausage imports.

Value of imports to RoI

The reported value of imports to the RoI market reached £IR 63.1 million in 1999. This figure reflects an increase of 2% over the reported 1997 £IR 61.8 million import value. Figures submitted voluntarily to the CSO indicate that both the volume and value of imports fluctuate quite regularly on the RoI marketplace. However, value levels experience the widest fluctuations. Reported import volumes showed a net increase of 4% from 1997 to 1999, while the reported value of imports only increased by 2% due to the drop in global pig prices during these years. Based on reported volume and value figures, the overall price per tonne of imported pigmeat declined 2% from 1997 to 1999.

Reasons for Import Displacement

The reasons for import displacement are varied and evidence to support these reasons is often anecdotal. Bord Bia conducted specific research[22] into import displacement in the catering sector in August 1999. Some of the key findings for choosing imported pigmeat over domestic pigmeat were as follows:

- Price is an important driver of choice at the catering level. Catering suppliers indicate that they often buy imported pigmeat based on the price advantage.
- Many domestic suppliers have not focused on the domestic catering sector due to complicated logistics requirements and extended credit periods. This lack of focus by domestic suppliers of pigmeat has apparently opened a window for imported products to gain market share in the catering sector.
- Some foodservice buyers feel that there could be better consistency of cuts and product specification for Irish pigmeat products.
- Some foodservice buyers and secondary processors indicated that desired volumes at appropriate product specification levels are not always readily available from domestic primary processors.
- Not all foodservice buyers realise they are not buying Irish, as this sector tends to be served by an intermediary level of wholesalers and distributors who make the primary purchase decision.

Prospectus interviewed a number of secondary processors who confirmed the above findings from Bord Bia's extensive research. Views expressed by secondary processors in interviews with Prospectus are reflected in the key messages below.

Key messages:

- Secondary processors prefer to buy Irish. However, the following issues provide a challenge for the Irish pigmeat industry:
  - Sufficient volumes of pigmeat at desired specification levels are not always readily available.
  - Procuring sufficient and consistent volumes of boned-out pigmeat is particularly difficult.
  - Import suppliers tend to be more flexible (i.e. short term increase in supply needs are easily met).
  - Consistency of cut tends to be better from import suppliers than from RoI primary processors.
  - Import suppliers tend to be very focused on customer service, while RoI primary processors can sometimes take days to address customer complaints.
  - Import suppliers have more reliable delivery times.
  - There is often a price advantage in choosing imports. However, some interviewees felt that import suppliers' prices were more consistent than domestic suppliers' prices.
- The study team received strong feedback from a number of secondary processors who feel that RoI primary processors are most concerned with satisfying their own

[22] Pigmeat Import Penetration in Irish Foodservice Market, August 1999, Bord Bia

further processing needs and for serving export markets than with serving their customers who are secondary processors.
- The secondary processors we interviewed maintain a firm commitment to Irish pigmeat. However, the option of maintaining an alternative source of supply from outside the country is appealing. Respondents to the survey, typically, preferred to keep the option open of importing 15-20% of their supply.

Opportunities to address import displacement
As stated earlier in this chapter, imported pigmeat enters the RoI market through three main routes:

- Direct sales to retailers or caterers/foodservice
- Secondary processors
- Wholesalers or distributors

Therefore, RoI processors will need to address the opportunities to contain import displacement through strategic plans aimed at each route to market.

Direct sales
Customer relationships at this level are likely to require high levels of service, communication, flexibility, and attentiveness to problems and complaints. The volumes at direct purchase levels are high, therefore competitive pricing is necessary to maximise profit opportunities against significant buying power. Because these routes are closest to the consumer, there will be additional pressures on product presentation, innovation, and convenience.

RoI primary processors will need to focus on customer service and new product developments to combat import displacement. At the retail level, the reputation of Irish pigmeat as a high quality product can be leveraged at the consumer level with public sentiment to buy Irish. However, investment in R&D and product development will need to be consistent to stay abreast of trends in consumer taste. At the catering level, competitive pricing and product innovation around increased convenience for preparation of pigmeat products will be crucial to capitalising on the growing catering market. Additionally, less centralised distribution in the foodservice segment will require strong management and logistics processes when serving this market.

Secondary processors
Interviews with secondary processors indicate that service and availability of product are the two key criteria on which RoI primary processors appear to be performing poorly. The availability of sufficient raw material is critical to managing product flows and demand fluctuations with customers. Sufficient and consistent throughput levels would improve the primary processing sector's ability to meet fluctuations in customer demand. However, current throughput fluctuations make flexibility in meeting customer demand a challenging task for the primary processing sector.

Primary processors will need to enhance supply chain management to facilitate communication between all elements of the pigmeat value chain. This enhanced

communication will allow for better planning of supplies and output, and it should improve customer service dramatically. Primary processors must also make an internal commitment to improve customer communication and complaint resolution policies within their individual organisations.

Wholesalers and distributors
As larger customers begin to centralise distribution, the role of wholesalers and distributors will begin to shrink. Currently, the wholesaler/distributor segment acts as an intermediary between the processors and the final outlet to the consumer (whether it is at the foodservice or retail level). This intermediary role allows the wholesaler to make the purchase decision about which products will be supplied and what their origin will be. In the wholesaler/distributor scenario, it is common for the final outlet to be confused about, or even ignorant of the origin of the products it is buying. This is often a result of unclear labelling about the origin of pigmeat products.

The importance of the wholesaler/distributor segment is expected to decline in the future as more companies shift to central distribution. However, in the medium term, primary processors will have to make every effort to communicate and establish relationships with the end customer (retail or foodservice outlet). These outlets are the final element of the value chain before a product reaches the consumer, and their understanding of pigmeat product origin is vital to improving the awareness of Irish origin.

Enhanced labelling and customer service call centres are two methods of establishing end customer contact where an intermediary is involved. Due to their intermediary status, wholesalers and distributors are very price conscious. They will do everything in their power to maintain tight cost controls. And because they add very little value to the product, their key strategy for cost control will be the product price. RoI primary processors will need to maintain cost competitiveness so that the wholesale segment does not turn to alternative sources of pigmeat (i.e. imports).

Threats posed to Irish pigmeat from imported pigmeat
The primary threats identified to Irish pigmeat by imports are as follows:

- **Increasing price advantage due to competitiveness of international primary processors.** RoI primary processors must improve efficiency levels at slaughter plants to manage costs and produce a competitive product on par with international competitors. International competitors like Denmark and Holland, who already benefit from the competitive advantage of scale, are embarking on rationalisation schemes and investment in automation to achieve further improvements in productivity and efficiency.

- **Falling pig numbers leading to insufficient supply availability.** The current decline in pig production on the island of Ireland poses a significant threat to slaughter capacity utilisation levels as plants are forced to kill fewer pigs across excess capacity. Not only will the falling throughput levels increase slaughter costs per pig, the declining availability of pigs will make it increasingly difficult for individual primary processors to accommodate short term increases in customer demand.

- **Insufficient animal welfare (AW) friendly production to supply growing market demand.** Although the issue of welfare friendly pig production has not reached the level of importance that it has in the UK, it will become more important over time. The potential for consumer and/or retailer- led demand for AW friendly pigmeat could pose a serious threat to Irish pigmeat, as a limited amount of production currently qualifies as AW friendly. Competing nations like Denmark and Holland are investing in AW friendly production already and Irish production will need to follow suit, if it is to avoid import displacement by AW friendly pigmeat produced outside of Ireland.

- **Potential entry of Poland and Hungary to the EU.** Though still a number of years away, the entrance of large pig producing countries with significant expansion potential, to the EU poses an additional competitive threat to Irish pigmeat. Poland in particular has a very low cost production status, and is already attracting investment from major international pork producers and processors such as Smithfield in the US. As Irish processors face a variety of challenges to their competitiveness, countries like Poland will have low raw material costs, low labour costs, varying levels of adherence to current EU production standards, and significant availability of land for AW friendly production and lower densities of pig numbers.

Potential Initiatives for Addressing Import Displacement
Customers who are currently purchasing imported pigmeat appear to prefer Irish product. This provides a number of opportunities for primary processors to address current levels of import displacement. The key advantages customers identify for imported pigmeat fall into the following categories:

- Availability & consistency of product
- Price
- Customer service and delivery
- Awareness of Irish product

There are opportunities for RoI primary processors to minimise the level of import displacement, by implementing a number of potential initiatives addressing the above areas of customer concern.

Availability and Consistency of Product
Customers require the availability and accuracy of the desired product, when and where they need it. RoI primary processors will need to examine the options for improving supply chain management so that they are better equipped to accommodate shifts in customer orders.

Recommended Initiative:
Producers and processors need to implement supply chain management schemes (including customers) to allow customers to communicate with primary processors regarding changes in supply needs. The primary processor can then manage customer demand through communication with its suppliers (producers). Obviously, huge shifts in

customer demand will be a challenge in a small market like RoI with tight raw material availability, but primary processors could improve service to accommodate small shifts in demand through enhanced communication throughout the supply chain.

Price

This is the most challenging competitive advantage imported pigmeat has over domestic primary processing product. This is especially the case for price conscious customer segments such as wholesalers and caterers. Without significant change to the existing primary processing structure in RoI, slaughter plants will continue to struggle with competitiveness on a variety of measures. The current decline in pig numbers is constraining throughputs, and overhead costs are spread across fewer pigs. If rationalisation or consolidation does not take place in the RoI slaughter sector, primary processors will face increasing difficulty to maintain prices that are competitive with imported pigmeat.

Recommended Initiative:

Primary processors must make every effort to increase throughput levels and "sweat" the assets of their plants. An industry-wide rationalisation scheme to eliminate excess capacity should be implemented as soon as possible. Successful implementation of this scheme would aid in driving out some of the processing cost in RoI pigmeat. Producers and primary and secondary processors must work to achieve better communication and planning of supply needs driven from the top down (customer to processor to producer). This communication will allow primary processors to run slaughter lines at target capacity utilisation rates, which should contribute to lower slaughter costs, and more competitively priced primary output.

Customer Service and Delivery

Customer service is a key ingredient for RoI primary processors to regain share where imports have made inroads. Feedback to the study team repeatedly reflected customer disappointment with the level of customer service from the primary processing sector. Complaints ranged from the lack of flexibility to a perceived disinterest in customer satisfaction. Several secondary processors stated they received faster and more attentive service from Danish and French suppliers than they do from suppliers who are only an hour's drive from them. The ability to resolve customer issues in an efficient and satisfactory way will have an impact on the strategy of minimising import displacement.

Recommended Initiative:

An industry-wide body should be established to assist primary processors in the establishment and implementation of an industry-wide Quality Control policy that addresses customer service. The Bord Bia QA scheme has been commended for its effectiveness at improved product quality and setting an industry-wide product standard for pigmeat. An industry-wide customer satisfaction policy, equivalent in scope to Bord Bia's QA scheme, should be designed and implemented to improve the service image of Irish primary processors.

Although we did not interview export customers, it is possible that they have similar concerns with customer service. The implementation of an industry-wide service

scheme would greatly improve domestic customer relationships, and would also strengthen the Irish image of quality and service on key export markets.

Awareness of Irish Product Origin
As a follow-up to its research on import displacement in the foodservice sector, Bord Bia began to address the issue of improving consumer (and customer) awareness of the Irish product through "a comprehensive programme of advertising, recipe leaflets, and other material outlining the quality and flexibility of Irish pigmeat".[23]

Recommended Initiative:
Primary processors should work closely with Bord Bia to capitalise on the aforementioned campaign. Retailers should be included in promotional planning, so their needs in serving the consumer market are met. Caterers should be encouraged to buy Irish, and education regarding cooking and recipe formulation should be targeted at chefs and catering managers.

[23] Pigmeat Import Penetration in Irish Foodservice Market, August 1999, Bord Bia

3.11 Summary strengths and weaknesses

NI processing industry SWOT

Strengths
Specialisation: • Malton is bringing the scale of operation at Unipork to international competitive levels • The two smaller slaughtering plants focus on serving the domestic market and maintaining a scale of operations to allow to be flexible and maintain good relationships with suppliers and buyers • Smaller plants have relatively low financing costs • The Unipork is specialising in only a limited of processing activities and plans to achieve internationally competitive standards in terms of efficiency and scale Commitment: • The smaller plants have a long-term commitment to staying in the industry and the next generation are already involved in the business. • The Malton Bacon Company has stated that it is committed to staying in NI and will do so if it remains a profitable endeavour Market access to GB: • The Malton Bacon Company provides a ready outlet for the output of its Unipork plant • Being part of the UK and the welfare friendly production structure should potentially provide easier access to GB markets
Weaknesses
• Malton's focus on primary processing at its Unipork plant with very little value-added processing • The lack of deep roots of Malton's NI operations, makes it presence vulnerable if a loss of competitiveness in terms of supply or processing were to occur • The small scale together with the domestic and primary processing focus of the other 2 significant operators makes the development of export markets difficult • Lack of a substantial export (outside of the UK) focused secondary processing sector • Very little value-added processing and as a result limited economic value-added to the NI economy • Lack of major secondary processor capable of building and sustaining strong export markets • Expansion constraints to the Unipork plant in Cookstown due to its location

Summary strengths and weaknesses (continued)

NI processing industry SWOT

Opportunities
• Potential to supply the domestic market with more valued-added products such as cooked meats by displacing imported or GB product (The cooked meats sector in RoI is experiencing 7-8% growth per annum with premium quality products reaching 20% growth) • Small size and scale of NI industry could facilitate focusing on niche markets e.g. organic, premium quality, healthy/"green", regional niche brands welfare friendly, specific consumer/ethnic requirements/taste preferences etc. • Leverage/develop the ability to market NI pig meat as welfare friendly UK meat to gain an advantage over RoI product
Threats
• Appropriate supply of pigs • Competitiveness/viability of future NI pig production • Increased competitiveness on international markets due to lower production costs and improved processing efficiencies (scale, automation, etc) • The greater grocery market share obtained by GB multiples (Tesco, Sainsbury, Safeway, Iceland and Marks and Spencer) may result in product produced in NI being displaced as a result of private label, central purchasing and distribution strategies • Strategic dependence of one major operator Unipork (over 50% of the kill). An exit by Malton from NI would cause a major crisis in the industry on the island of Ireland

Future outlook for the NI pigmeat industry

The immediate outlook for the processing industry competing in an increasingly larger scale and more competitive pigmeat commodity market does not look promising given the structure and status of both the production and processing sectors. Key factors that are contributing to this pessimistic outlook include:

- The dramatic decline in production numbers and the relative lack of competitiveness of producers due largely to scale and the strength of sterling
- The focus of Malton to concentrate its Cookstown plant on producing and supplying primals to its GB operations will make it vulnerable to negative changes in competitiveness and will encourage it to pay lower prices for NI and RoI pigs compared to GB pigs
- The small scale, domestic and primal focus of the other players in the processing sector

The two smaller processors have adopted a strategy of primarily serving the local market and maintaining good relationships with producers and key customers. This has been a successful strategy and has enabled them to run profitable enterprises but it only covers less than half the production output. The industry also needs players with a strong export focus. This role is currently being performed by the Malton Bacon Company with its concentration of supplying primals to its plants in GB.

There is an absence (and the unlikely emergence) of a strong further processor which can add more value to the NI pig meat product and develop significant export markets.

The 1993 report on the review of the NI pig industry identified the following success factors:

- The presence of processors in the bacon segment of the UK pig meat market achieving higher margins and greater utilisation of capacity than currently being achieved
- Renewed confidence in the producing sector
- The ability of two major processors to develop into international markets

The study also set the following performance targets to be achieved by 1997

Table 60 Performance targets set in the 1993 review of NI pig industry

Performance indicator	1997 target	Status in 2000
Number of pigs produced	1.4m	Pigs produced in 1999 1.2m with a drop in the breeding herd of 26%
Average herd size	150 sows	49 sows
Structure of processing industry	2 plants killed > 8,000 pigs/week 2 plants killing between 3-6,000 pigs/week	1 plant > 13,000 2 plants < 5,000 1 plant < 3,000
Net pigs exported live to RoI	< 100,000	Live pigs imported in 1999 > 150,000

The anticipated/hoped for development and improved competitiveness of the industry did not happen for a number of reasons. The recent crisis in pig prices in 1998 and 1999, the current strength of sterling and the loss of L&C plant have all contributed to the recent lack of or fall back in progress.

The aim of the 1993 strategy was to achieve a step change in the industry to bring it up to international competitive standards. This step change has not happened and international competitive environment has increased even further requiring an even greater step change if the NI industry is to compete successfully on international markets. Given the current backdrop to the industry it is difficult to see if making this step change is feasible or practical.

The above assessment of the industry will appear to be very negative and pessimistic. The assessment of the industry is set against the context of the strategic objective to be internationally competitive. The assessment we have made of the industry leads Prospectus to conclude that it will be very difficult for NI to be internationally competitive and profitable if the focus of the industry is to primarily supply commodity/primal product to the market.

NI is unlikely to become a strong or significant player on the international market, particularly in the commodity product areas. But what it can strive to become is a stronger regional player specialising in niche and / or premium quality product areas.

There is a growing consumer market for safe, healthy, "green" and quality food products. NI's small scale enables the industry position itself as a specialist producer of

quality and "green" pig meat products. It needs to go about the process of developing stronger regional brands with quality/premium products and creating and sustaining an image of a specialist "green" producer of food products of the highest food safety standards. Establishing relationships with retailers who seek a high-end, "green" image (even for own label products) is one potential area for development.

The current demand for specialist "green" and quality food products is not as great as that for cheaper commodity products. However, it is a growing market and one that could potentially provide a viable outlet for the smaller NI processing plants. The increasing affluence of consumers on the island of Ireland and in GB have allowed them to spend more on food and in many cases to be more indulgent in choosing more expensive food products which meet their requirements of food safety, "greenness" healthy and quality.

Commodity and primal output will continue to be a significant proportion of the total output. There is unlikely to be sufficient volume demand in the specialist/ quality segment to handle the total Northern Ireland production output. There will be a local domestic demand for price sensitive / commodity type pig meat products that will continue to need to be met. The "green" and quality strategy is unlikely to meet the needs of the Malton strategy to provide price competitive primal product to its GB plants. To meet the demands for these types of products, commodity/primal production will remain as a major component of total output.

The aim of the specialist strategy is not to replace commodity production with more value-added output but to shift a bigger proportion of the current commodity output levels to value-added/premium product.

Summary strengths and weaknesses

RoI processing industry SWOT

Strengths
• Modern facilities • High quality raw materials • Well respected quality assurance scheme • Strong domestic brands: Galtee, Denny • Strong further processors: Dawn Farms Foods, Kerry
Weaknesses
• Low capacity utilisation (too many plants, too few pigs) • Limited value-added processing outputs • Inconsistent supply availability • Limited recent capital investment • Lack of scale impedes international competitiveness • Lack of focus on customer needs/ satisfaction levels
Opportunities
• Capitalise on the "green" image of Irish products to establish high quality positioning • Develop supply chain management concept to link elements of value chain closer together and create more consistent product outputs • Examine high value add opportunities such as ingredients and ready made meals for large retailers and export markets • Focus on serving growing catering and food service segments
Threats
• Appropriate supply of pigs, possibility of declining NI herd creating island-wide shortage of supply • Competitiveness/viability of future RoI pig production • Increased competitiveness on international markets due to lower production costs and improved processing efficiencies (scale, automation, etc) • Significant capital investment by other major exporters is widening the gap in processing competitiveness • Shrinking labour supply is driving up costs and constraining processing activities that could add value (i.e. boning) • Processor resistance to rationalisation/ specialisation could inhibit the development of large scale operations • Increasing vulnerability to lower-priced imports • An exit by Glanbia from pig processing would cause a major crisis in the industry on the island of Ireland

3.12 Future possible scenarios and implications for the Irish pig meat industry

Although there are a number of potential scenarios for the future of the Irish pigmeat industry, we have examined the likelihood of two key scenario options. For the purposes of understanding an optimistic outlook as well as a pessimistic outlook for the Irish industry, we have examined a best case scenario as well as a worst case scenario for the next 3 years of production and processing development and operation. There are a few key assumptions, which underpin each of the scenario analyses.

Optimistic scenario analysis

Key assumptions:

- The RoI breeding herd only experiences a net reduction of –4% over the next 3 years. This represents a compound annual reduction of –1% per year from 1999 to 2003.
- The NI breeding herd experiences a net reduction of only –10% over the next three years. This represents a compound annual reduction of –2.7% per year from 1999 to 2003.
- NI sow productivity improves to the current RoI level of 22.1 pigs per sow per year

The rationale for the optimistic assumptions is based on the expectation that the current decline in RoI production will slow to half of its recent current rate (based on June 99 to Dec 99 figures).

3 year outlook – optimistic scenario

NI outlook

Based on the above assumptions, the current decline in pig numbers would slow to 2.7% per year from 1999 to 2003. The sow herd would show a net decline of –10% to reach a level of 39,500 sows. Annual production from a sow base of this size would be 873,000 pigs based on an improved level of 22.1 pigs per sow per year.

Additional production conditions for an optimistic outlook scenario would include:

- A government sponsored outgoers scheme
- Producer groups are established to collaborate on standard genetics, feed, quality, and supply relationships with processors
- Government supports for improved production efficiencies
- Favourable tax breaks are set in place for producers' investment in animal welfare refurbishment
- Supply agreements are implemented industry-wide between producers and processors
- Supply agreements include incentivised pricing for production to retail specification

Additional processing conditions in the optimistic scenario would include:

- Malton remains committed to the NI industry
- NI processors achieve a target level of 10% of total throughput going into the further processing stage (at least boning)
- NI processors improve capacity utilisation levels to 95%

3 year outlook – optimistic scenario

RoI outlook
The current decline in pig numbers slows to –1% per year from 1999 to 2003. The RoI sow base shows a net decline of –4% for this period, reaching a level of 178,500. Annual pig production results in a crop of 3.9 million pigs.

Additional production conditions for the optimistic outlook include:

- Producer groups are established to collaborate on standard genetics, feed, quality, and supply relationships with processors
- Producer groups grow to represent at least 50% of total RoI production
- Producer groups also focus on meeting niche supply opportunities (including flexibility to produce to market)
- The production sector invests in animal welfare friendly production, with the aim of achieving levels of at least 25% of total production being animal welfare friendly
- Average animal weights increase to 76kg
- Favourable tax breaks for producers are set in place for investment in animal welfare and EPA compliance
- Supply agreements between producers and processors become an industry standard, and include incentivised pricing for producing to retail specifications

Processing conditions for the optimistic outlook include:
- Industry-wide rationalisation scheme to achieve scale and capacity utilisation levels of 95%
- Industry standard of supply chain agreements for all plants, throughout the chain
- Target levels of 20% of throughput going into further processing (at least the boning stage)
- Effective programmes in place to support the recruitment of non-EU employees

Considering the above optimistic scenario conditions, the total island 3 year outlook would be as follows:
The breeding herd stabilises at an island level of 218,000 producing an annual crop of 4.8 million pigs (a weekly kill of 92,650).

Based on a weekly crop of 92,650 pigs presented for slaughter, available capacity should be 97,000 to achieve a capacity utilisation level of 95%. This available capacity would represent annual levels of 5 million pigs. The current available weekly capacity (based on hours, which are well below normal operational weeks in Denmark and Holland) is

104,000, indicating that excess capacity of 7,000 pigs per week should be rationalised. This is an excess level of 364,000 annual slaughter places. However, if the theoretical capacity figure (i.e. if all slaughter plants were to operate at maximum line speeds and for a minimum of 30 hours) is used, there is an excess capacity of 28,000 pig slaughter places a week to be rationalised.

Failure to rationalise existing capacity would result in a decline in island capacity utilisation to 89% RCU, or 74% TCU.

Pessimistic scenario analysis

Key assumptions:

- The RoI breeding herd experiences a net reduction of –11% over the next 3 years. This represents a compound annual reduction of –3% per year from 1999 to 2003.
- The NI breeding herd experiences a net reduction of –32% over the next three years. This represents a compound annual reduction of –10% per year from 1999 to 2003.
- NI sow productivity improves, but only to a level of 21 pigs per sow per year

The rationale for the pessimistic assumptions is based on the expectation that the current decline in RoI production will accelerate (based on June 99 to Dec 99 figures). The pessimistic outlook anticipates that the additional cost of EPA compliance requirements and the lack of price recovery will exacerbate the RoI decline.

3 Year Outlook – pessimistic scenario

NI Outlook

Pig production numbers continue their decline at a rate of –3% per year from 1999 to 2003. The sow herd shows a net decline of –32% reaching 30,000. The annual crop produced for slaughter on this sow base would be 630,000 or 12,000 pigs per week (assuming productivity level of 21 pigs per sow per year).

Additional conditions under the pessimistic scenario include:

- Producers are unable to make the necessary investments in housing refurbishment and physical performance improvements
- Further collapse in confidence in NI production
- No government support for outgoers, animal welfare compliance, or production productivity improvements
- Very few producers remain in the industry

Potential conditions for the pessimistic outlook in the processing sector include:

- Processing capacity could collapse to 15-20k per week in response to the severe decline in pig numbers, resulting in short-term oversupply, and eventually, not enough pigs
- A very small industry would remain, focussed on the NI domestic market and facing increasing competition from imported product

3 year outlook – pessimistic scenario

RoI outlook

Pig production numbers would continue and accelerate their decline at a rate of –3% per year from 1999 to 2003. The sow herd would reach a level of 165,000, producing 3.6 million pigs presented for slaughter annually.

Additional conditions for the pessimistic production outlook:

- The industry resists supply agreements, resulting in continued price volatility and reduced confidence in further investment in production
- Irish processors face increased competition from imported product resulting in reduced demand and depressed prices
- Lack of investment in animal welfare friendly production forces export oriented processors to turn more to imports for supply
- No tax write-offs or support for animal welfare investment or EPA compliance

Additional pessimistic conditions for the processing outlook:

- Industry resistance to rationalisation of excess capacity results in even lower levels of capacity utilisation (<75%)
- Inability to secure supply agreements results in continued fluctuations in supply, product quality, and reduced confidence in future investment
- RoI processing becomes increasingly uncompetitive on export markets, resulting in the loss of export market share and increased competition on the domestic market
- Limited government support for recruitment of non-EU employees worsens the current labour shortage
- Customers (retailers and secondary processors) increasingly turn to imports due to concerns over consistency, quality and reliability of supply

Considering the above pessimistic scenario conditions, the total island 3 year outlook would be as follows:

The island breeding herd falls to 195,000 sows, producing an annual crop of 4.3 million pigs presented for slaughter. The weekly kill would be 82,700 pigs.

To achieve capacity utilisation levels of 95%, the necessary slaughter capacity is 86,500 pigs per week – translating to 4.5 million annual slaughter places. Current capacity is 104,000 pigs per week, indicating an excess of 17,500 pigs per week under the pessimistic scenario. However, if the theoretical capacity figure is used, there is an excess capacity of 38,500 pig slaughter places a week to be rationalised.

Failure to rationalise under the pessimistic scenario would lead to capacity utilisation levels falling to 79% RCU or 66% TCU.

4 International profiles

4.1 Profile of the Danish pig meat industry

Pig production structure

The number of Danish pig farms has fallen dramatically (by 79%) in the 20 year period 1979 – 1999. Also the structure of the pig farms has also changed significantly in that period. In 1979, 38% of farms were integrated, 28% were pigs only and 34% sow only. In 1999, 48% of farms were integrated, 40% were pig only and 12% sow only.

Table 61 Number of farms with pigs

1979	1999	% change
73,326	15,483	- 79%

Note: The number of pig farms does not equate to the number of pig farmers, as some farmers may have more than one farm to get around restrictions on pig numbers per farm.

The size profile of Danish pig farms is much smaller in scale compared to the Republic of Ireland. In 1999, 90% of farms had less than 300 sow places and 60% of farms had less than 100 sow places. Only 3% of farms had more than 500 sows. 76% of the pig population is located in Jutland. 18% of suppliers supplied 67% of the pigs in 1999.

Like Ireland, the age profile of pig farmers is increasing with fewer new/young farmers entering the industry.

Denmark produced 22.5m pigs in 1999. Danske Slagterier (DS) estimate that the country has the potential to reach 28m. Other sources feel that the maximum allowed due to environmental constraints will be 25m.

The average dead weight of pigs delivered to DS slaughterhouses has been very stable over the last 4 years increasing from 75.2kg in 1996 to 76.6kg in 1999.

Pricing and grading

(i) Weight payment

The price for pigs between 66.9kg and 62kg will be reduced by 10 ore (about 1p) per kg interval. Pigs under 62kg will be reduced by 50 ore (about 5.5p) keg kg below the basic quotation price. Pigs between 67kg and 79.9kg have no deduction applied. Pigs between 80kg and 89.9kg will be reduced by 10 ore (1p) per kg and 1 Dkr (11p) deduction per kg from the basic quotation price for all pigs weighing more than 90kg.

(ii) Meat percentage payment

Carcasses above 59% meat content receive a 10 ore (1p) bonus per percentage point. Carcasses under 59% meat content are deducted 10 ore (1p) per percentage point. The maximum meat percentage payment is 60 ore (6.5p) per kg for pigs with more than 65% meat content. The maximum deduction is 110 ore (12p) per kg for pigs with less than 48% meat.

Payment to producers

The average payment to producers in 1999 was 7.92Dkr per kg (86.5p). This was made of:

Payment type	Payment type/basis Dkr per kg	Payment amount/ basis IR£
Average price	7.31 Dkr	80p
Transport rebate	9 ore	1p
Bonus payment	56 ore	6p
Producer accounts	6 ore	.5p
Production levy	minus 10 ore	-1p

Processing

Danish Slaughterhouse/ Danske Slagterier (DS) is the representative body of the three major co-operative slaughterhouses, pig farmers and other industry related companies. In 1999, the DS members had 96% of the pig kill the remainder were killed by private slaughterhouse and butchers.

DS members

Slaughterhouses	No. of slaughter plants	Average weekly kill per plant	1999 kill	% share
Danish Crown	16	19k	15.8 m	76%
Steff-Houlberg	2	31k	3.2m	15%
TiCan	1	22k	1.1m	5%

Danish Crown have announced plans to close up to 7 plants and replace them with a green field plant with a capacity to kill 70-80k per week. They also plan to increase the capacity of the other plants. Steff-Houlberg's plant in Ringsted has weekly kill capacity of 60k (working 2 shifts a day for 6 days).

Turnover for Danish Crown in 1998/99 was 36,523m Dkr (IR£4,014m) with and operating profit of 2.5%, 909m Dkr (IR£100m).

The Danish slaughter lines are typically based on 360-400 pigs an hour with the larger plants operating 2 or more lines.

Staff in the slaughterhouses are highly paid with an average hourly wage of 183.54 Dkr (IR£20) in 1999. Most workers in cutting and de-boning (not on the slaughter line) are paid a productivity bonus based on a piece rate with no cap on the bonus payments. Up to now, plants have not had problems recruiting and retaining staff and they have had a very low level use of immigrant labour.

The Danes feel that the productivity levels achieved by workers offsets the high labour costs when compared to some of the competitors such as the US. For example, the Danish Meat Research Institute believe that Danish productivity levels are 50% higher than Irish levels but this equalises out when you factor in labour costs in the two countries. Based on their benchmarking studies, Britain (using 720 an hour lines) has the highest productivity but they are not the best in terms of quality which impacts yield maximisation which would be below that achieved by the Danes.

Key developments

- Increased focus on food safety and hygiene as a competitive weapon to win/hold business in high margin markets
  - voluntarily stopped using anti-biotics
  - low use of veterinary medicines
  - salmonella control systems
  - traceability
- Automation
- Focus on food safety
- Capacity utilisation

Automation

The introduction of automation and the use of robots in Danish slaughtering plants has been driven mainly by labour costs and the emergence of labour and skill shortages. The traditional working week was one 7- 7.5 hours a day shift for 5 days. The standard payback period for capital investment was typically 2 to 3 years. This payback period is not possible on a single shift basis so Danish plants are moving to multiple shifts – two 7.5 hour shifts or four 10.5 hour daily shifts over a six day working week.

Other factors behind the drive for automation include:

- Increased consistency and quality (which can vary over the working day using manual input)
- Better hygiene and food safety (The use of robots reduces the number of times a pig is handled by humans and there reduces the risk bacteria spreading. Also the sterilisation of blades and other equipment is 100% with the use of robots.
- Greater yield maximisation (For example, SFK claim that a 100 grams greater yield per pig is obtained with the use of their finer robot)

The introduction of robots into a 360/hour clean line stage of the slaughter line can reduce the number of operators from 15 to 4. For example, use the auto evisceration robot will eliminate 3 people. The space requirements for an automated line are no longer than an existing line and in a green field investment, it would be shorter.

SFK robots currently implemented (or on being tested)

Robot	Danish Kroner/ Euros	IR£
• Automatic Bung opener, Ham Splitter and Aitch Bone and Throat Cutter Robot • Automatic Belly Opener and Breast Bone Splitter Robot The 2 robots are sold as a unit	The Price of these two- DKK 4.3m CIF installed	£470k
Automatic Evisceration and Flare Fat Remover Robot_-Does not remove the Lungs (Manual operation still)	DKK 3.3m CIF Installed	£360k
Automatic Back Marking Robot	DKK 3.1m	£338k
Automatic Splitting Saw	DKK 2.3m	£251k
Autofom	Euro 335k	£425k
Ultrafom 300	Euro 18k	£23k
Ultrafom with spare pistol	Euro 33k	£42k

Tulip International profile
Tulip International is now a wholly owned subsidiary of Danish Crown. It specialises in further processing and the marketing of branded and private label products. Its two major brands are Tulip and Danepak. 13% of their output goes under the St Michael private label brand, 23% under Tulip, 8% under Danepak, 33% under private labels, 7% under the Majesty (its US sales operation) and others 14%.

Production takes place in Denmark (8 plant), Germany (1 plant) and the UK (3 plants). Its German production is sold under the Tulip and Schachter brands. The three processing plants in the UK are in Thetford, Wellingborough and Bromeborough. The Bromeborough plant focused exclusively on supplying Marks and Spencer.

Turnover in 1998/99 was 3,896m Dkr (IR£425m) with an operating profit of 5% (196m Dkr – IR£21m) which was down from the operating margin achieved in 1997/98.

Exports accounted 81% of the turnover in 1998/99. Its products are marketed in over 130 countries. The breakdown of the markets served were:

- UK 40%
- Denmark 19%
- Germany 11%
- US 13%
- Sweden 3%
- Others 14%

They have commercial freedom within the Danish Crown Group to source their raw material from where they want. Apart from supplies from Danish Crown, they also buy materials from Steff-Houlberg, Tican, from Germany, France, Spain and Sweden. They are not using British pork at present and supply welfare friendly material in Denmark for the UK market, particularly, for M&S. In Germany, for certain niche products, they have to use German raw material and they buy from major processors like Herta at a significant cost premium.

The major growth area that they see going forward is in the area of convenience/ready to eat food. It only currently accounts for 4% of output. The German market for convenience food is still very small in comparison to the UK but it is expected to grow. At present they only take 20% of Danish Crown's output for further processing but would like to over time increase this to 60%. The key challenges that they see for Tulip going forward are:

- Being very aggressive at introducing new products in the convenience food area (For example, for M&S, they have to introduce 8-10 new products each year)
- Product development
- Brand development
- Acquisitions in key strategic markets (Germany, UK, Sweden and Denmark)
- Increased efficiency and automation.

The drive for automation and increased efficiency is driven by the high labour costs in Denmark. The Danish hourly rate is 2 times the rate in the UK. Direct wages per kg produced is a key competitive comparator.

Steff- Houlberg profile

They have 2 slaughtering plants Ringsted (60k kill capacity a week) and Ronne (8k weekly pig kill capacity). They have processing plants in Holbaek, Slagelse, Sdr. Felding, Silkeborg and Ebeltoft. They also have 2 rendering plants in Orvted and Nyker. In 1999, they employ about 3,000 staff, had a turnover of 4b Dkr (IR£437m) and killed 3.2m pigs. Turnover in 1998/99 was 3,997m Dkr (IR£439m) with and operating profit of 3.4%, 137m Dkr (IR£15m).

The Ringsted plant which has a 60k kill capacity a week, operates 4 slaughter lines and three cutting lines for two 7.5 hour shifts (only 1 slaughter line on second shift, mainly cutting) a day. It is located on a green field site covering 75,000 square metres with 43 acres available for further expansion if required. The first phase of the plant opened in 1976. In the Ringsted plant, they slaughter, de-bone, cut and some further processing (sausages, slices etc). They have investment plans to spend 65m Dkr (IR£7m) in extending and upgrading the slaughterhouse in Ronne.

The advantages that Steff-Houlberg see in their scale is better logistic management and the level of specialisation possible to meet different cut specifications for different markets and customers. They have not seen real gains in slaughtering efficiency between their plants in Ringsted and Ronne. Some of the downsides for them in creating the scale of the Ringsted plant were the increased complexity of the whole process and the increased amount of management and co-ordination time required. They have now set up the plant into 5 (more or less autonomous) business units- slaughter, cutting, coldstore & logistics, processing and the night shift operation. It is has taken a while for them to operate optimally and they feel that Danish Crown will need to give their planned new super green field plant a lot of management time.

Steff-Houlberg operates in over 50 markets. Denmark, UK, France and Russia are their biggest markets for processed food while their main markets for fresh and frozen products are the UK, Japan, Germany, Sweden, Italy and France. The domestic market accounts for 35%- 40% of output.

They have a 49% stake in an UK company Cuffley-Links (a holding company) which has two processing plants – Direct Table Produce Co. and Lark Valley Foods. (Tican also have a 21% shareholding). The Cuffley-Links output is 95% private label. Cuffley-Links have commercial freedom to source their raw material from wherever it most competitive. They also have sales operations in France and Russia. They are more inclined to look for alliance opportunities in key markets rather than acquisitions or mergers. They have no plans to increase their physical presence in the UK and their immediate focus will be in Sweden.

Their future strategy is become a strong food marketing company. They want to increase the current level of 35% of their output which is secondary processed. They feel that it is too expensive to try and build strong brands in key export markets and therefore will

focus on specialised or niche products. They are the leading sausage maker in Denmark and have been adding different ready-to-serve ham products and a convenience product range (pre-roasted and pre-cooked products) for the catering sector. Most of the exports however, will still be to further processors. They are not inclined to develop direct relationships with multiples in exports feeling that it is extremely difficult to compete against local players.

Key challenges that they see facing the Danish (and international) industry include:

- More environmentally focused attitudes amongst the Danish public will result in more legislation and environmental compliance requirements, which may constrain the number and scale of pig producers.
- Decline in the number of pig farmers (possible as low as 5,000) and the consequential smaller voice politically
- Increasing animal welfare concerns and the resulting production costs
- The criticality of food hygiene and safety
- Economic growth generally will make consumers more demanding
- Labour shortages will increase the drive for more automation.

Tican profile

Tican is the smallest of the farmer co-ops within the DS umbrella organisation. Its turnover in 1998/99 was 1b Dkr (IR£110m) and achieved a 7% operating profit up from 5.5% in 1997/98.

It has a slaughtering plant in Thisted and a processing plant in Fjerritslev. The Thisted plant kills between 22k – 24k pigs a week. It has 2 360/hour slaughter lines (actual capacity utilisation ranges from 280-360 an hour). The slaughter line is operational for 40 hours over a 5-day week. It cuts and de-bones 95% of its output.

A key requirement for the company going forward given that it is the smallest player in Denmark is to maximise capacity utilisation. They plan to go to 4 ten hours a day shifts and be operational for 6 days a week.

They export 85% of their output, which is mainly in the form of loins, bellies, middles, smoked/cooked shoulders, legs and backs. Their main export markets are UK, Japan, Germany, France, Russia and the USA. They have a small sausage factory serving the domestic market. They produce no sliced products feeling that there is already an excess capacity in Denmark.

The merger between Danish Crown and Vestjyske in 1998 and the consequent incorporation of ESS Foods into the Group meant that Tican lost their sales channel for the export markets. They have been focusing since then to develop a new distribution channel They have set up a sales unit within the company to focus on their major export markets (UK, Japan and Germany), established a small sales/trading company in Germany and entered into an alliance with 2 Spanish slaughterhouses. They also have a 21% stake in the Cuffley-Links holding company. They have no plans to take a similar stake in a German further processor and will continue to focus on supplying primals.

To survive against the big two, Tican strategy's is to concentrate on improving efficiency and targeting the higher priced markets for their output such as Japan, Australia and the UK. Their share of Danish exports to these markets would be greater than their overall share. Additionally, they aim to minimise dependence on lower value markets like Russia, Korea and Germany. To achieve this, they work hard on customer relationship management and loyalty and on maintaining greater flexibility in meeting customer specifications.

On the domestic market, the fact that customers tend to want to have more than one key supplier, they have benefited from the Danish Crown / Vestjyske merger, Tican have new business by becoming the alternative supplier. However, the domestic business is based around selling to secondary processors and independent butchers. They do not sell direct to multiples.

Their future strategy is based around:

- Competitive/efficient slaughtering
- Increased levels of further processing and a particular focus on the food service sector
- Diversity of sales markets (avoid over-dependence on any one product type or market)
- Strong financials (net equity of 40%)

They have no plans to increase slaughter capacity significantly but will increase the proportion of output that is further processed. They have plans invest over 100m Dkr (IR£11m) in the next few years. The investment will not be for sliced or canned products

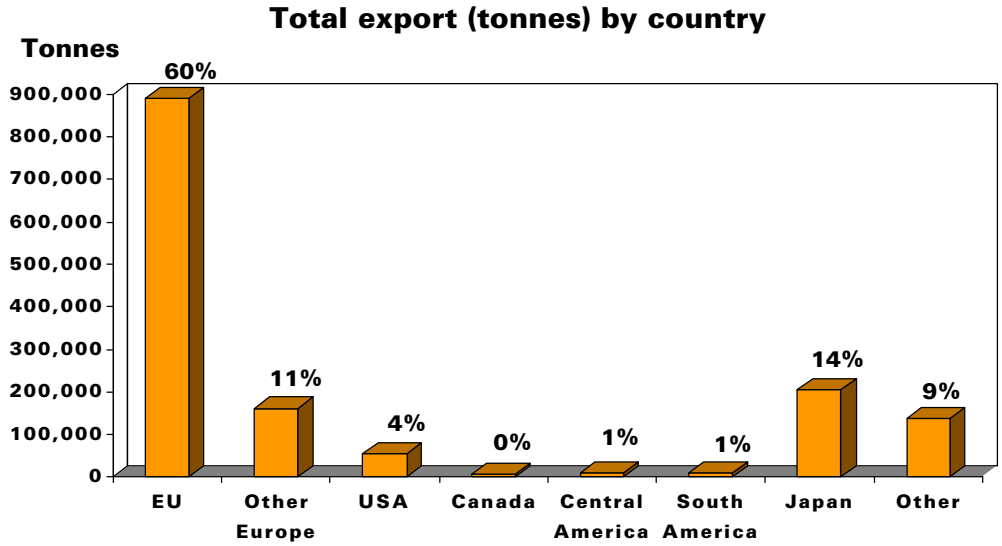
Key challenges that they see facing the Danish (and international) industry includes:

- Limits on the scale of pig production due to environmental constraints (which at their current low levels will put Danish production at a competitive disadvantage)
- New/increased competition from countries such as USA and Eastern Europe
- WTO will force the elimination of export refunds
- Increased automation in the industry particularly in processing.

The 1999 Danish export performance is analysed in the following charts.

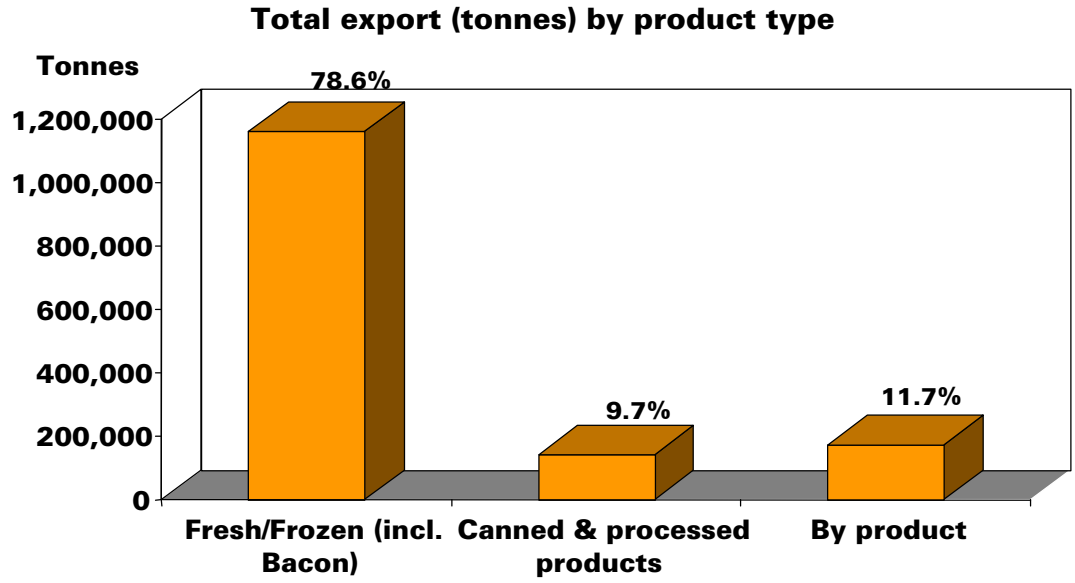
The EU by far is the biggest market for Danish export

Profile of Danish exports in 1999



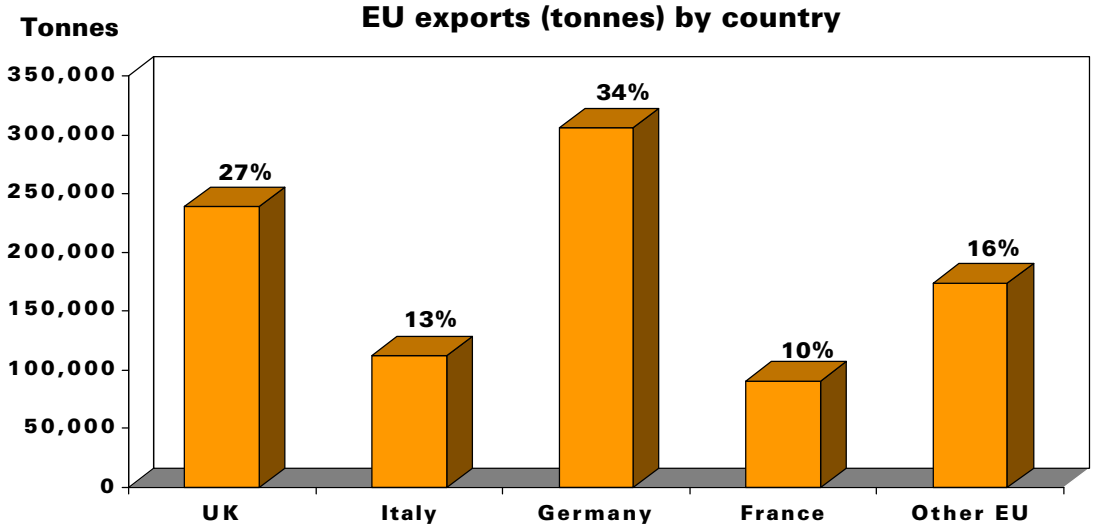
The bulk of Danish exports are in the form of fresh and frozen cuts

Profile of Danish exports in 1999

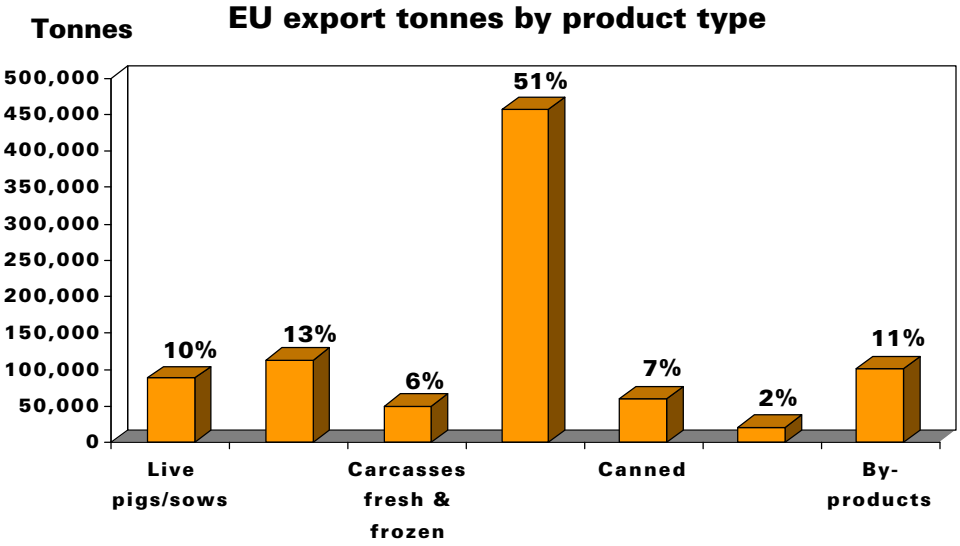


In terms of tonnage, Germany is the biggest export market

Profile of Danish exports in 1999



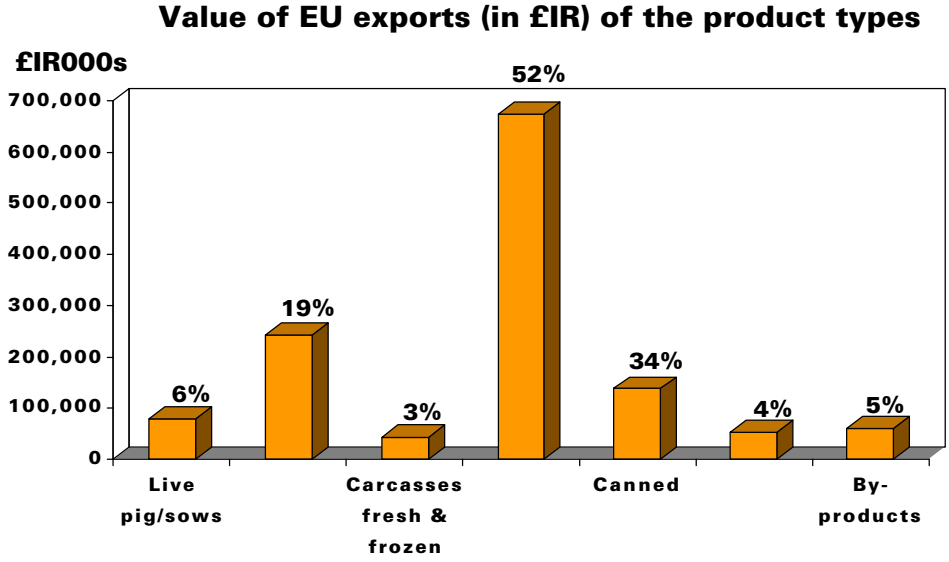
Profile of Danish exports in 1999



Very little product is exported in the form of carcasses

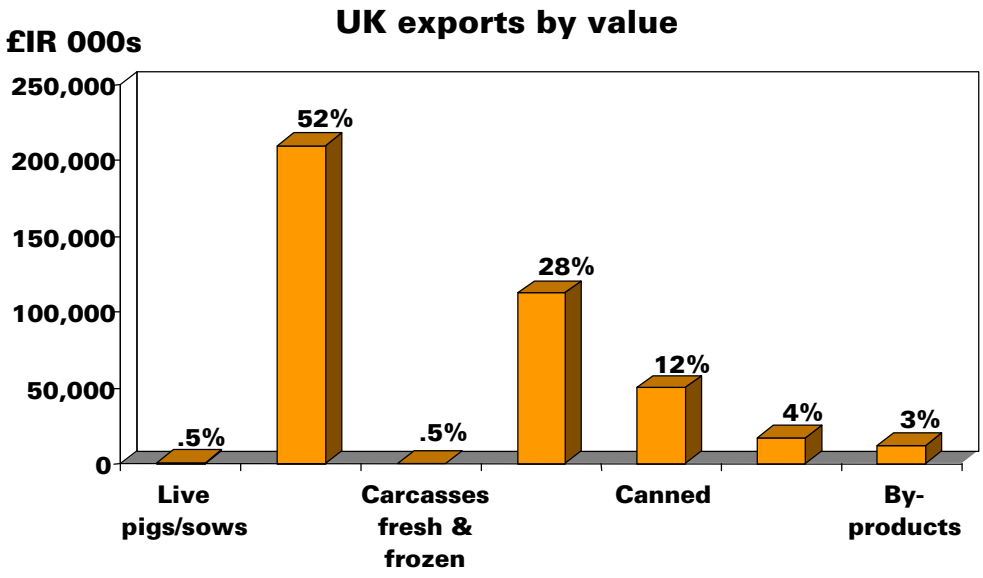
Bacon dominates the tonnage value exported to the UK

Profile of Danish exports in 1999



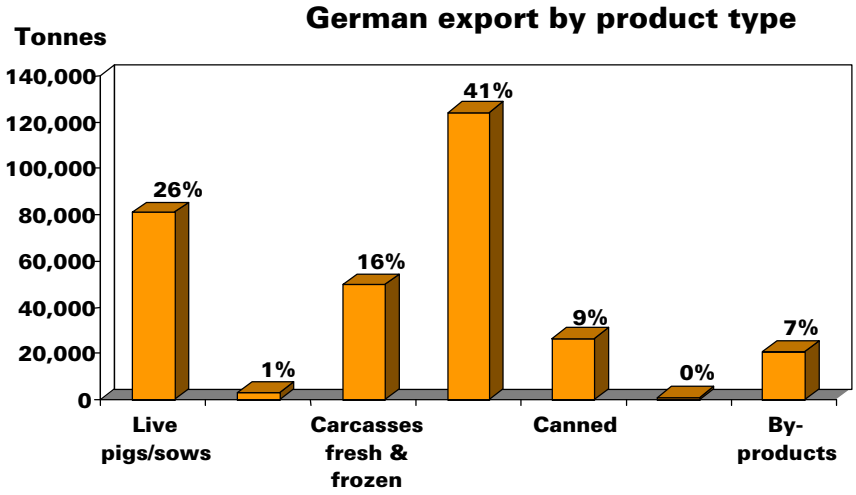
After bacon, the biggest export product to the UK is cuts

Profile of Danish exports in

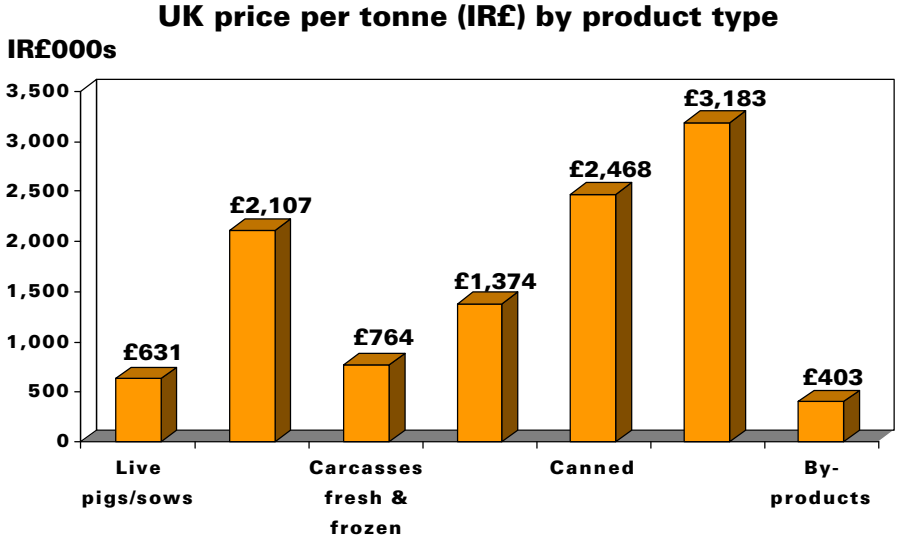


The biggest export product to Germany is cuts

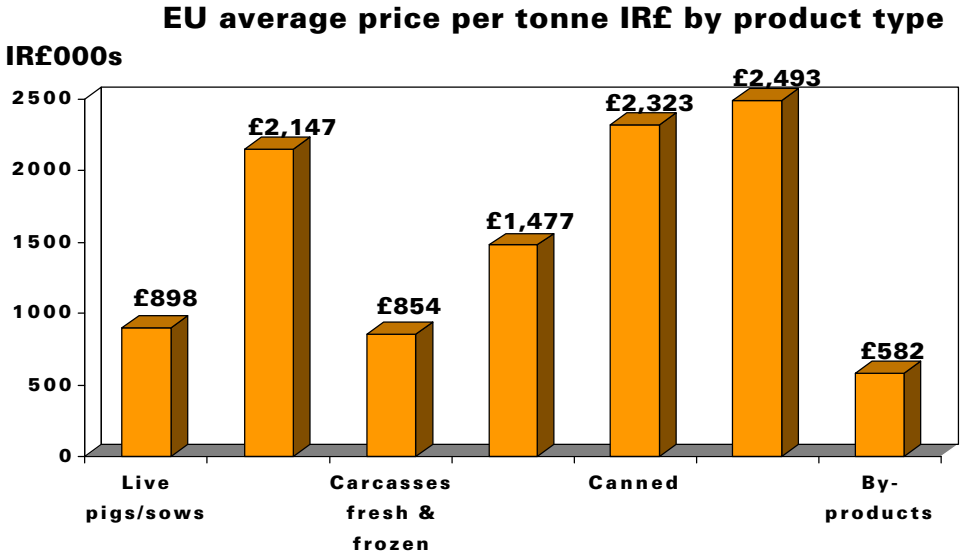
Profile of Danish exports in 1999



Profile of Danish exports in 1999

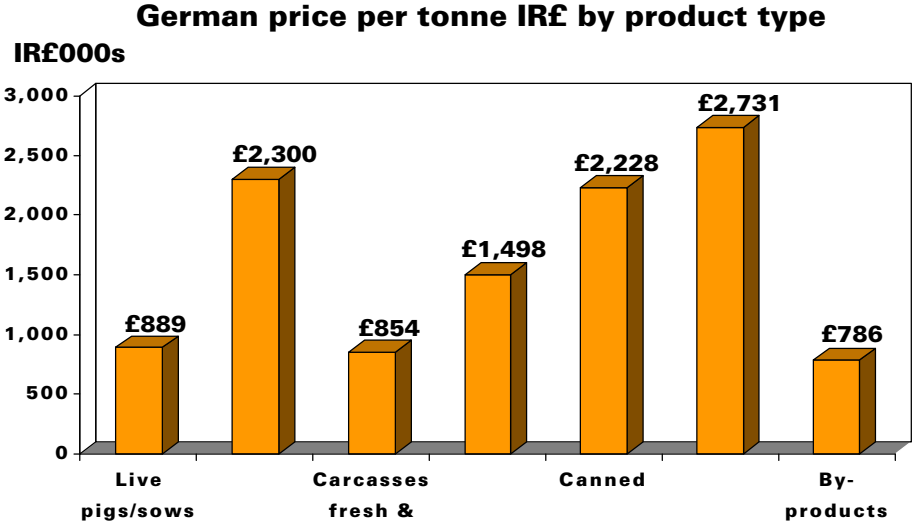


Profile of Danish exports in 1999

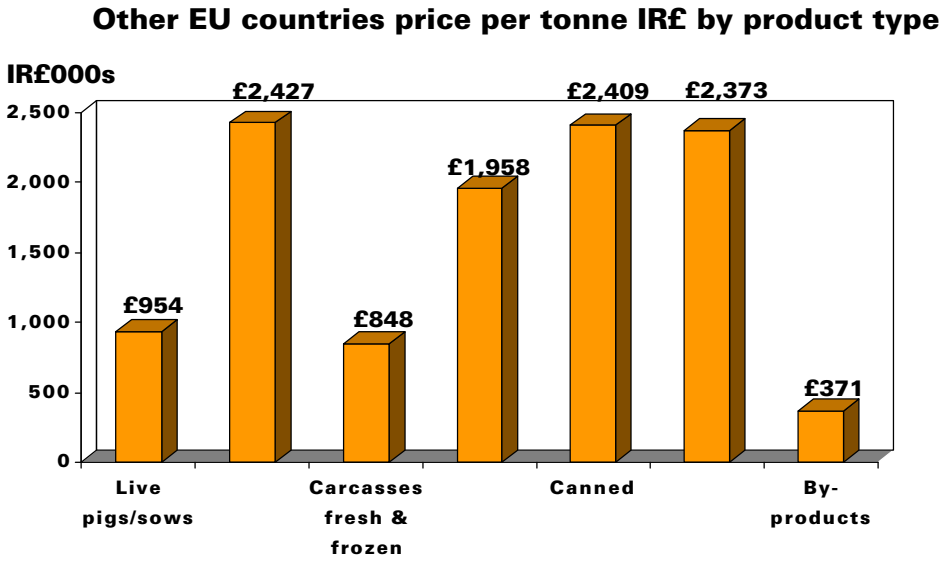


The highest price per tonne of other processed products EU exports was obtained in the UK. The highest price per tonne for bacon was achieved in the French market but this only accounted for 1% of EU bacon exports

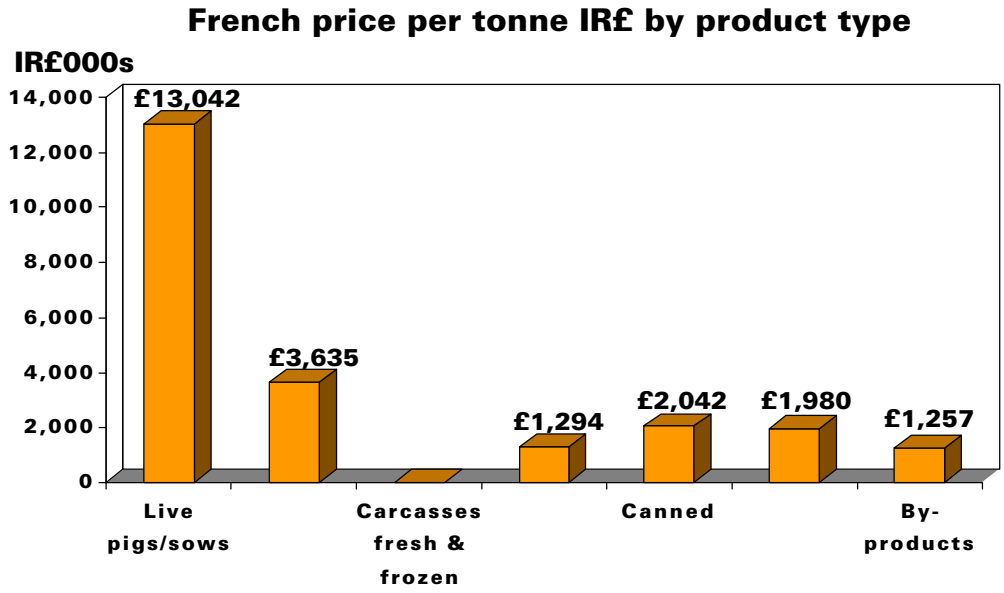
Profile of Danish exports in 1999



Profile of Danish exports in 1999



Profile of Danish exports in 1999

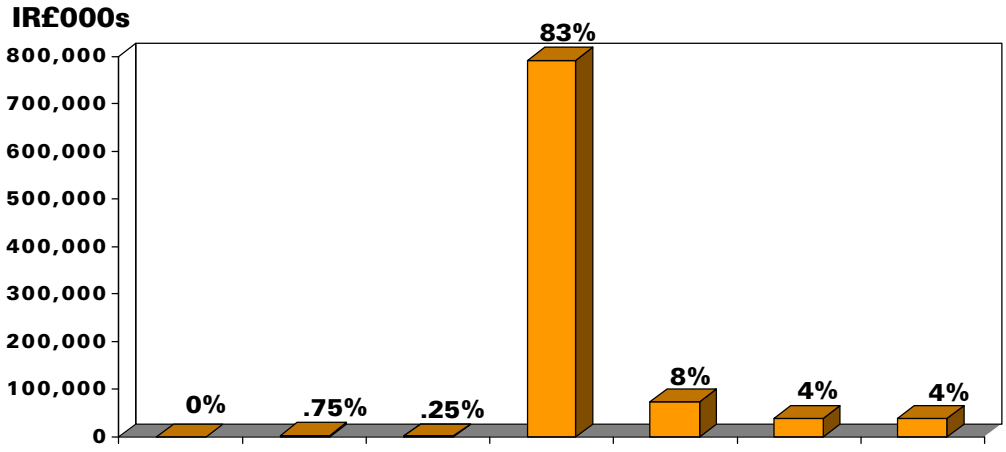


Note: Live pigs/sows figures are distorted due to value of breeding stock

The value of cuts exported to non EU countries in 1999 was almost IR£800m

Profile of Danish exports in 1999

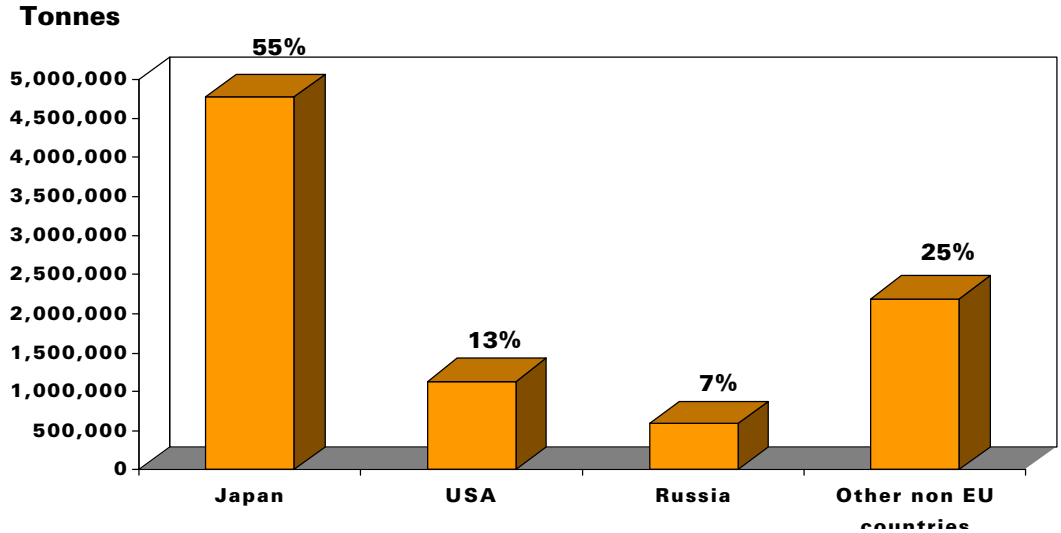
Value of products as a % of the total value of products exported to non EU countries



The Japanese market accounted for over half of the non EU exports

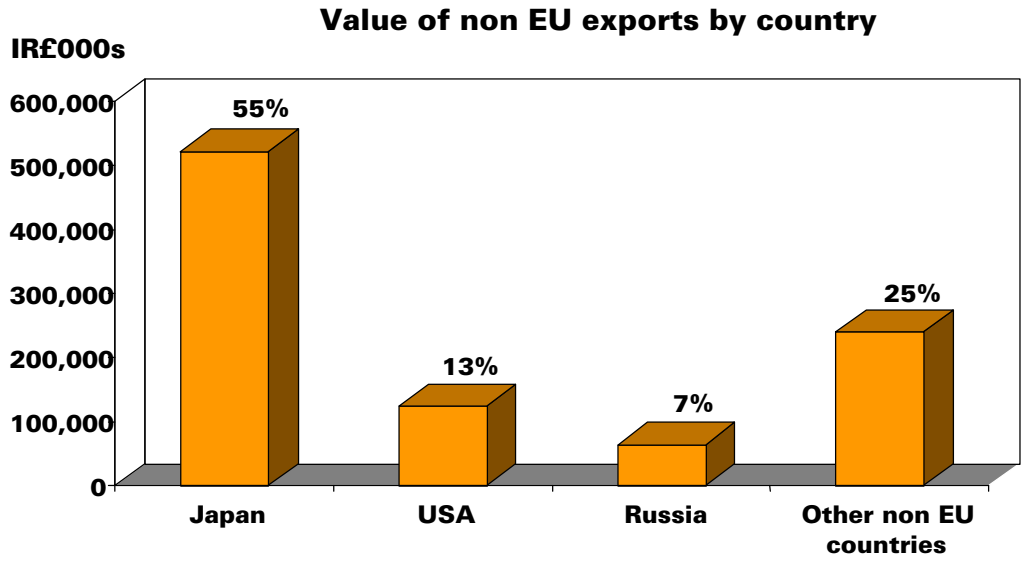
Profile of Danish exports in 1999

Non EU exports by country in tonnes



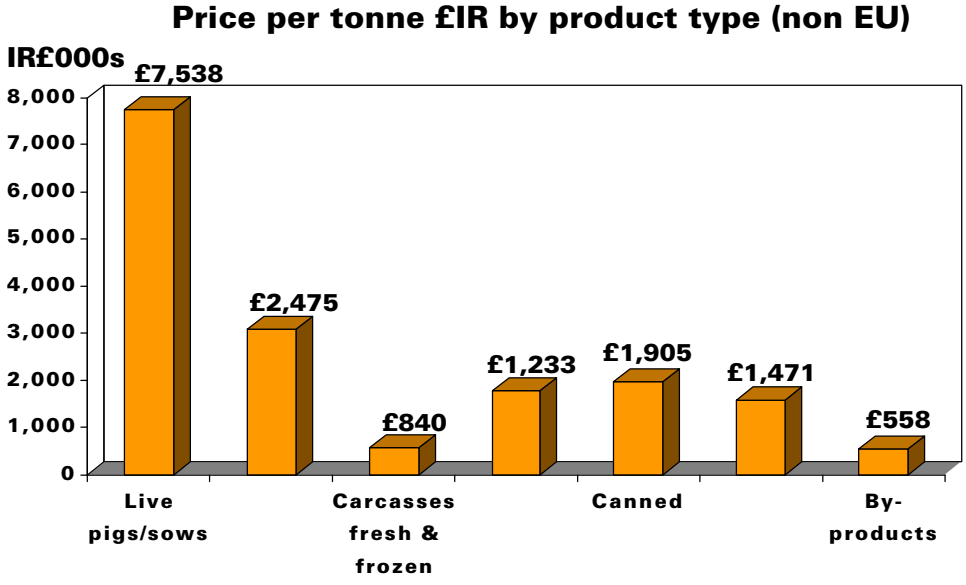
The value of the USA market in 1999 was IR£124m

Profile of Danish exports in 1999



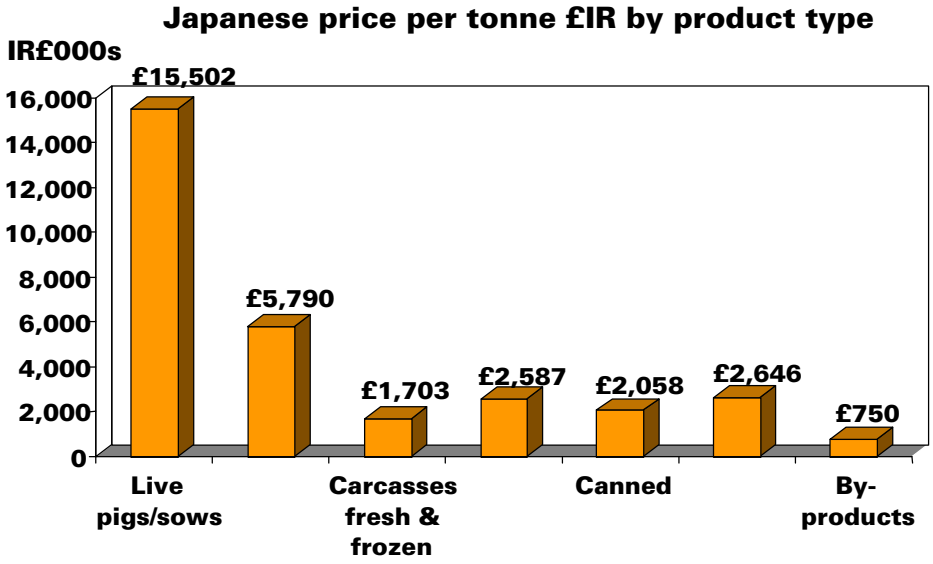
The price obtained in the Japanese market for cuts is 8% higher than the US market

Profile of Danish exports in 1999



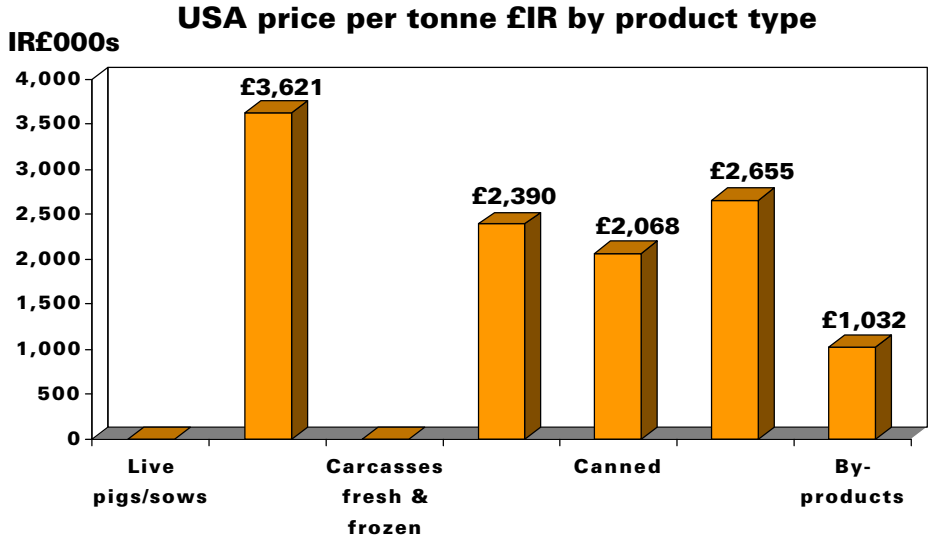
The price obtained per bacon products in the Japanese market is more than double the UK price (relatively small quantities)

Profile of Danish exports in 1999



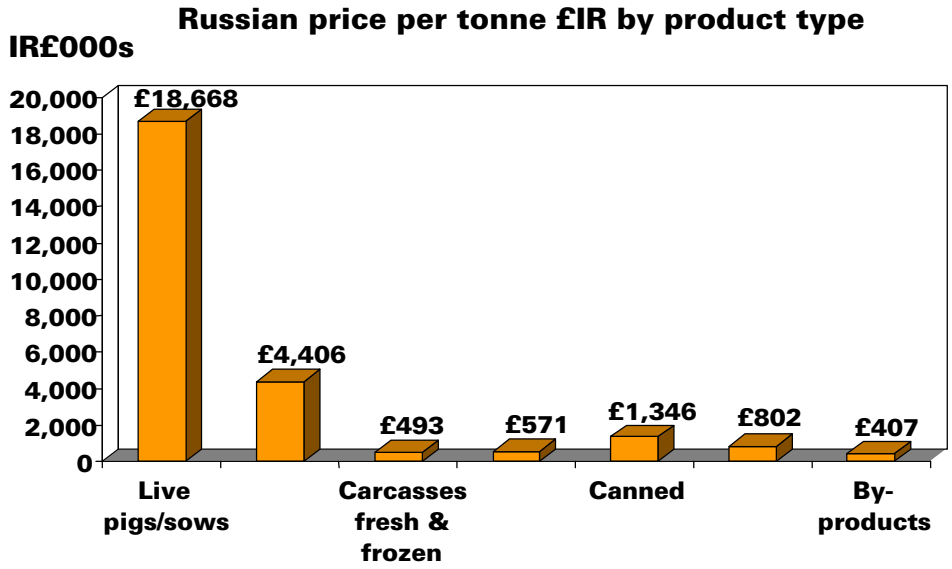
The prices obtained for canned and other processed products were very similar in the US and Japanese markets

Profile of Danish exports in 1999

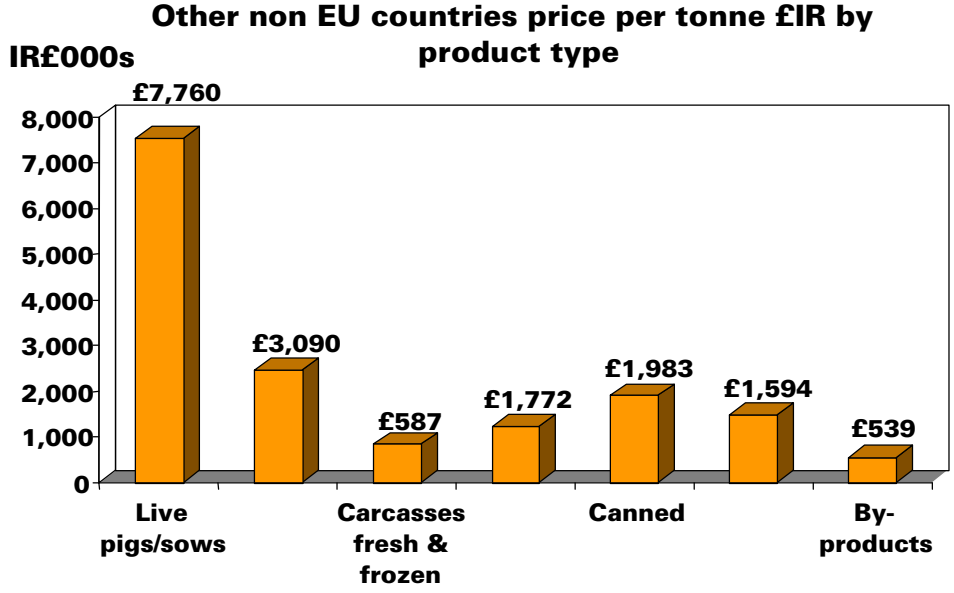


The price per tonne of cuts exported to the Russian market was less than a quarter of the price obtained in the Japanese market

Profile of Danish exports in 1999



Profile of Danish exports in 1999



The live pig/sow figures are distorted due to exports of breeding stock

International Benchmark: Analysis of Danish exports

The predominance of commodity type products and a discounting of prices are also features of Danish output.

Table 62: profiles Danish pig meat exports (tonnes) in 1999

Country	Fresh & frozen cuts (incl. live pigs)	Processed & canned meat	By-products	% of total exports
EU	61%	57%	59%	60%
Other Europe	11%	8%	14%	11%
USA	3%	15%	1%	4%
Canada	0%	0%	0%	0%
Central America	0%	3%	3%	1%
South America	1%	0%	0%	1%
Japan	17%	6%	2%	14%
Other	7%	12%	21%	9%
Product total as a % of total exports	78%	10%	12%	100%

Source: Danske Slagterier Statistics 1999

Key messages:

- Only 10% of the Danish exports were classified as processed or canned product
- The EU is by far the largest market block accounting for 60% of all products, followed by Japan, which accounted for 14% of the total exports.

Table 63 below provides a breakdown of the EU market

Table 63: EU exports (tonnes) in 1999

Country	Live pigs / sows	Bacon	Carcass fresh & frozen	Cuts	Processed & canned meat	By-products	% of total exports
UK	2%	88%	0%	18%	32%	29%	27%
Italy	1%	0%	0%	23%	1%	5%	13%
Germany	92%	3%	99%	27%	34%	20%	34%
France	0%	0%	0%	16%	9%	8%	10%
Other EU	6%	9%	1%	15%	24%	37%	18%
Product total as a % of total exports	10%	13%	6%	51%%	9%	11%	100%

Source Data: Danske Slagterier Statistics 1999

Key messages:

- "Cuts" accounted for just over half of the pig meat exports to the EU
- Processed or canned products were only 9% of the total
- Germany was the biggest market (but in terms of value of exports, the UK was marginally more valuable accounting for 31% of the total value of EU exports with Germany at 30%)
- Germany and the UK combined accounted for 60% of the total EU exports
- There is a significant market in live pig exports (81,000 tonnes) to Germany for slaughter. The live pig/sow exports to other countries would include breeding stock

Table 64: Analysis of the price per kg obtained by Danish exports for the different product types (prices in £ per kg)

Market	Bacon	Carcass fresh & frozen	Cuts	Canned meat	Other processed	By-products	Average product price for the market
UK	IR£2.11 STR£1.76	IR£0.76 STR£0.64	IR£1.37 STR£1.15	IR£2.47 STR£2.06	IR£3.18 STR£2.66	IR£0.40 STR£0.34	IR£1.69 STR£1.41
Italy	IR£2.81 STR£2.35	N/A	IR£1.34 STR£1.12	IR£1.76 STR£1.47	IR£2.04 STR£1.71	IR£1.27 STR£1.06	IR£1.38 STR£1.13
Germany	IR£2.30 STR£1.92	IR£0.85 STR£0.72	IR£1.50 STR£1.25	IR£2.23 STR£1.86	IR£2.73 STR£2.28	IR£0.79 STR£0.66	IR£1.26 STR£1.05
France	IR£3.63 STR£3.04	N/A	IR£1.29 STR£1.08	IR£2.04 STR£1.71	IR£1.98 STR£1.66	IR£1.26 STR£1.05	IR£1.36 STR£1.14
Other EU	IR£2.43 STR£2.03	IR£0.85 STR£0.71	IR£1.96 STR£1.64	IR£2.41 STR£2.02	IR£2.37 STR£1.99	IR£0.37 STR£0.31	IR£1.59 STR£1.33
EU average	IR£2.15 STR£1.80	IR£0.85 STR£0.72	IR£1.48 STR£1.24	IR£2.32 STR£1.94	IR£2.49 STR£2.09	IR£0.58 STR£0.49	IR£1.45 STR£1.21
Japan	IR£5.79 STR£4.84	IR£1.70 STR£1.42	IR£2.59 STR£2.16	IR£2.06 STR£1.72	IR£2.65 STR£2.21	IR£0.75 STR£0.63	IR£2.54 STR£2.13
USA	IR£3.63 STR£3.04	N/A	IR£2.39 STR£2.00	IR£2.07 STR£1.73	IR£2.66 STR£2.22	IR£1.03 STR£0.86	IR£2.25 STR£1.88
Russia	IR£4.41 STR£3.69	IR£0.49 STR£0.41	IR£0.57 STR£0.48	IR£1.35 STR£1.13	IR£0.80 STR£0.67	IR£0.41 STR£0.34	IR£0.57 STR£0.47
Other non EU	IR£2.48 STR£2.07	IR£0.84 STR£0.70	IR£1.23 STR£1.03	IR£1.91 STR£1.59	IR£1.47 STR£1.23	IR£0.56 STR£0.47	IR£1.14 STR£0.95
Average for non EU	IR£3.09 STR£2.59	IR£0.59 STR£0.49	IR£1.77 STR£1.48	IR£1.98 STR£1.66	IR£1.59 STR£1.33	IR£0.54 STR£0.45	IR£1.63 STR£1.36

Source Data: Danske Slagterier Statistics 1999

Key messages:

- The average price for cuts in the EU market was IR£1.48 (STR£1.24) with the highest price market being IR£1.96 (STR£1.64) in the other EU markets and the lowest was IR£1.29 (STR£1.08) in France a 34% difference in price.

- The highest price per kg of cuts was obtained in the Japanese market at IR£2.59 (STR£2.17). The lowest price was 57p (STR£0.48) in the Russian market. These cuts are likely to be the lowest quality and highest fat content.

- There are significant variances in the prices for the same product grouping between the different product groupings. However, one needs to bear in mind that there may substantial differences in the product quality and customer specification within the products going to different markets. They provide an illustrative guide to the different markets but need to be used with care.

Table 65 below shows the variances in price for the different product types using the UK market as the base price. (The prices obtained in the domestic market was available to the team)

Table 65: Difference between the price obtained by Danish products in the UK market and other export markets in 1999

Market	Bacon	Carcass fresh & frozen	Cuts	Canned meat	Other processed	By-products	Average + or - for all products
Italy	+33%	N/A	-2%	-29%	-36%	+214%	-20%
Germany	+9%	+12%	+9%	-10%	-14%	+95%	-25%
France	+72%	N/A	-6%	-17%	-38%	+212%	-19%
Other EU	+15%	+11%	+43%	-2%	-25%	-8%	-6%
Japan	+175%	+123%	+88%	-17%	-17%	+86%	+51%
USA	+72%	-100%	+74%	-16%	-17%	+156%	+33%
Russia	+109%	-35%	-58%	-45%	-75%	+1%	-66%
Other Non EU	+17%	+10%	-10%	-23%	-54%	39%	-33%

Source Data: Danske Slagterier Statistics 1999

Key messages:

- The Danes get higher prices than in the UK for their bacon products in all other main markets. However, the UK is by far its largest market for bacon products accounting for 87% of total tonnage and 85% of the total value of their bacon exports.

- The average price for all exported products is highest in the Japanese and US markets plus 51% and 33% respectively. While the US market is relatively small in total tonnage terms at 4% (IR£124m, STR£104m), the Japanese market is significant accounting for 14% (IR£521m STR£436) of the export tonnage in 1999.

4.2 Profile of the Dutch pig industry

Overview of Dutch pig production

Dutch production is in a state of decline. There was a 5.8% reduction in pig number from 1995 to 1999. This decline is expected to continue over the next several years, and stabilise at about 11.5 millions pigs. The Dutch industry is facing the following key constraints to future growth:

- Social and governmental concern over density of pig population
- Environmental regulations
- Increasing production costs
- Animal welfare
- Limited availability of land
- Supply chain management
- Labour issues (not critical, but increasing)
- Growth of vegetarianism

Density of pig population and environmental issues

The density of Dutch pig production has created a situation whereby future manure disposal will be expensive and troublesome to farmers. Environmental pollution, including water contamination will become more important and the government is expected to enact legislation regarding the disposal of manure from pig farms within the next five years. The Ministry of Agriculture has recently approved an out-goers scheme to incentivise livestock producers to exit certain parts or the entire production business.

> "Compensation under this scheme will be based on the quality of the manure rights surrendered. Compensation will also be provided for producers in the south and east who destroy farm buildings. The aim is to reduce phosphate production by 21.5 million tonnes by 2002 and to comply with the European nitrate directive by 2003. The budget provides for the years 2000-2004 a total sum of 1.8 billion guilders for farmers' compensation, divided over 670 million guilders for phosphate reduction, and 950 million guilders for exit from the entire business and some sundries. Each business, which closes under the scheme, must agree not to reopen in the same location for at least 10 years."[24]

The combined pressure from environmental lobbyists and the requirement to comply with the EC Nitrogen directive will limit future growth in terms of the location and scale of pig production.

Increasing production costs

The Dutch are well-known for their ability to perform as the lowest cost producer, but this advantage is being eroded by two significant factors: increasing environmental costs and a decline in their cereal substitute advantage (through CAP restructuring). However, the decline in this advantage could be slightly offset by the overall reduction in cereal prices throughout Europe, which is outlined in Agenda 2000.

[24] International Meat Market Review p. 62, MLC June 2000; Dutch experts (monetary estimates)

Animal welfare and health

The Dutch industry is highly concentrated in the south and east of the Netherlands where c.90% of the pig population resides. Due to the intensive nature of Dutch pig farming systems, there is limited production of welfare friendly pigmeat. Additionally, there are constraints to welfare friendly production due to the limited availability of land.

The heavy geographic concentration of pig production in the south and east requires Dutch producers to pay specific attention to the matter of animal health, which can often be aggravated by intensive farming systems. Dutch pig production suffered two very significant blows in 1997 and 1998. The first was an outbreak of CSF (Classic Swine Fever) in 1997, which eliminated Holland's very strong export trade (both meat and live animals) and decimated the herd by requiring the immediate slaughter of 10 million pigs. In a country with a pig population as dense as Holland, the spread of disease in the herd is a significant threat to the industry.

Supply chain management

The Dutch recovered from the CSF outbreak much more quickly than anyone had anticipated. The rapid recovery of the Dutch herd resulted in over-production in the entire EU region. This surplus of pigmeat contributed an industry-wide collapse in pig prices beginning in June 1998. The next two years of pig trading were characterised by prices that were well-below break-even for many producers. Many producers exited production as a result of this low point in the pig cycle.

Partly due to the historically wide fluctuations in pig production, the Dutch have recently embarked on an industry-wide shift to supply chain management schemes.
The introduction of the supply chain management concept has improved forward planning at the production and primary processing levels. It has been successful in limiting the production of excess pigs. This proactive "constraint" on production is viewed as a strategic initiative to move producers and primary processors into closer communication and co-operation so that over-supply and shortages do not plague the future of the pigmeat industry.

Government sponsored reduction in pig numbers

The recent hardships in the industry led many pig farmers to exit the sector, but the scale of Dutch investment in pig production is substantial and many farmers have decided to await potential subsidies and compensation for exiting the production sector. Effective legislation aimed at reducing pig production and especially, pig population density, has yet to be successfully introduced. However, the Dutch government has introduced an out-goers scheme that has precipitated some exit of the production sector, by providing compensation for those farmers who will voluntarily exit the business. The government and the social and environmental lobbies are all aiming at a goal of legislation requiring the reduction of Dutch pig production. Experts expect the legislation to be enacted at some point over the next five years.

The government has stated a target reduction in herd size of 25% over the next three years, however, it is unclear whether a reduction this scale can be achieved successfully in such a short time span. Industry experts and participants believe the reduction will smaller in the short term (15%) and spread over a longer period. The strength of the

producer lobby and the levels of existing investment are likely to balance out some of the zeal of the government's reduction plan. Understanding the current environmental constraints to expanding pig production and the higher than average density of pigs in the Netherlands, it is likely that the herd will decline by 15-20% in size by 2005.

Pig numbers

The number of total pigs in the Netherlands grew by 10% from 1985 to 1999

Dutch pig production increased from 12.3 million pigs in 1985 to 13.6 million pigs in 1999. After a period of strong growth in the late 1980s and early 1990s, Dutch production began to decline over the five-year period from 1995 to 1999. Table 66 reflects the population of pigs in Holland from 1985 to 1999.

Table 66: Dutch Pig Numbers 1985 – 1999 (000 Head)

	1985	1990	% Change 1985-1990	1995	% Change 1990-1995	1999	% Change 1995-1999	Total % Change 85-99
Breeding Pigs	1,643	1,699	3.4%	1,677	-1.3%	1,554	-7.3%	-5.4%
Fattening Pigs	6,332	7,025	10.9%	7,124	1.4%	6,774	-4.9%	7.0%
Pigs	4,408	5,191	17.8%	5,596	7.8%	5,239	-6.4%	18.9%
Total Pigs	12,383	13,915	12.4%	14,397	3.5%	13,567	-5.8%	9.6%

Source: Product Boards for Livestock, Meat and Eggs (PVE) 2000

Key messages:

- Overall, Dutch pig numbers increased by 9.6% during the period from 1985 to 1999
- Breeding pigs are the only segment to show a decline (-5.4%) over the same 15 year period
- 1985 to 1990 was the strongest growth period for Dutch pigs in the last 15 years, showing an increase of 12.4% or 1.5 million pigs
- Pig production growth began to slow down from 1990 to 1995, and declined 5.8% from 1995 to 1999

Pig farm size and structure

The structure of production in the Netherlands has experienced significant structural change during the 1990s. The number of pig farms declined dramatically from 1990 to 1999. Most of the decline represented the smaller farmers in the industry, so while farm numbers declined at rapid rates, production numbers were less drastically impacted.

Table 67: Number of farms with pigs 1990-1999

Type of Farm	1990	1995	1999	% change 1990-1995	% change 1995-1999	Total % Change 1990-1999
Breeding	13,391	9,623	6,841	-28.1%	-28.9%	-48.9%
Fattening	24,281	19,627	14,662	-19.2%	-25.3%	-39.6%
Integrated	8,683	6,964	5,201	-19.8%	-25.3%	-40.1%
All Farms	29,211	22,388	16,426	-23.4%	-26.6%	-43.8%

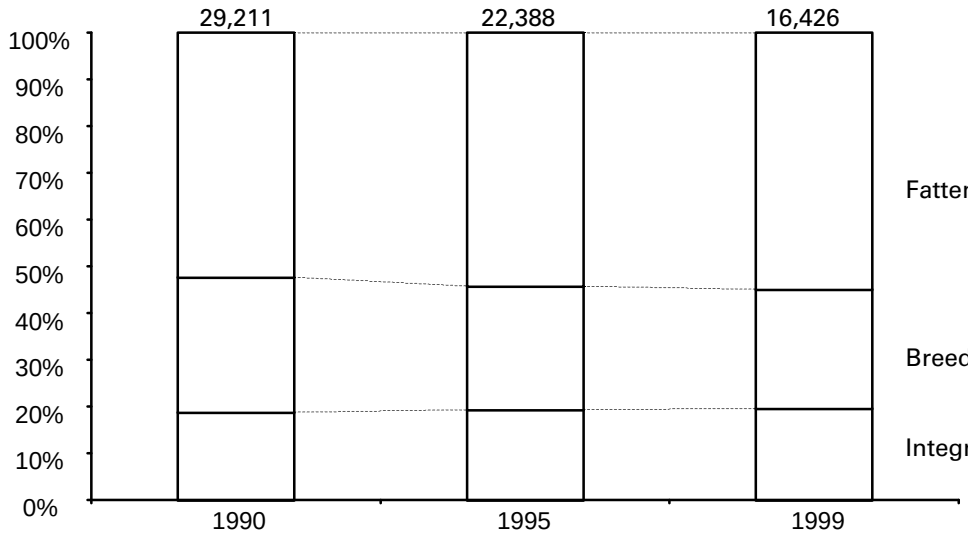
Source: PVE 1998, 2000. Note*: The figure for all farms does not reflect the total of the three separate categories due to the number of integrated farms.

Key messages:

- The total number of pig farms in the Netherlands declined by 44% from 1990 to 1999
- Breeding farms experienced a decline of 49%, while fattening and integrated farms each declined by roughly 40%
- Only 32% of Dutch pig farms are integrated. Most farms are specialised operations for breeding or fattening

Breeding and fattening are still separate production activities in the majority of Dutch pig farms. The graph below depicts the proportion of integrated pig farms in the Netherlands from 1990 to 1999.

Pig Farm Structure in the Netherlands
1990-1999



	1990	1995	1999	% Change 1990-1999
Fattening				-39.6%
Breeding				-48.9%
Integrated				-40.1%
Integrated farms as % of total	29.7%	31.1%	31.7%	

Source: PVE 2000

Key messages:

- All types of farms declined from 1990 to 1999
- Integrated farms have slightly increased their share of the producer population by growing to 32% of all farms. This is an increase of 2% over the 1990 figure.

The share of integrated pig farms is expected to increase as producers attempt to minimise the spread of disease and distribute capital risk across a wider range of production activities.

Dutch breeding farms are in decline, and small breeding farms have experienced the most significant declines

Breeding is a capital intensive, highly specialised activity. Fewer and fewer producers are able to justify or risk the necessary capital for such an operation. The capital-intensive nature of breeding farms, combined with the additional skilled labour requirements has led to a decline in the number of breeding farms.

Breeding farms experienced significant declines from 1990 to 1999. As the previous section of this chapter noted, breeding pig numbers were down 6% from 1985 to 1999. Breeding pigs were the only segment of Dutch production to experience a decrease in the fifteen-year period from 1985 to 1999. Consistent with the fall in breeding pig numbers, is the decline in breeding farms reflected in the following table:

Table 68: Number of farms with sows

	1-100	101-200	200+	Total
1990	7,454	4,009	1,928	13,391
1997	3,197	2,965	2,702	8,864
% change 90-97	-57.1%	-26.0%	+40.1%	-33.8%
1999	2,107	2,157	2,577	6,841
% change 97-99	-34.1%	-27.3%	-4.6%	-22.8%
TOTAL % CHANGE 90-99	-71.7%	-46.2%	+33.7%	-48.9%

Source: PVE 1998, 2000

Key messages:

- The number of Dutch breeding farms decreased by 49% from 1990 to 1999
- Small breeding farms suffered the strongest decline, experiencing a decrease of 72% for the decade
- Large breeding farms of 200 or more sows, which grew by 34%, were the only segment of the breeding farm structure to grow during the 1990s

Dutch fattening farms have also experienced significant declines

Fattening is a less capital-intensive business than breeding and it used to be the segment on which new entrants initially focused. However, the declining number of farms in this segment indicates that the challenges facing the entire production sector are also affecting fattening farms.

While the decline in Dutch fattening farms has not matched that of Dutch breeding farms, there has still been a significant exit from the fattening sector of Dutch pig production. The familiar pattern of smaller farms exiting the market was replicated in the fattening farm segment. Small farms (with fewer than 200 fatteners) experienced the most significant declines during the 1990s. Table 69 reflects the decline in fattening farms.

Table 69: Number of farms with pigs for fattening

	<200	201-500	500-1000	1000+	Total
1990	14,112	5,888	3,026	1,255	24,281
1997	8,752	5,225	2,943	1,722	18,642
% change 90-97	-38.0%	-11.3%	-2.7%	+37.2%	-23.2%
1999	6,177	4,131	2,645	1,709	14,662
% change 97-99	-29.4%	-20.9%	-10.1%	-0.1%	-21.3%
TOTAL % CHANGE 90-99	-56.2%	-29.8%	-12.6%	+36.2%	-39.6%

Source: PVE 1998, 2000

Key messages:

- Overall, fattening farms declined by 40% from 1990 to 1999
- The small farm segment experienced the largest decrease in farm numbers with a reduction of 56% from 1990 to 1999
- The largest fattening farms (those with over 1000 head) were the only segment of the fattening farms to experience growth in farm numbers during the 1990s

The average Dutch herd size has increased significantly since 1990 reaching 828 pigs in 1999

Since the mid-1980s, there has been a steady rise in the average herd size, but fewer producers are in control of these herds. The decline in the number of producers should continue as smaller producers are forced out of business due to rising production costs. However, this decline in smaller producers will have little impact on the overall pig population because such a small proportion of the Dutch herd is actually produced on small farm concerns.

The average number of pigs per farm increased to 826 in 1999, which is up from 476 in 1990. The number of farms decreased from 29,211 to 16,426 over the same period.

Table 70: Average Herd Size 1990-1999

	1990	1995	1999	% Change 1990-1999
Number of Pigs	13,915,000	14,397,000	13,566,817	-2.2%
Number of Farms	29,211	22,388	16,426	-43.8%
Average Herd Size	476	643	826	73.5%

Source: PVE 2000

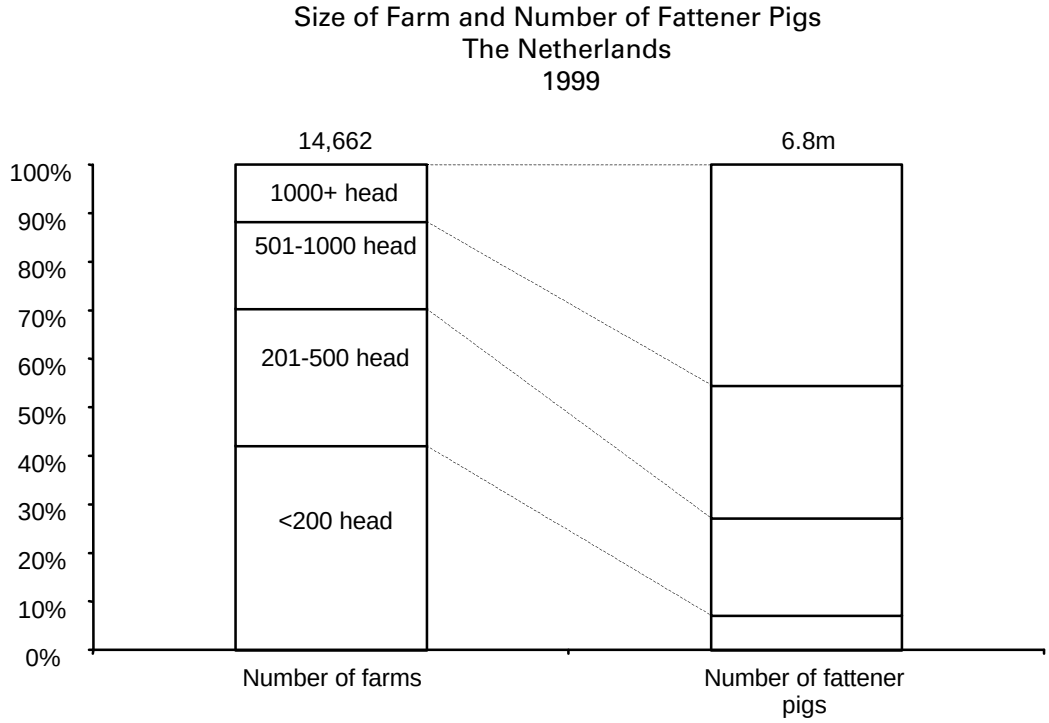
Key messages:

- Pig numbers decreased by 2.2% from 1990 to 1999, while farm numbers decreased 44%
- The average herd size per farm increased 74% to 828 in 1999

Experts believe that the average size of holdings is likely to grow slightly as more farms exit pig production, especially smaller farms. However, the key constraint to significant increases in herd size is the requirement for pig farmers to have manure disposal agreements prior to achieving any further growth.

Dutch production is highly concentrated. Large producers represent only 12% of producer numbers, but 45% of total pig production

The current concentration of production is unlikely to increase significantly, as the large producers face increasing restrictions on production and growth in herd sizes. The last decade saw a significant increase in the concentration of pig production to the larger farms. The graph below reflects the current concentration of production in the Netherlands.



Source: PVE 2000

Key messages:

- While small producers (<200 head) represent 42% of producer numbers, they represent only 7% of fattener production
- The largest fattener farms (1000+ head) represent the smallest segment of producers (just 12%), but own the largest share of fattener production (45%)
- 73% of fattener pigs are produced on farms with more than 500 head

The high concentration of production on large farms will constrain future growth, as producers face increased manure disposal costs

Most Dutch pig farms are highly intensive with little or no arable land for manure spread, thus requiring manure disposal agreements with 3rd parties. Such agreements are not very common and this will constrain significant herd size growth and increase operating costs, as the disposal agreements can be difficult to negotiate and maintain.

Density of pig population and availability of land

Nearly ninety per cent of the Dutch pig population resides in the southern and eastern regions of The Netherlands. The four provinces of Noord-Brabant, Limburg, Gelderland, and Overijssel have an average herd size of 736 pigs, while the remaining 8 provinces have an average of 486.

Historically, the southern and eastern regions of the Netherlands are densely populated with pigs, and expansion in less populated regions (the north) has started to a degree. The pace of this expansion is slow because the government is trying to curb pig production and designate land for nature, residential, and social purposes. Although there has been some success in convincing local (northern) arable farmers to co-operate with manure disposal agreements.

Table 71: Density of pig population

Province	Location	# of Holdings	# of Pigs	Average Herd Size	% of Dutch Pig Population
Limburg	South	1,355	1,829,174	1,350	13.5%
Noord-Brabant	South	4,732	5,843,816	1,235	43.1%
Gelderland	East	4,506	2,661,829	591	19.6%
Overijssel	East	3,156	1,789,172	567	13.2%
Southeast Region Total		13,749	12,123,991	882	89.4%
Remaining Provinces		2,677	1,442,826	539	10.6%
Total		16,426	13,566,817	826 pigs	100%

Source: PVE 2000

The absence of available land in the Netherlands is also a constraint on welfare friendly pig production. The Dutch are vehemently defending their UK market share, but the only AW friendly production that currently exists is exclusively dedicated to serve this market. About 15% of Dutch production is currently welfare friendly, all of which is going into the UK market. Most sows are no longer in tether holdings, but stalls are very widely used and will be for near future (3-5 years). Welfare friendly production is a small part of the Dutch market and it will take time and a significant amount of industry restructuring before additional land becomes available for welfare friendly pig production. The scarcity of available land will be a major constraint on the future of Dutch pig production in both welfare friendly and intensive farm concerns. However, the Dutch government is strongly promoting the penetration of welfare friendly production.

Size and content of animals

The average Dutch pig is 87.5kg dead weight, with 55.91% lean meat. This weight is significantly larger than the EU average, while the lean meat percentage is consistent with the EU average. Castration is necessary in the higher weights, however pigs bred for the UK market are kept at lower weights (c.73 kg), and thus do not require castration.

Table 72: Average Size of Dutch Pig (cwe) 1990 - 1999

1990	1995	1999	% Change 1990-1995
84.3 kg	87.2 kg	87.5 kg	+3.8%

Source: Dutch pig industry expert

The growing carcass weights are expected to offset the decline in pig numbers to a certain degree. Higher carcass weights, and higher carcass yields will be a key element of the Dutch pigmeat production strategy moving forward.

Risk of disease

Because of the intense concentration of pigs in the Netherlands southern and eastern regions, the risk of disease is quite high. Currently, the majority of production is specialised into breeding and finishing. Piglets are changing hands quite frequently and this increases the risk of disease. In an effort to reduce the risk of disease from intensive farming systems, Dutch production is moving toward integrated farms and more closed type production systems.

In closing the production systems, farms will either be farrow to finish, or they will have very limited finishing options (supplying only 1 or 2 finishing farms). This limitation should close the flow of piglets into more controllable systems, reducing the risk of contamination, and enabling traceability when disease is actually introduced. It will also allow for containment of disease outbreak, when diagnosed within a reasonable time.

With regard to other diseases, the Dutch herd has been quite successful. The herd now has a less than 1% occurrence of Aujesky's disease, which awards it an EU Aujesky-free status. This is especially beneficial to the very strong live trade that contributes to the Dutch industry.

Residual feelings about 1997's CSF outbreak are that the Dutch economy is too vulnerable to destructive disease outbreaks at the current levels of production density. Government and economic policy is likely to be influenced by these lingering opinions when considering future plans of pig production.

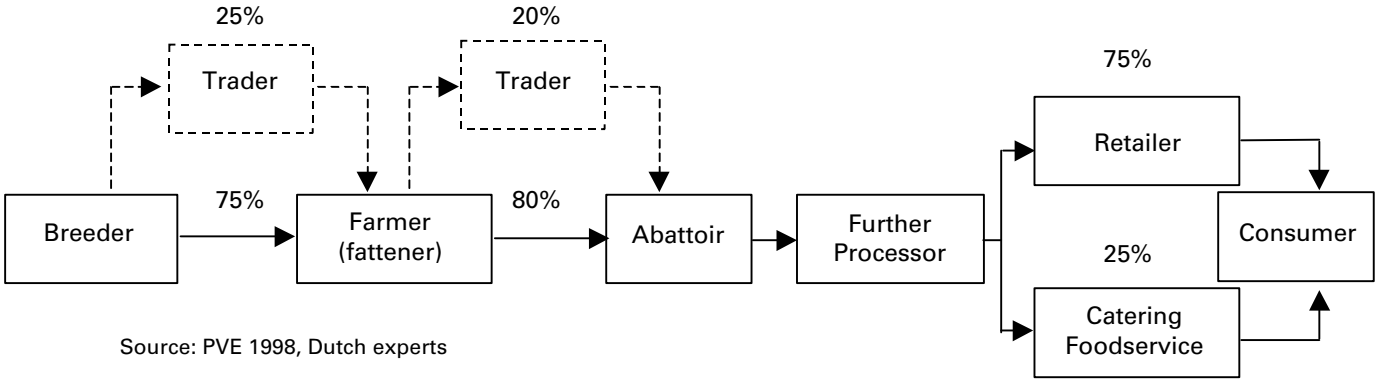
Introduction of supply chain management and the elimination of traders

Recently, the introduction of supply chain management schemes has improved producer – processor communication and production planning. The primary processor manages the supply chains, and supply orders are based on market demand. The primary processors now act as an intermediary between the producers and retailers. Dutch slaughterhouses have made every effort to improve planning of supply levels and to manage the historical fluctuations in pig production.

The development of supply chain management systems was a significant shift away from the traditional Dutch market structure involving intermediary pig traders. The presence and strength of pig traders previously impeded communication between the slaughterhouse and the producer. However, since the recent implementation of supply chain management schemes, approximately 75% of all pigs are linked to a specific slaughterhouse supply chain. As traceability becomes an increasingly important

purchase criterion, all production is expected to shift to some model of supply chain management.

Structure of Dutch pigmeat value chain



Source: PVE 1998, Dutch experts

Traders no longer have the power to manipulate price and complicate communications between producers and abattoirs. They handle only 25% of trade between breeders and fattening farmers, and 20% of trade between fattening farmers and abattoirs. The introduction of supply chain management has created more transparent pricing and has stabilised fluctuating supplies of pigs.

Pricing and payments to producers

Historically, there was no established pricing mechanism for payments to producers in the Netherlands. However, the recent introduction of supply chain management has facilitated contract and price agreements on a more transparent level. Unfortunately, this development is too recent to reveal any insight as to what the impact of the new system has been. The following table shows historical prices for pigs in the Netherlands and competing EU countries.

Table 73: Pig Prices 1998, Selected EU Countries ECU/100kg dw

1998	France	Netherlands	Germany	Denmark	UK	Ireland	EU
Jan	131.87	114.32	139.71	122.00	130.36	125.45	134.62
Feb	140.26	128.32	149.02	121.70	135.93	129.68	141.61
Mar	134.09	119.93	142.71	126.75	141.44	129.35	137.80
Apr	125.02	112.24	135.46	125.46	140.71	125.77	132.67
May	124.00	106.08	128.03	111.74	140.45	122.27	126.11
Jun	125.51	107.57	128.73	111.74	136.35	120.05	126.90
Jul	123.14	103.64	125.82	106.87	127.90	115.52	122.93
Aug	116.12	95.04	118.68	104.73	108.52	107.49	116.23
Sep	111.98	87.48	108.64	100.79	91.67	102.47	108.09
Oct	104.58	77.04	94.36	95.84	93.04	97.89	98.02
Nov	94.93	67.75	85.32	89.42	98.65	95.92	88.79
Dec	99.34	82.45	101.06	89.00	99.46	93.16	99.42
Avg.	119.24	100.16	121.46	108.84	120.37	113.75	119.43
Differential to the average Dutch price							
1998	+16.0%	-	+21.3%	+8.7%	+20.2%	+13.6%	+19.2%

Source: Bord Bia

Table 74: Pig Prices 1999, Selected EU Countries ECU/100kg dw

1999	France	Netherlands	Germany	Denmark	UK	Ireland	EU
Jan	98.59	69.36	90.34	89.87	93.11	90.20	92.52
Feb	101.85	81.84	99.02	88.23	103.13	89.07	101.34
Mar	103.85	84.54	103.07	93.40	119.27	95.29	101.44
Apr	96.85	81.69	101.19	95.24	126.73	96.80	100.81
May	103.98	87.21	109.28	95.11	130.77	98.94	108.10
Jun	96.85	107.87	129.21	106.45	133.04	103.92	126.10
Jul	103.98	105.10	129.44	115.34	132.47	112.83	125.41
Aug	132.49	108.8	132.69	110.21	129.87	112.09	125.66
Sep	131.14	107.34	128.59	115.96	128.52	113.04	125.24
Oct	122.12	100.29	120.53	114.68	124.78	112.65	118.48
Nov	129.53	94.31	115.99	112.69	121.44	110.26	112.99
Dec	119.53	97.74	116.23	112.65	121.59	109.60	113.89
Avg.	94.99	93.84	114.63	104.15	122.06	103.72	112.67
Differential to the average Dutch price							
1999	+1.2%	-	+22.2%	+11.0%	+30.1%	+10.5%	+20.1%

Source: Bord Bia

Key messages:

- The Netherlands had the lowest average price per kg dw, when compared against the other major pig producing countries in the EU
- The annual average Dutch price per kg dw was approximately 20% lower than the average EU reference prices and 10% below the average RoI for 1998 and 1999.

Increased focus on quality

Grading is increasingly important in Dutch production, and two major quality assurance schemes are in place now. The IKB logo is run in co-operation with the Product Boards for Livestock, Meat, and Eggs (PVE). The second scheme is IQC (Integrated Quality Control). Approximately three-quarters of Dutch pigs are sent through at least one of these two quality schemes.

Processing

In 1999, 19.5 million pigs were slaughtered, and 3 million live piglets and 1.4 million pigs were exported. Slaughter figures for 2000 are expected to be down by 5% to 18.5 million pigs for the year. Table 75 shows the recent decline in slaughter figures as well as the projections for 2000 and 2005.

Table 75: Slaughter numbers for the Netherlands

	1995	1996	1997	1998	1999	% Change 1995-1999	2000 (e)	% Change 1999-2000(e)
Annual Kill	18.6 m	18.5 m	15.3 m (CSF)	19.3 m	19.6 m	+5.4%	18.5 m	-5.6%

Source: Eurostat, Dutch experts

Key messages:

- After five years of strong growth, Dutch slaughter figures are expected to decline 6% in 2000 from the 1999 peak of 19.6 million pigs

It is projected that by 2005, Dutch slaughter will stabilise at 17.8 million pigs per year. This will reflect a net reduction of 9% in slaughters from the 1999 figure of 19.6 million pigs. A major rationalisation scheme implemented in 2000, has resulted in the reduction of Dutch slaughter capacity by 1.3 million pigs

The Dutch slaughter industry has recently undertaken a rationalisation scheme, which has resulted in the removal of 6 plants across the top 5 slaughter companies. The top 3 companies control 64% of the kill through 13 plants. Nearly 80% of pigs are slaughtered through the top 5 companies in Holland.

Table 76: Profile of Top 5 Dutch Slaughtering Companies

Company	Number of Plants	Weekly Kill	Annual Kill	% Annual Kill 2000 (e)
Dumeco	5 (down from 6)	136 k	6.5 m	35%
Sturko Meat	3 (down from 4)	68 k	3.0 m	16%
Hendrix	3	50 k	2.4 m	13%
Compaxo	1	22 k	1.1 m	6%
Benedik	1 (down from 5)	19 k	.98 m	5%
Top 5 Total	13	295 k	14.0 m	76%

Source: Dutch experts

Key messages:

- The rationalisation scheme has concentrated the top 5 companies' slaughter capacity into 13 plants
- Benedik experienced the most significant rationalisation of capacity by consolidating its kill from 5 plants to 1

The trend toward concentration of slaughter capacity is expected to continue. Dumeco, which is the largest slaughter company in the Netherlands, is currently building a new plant, which will have the capacity to slaughter 100,000 pigs per week. It will result in a

further reduction of 3-4 plants from the Dumeco group. The project has secured 50 million NLG (IR£17.9m[25]) from the parent company Dumeco.

Processing Key performance statistics

The Dutch slaughtering industry is a well-run and efficient industry. The Dutch have traditionally focused on low cost production, high capacity utilisation and high volume throughput. The typical plant runs a single shift five days a week. Plants typically feature single kill lines with average line speed at 475 per hour for the top five plants and 700 pigs per hour for the top 3 plants. There was a period of rationalisation in the mid-1990s that improved capacity utilisation to an average level of 90% throughout the Dutch pig slaughtering industry. The current rationalisation scheme aims to improve capacity utilisation levels further to at least 95%.

Slaughter Industry Concentration

The first period of rationalisation in the 1990s resulted in the consolidation of top abattoir ownership through several mergers and acquisitions. This consolidated ownership structure has benefited the industry by driving consistent management principles throughout the industry. The concentration of the slaughter industry means that there are a large number of high volume throughput plants. Out of 25 slaughter plants across the Dutch industry, 8 plants kill 19,000 or more pigs per week. Over half the plants kill 14,000 or more pigs per week. The table below reflects the concentration of slaughter capacity in the Dutch industry.

Table 77: Dutch Slaughter Capacity Concentration

Weekly Kill	>19,000	14,000 – 19,000	10,000 – 14,000	Cumulative Total >10,000
% of plants 1998	27%	23%	19%	69%
% of plants 1999	32%	24%	12%	68%
% Change in Share	+5%	+1%	-7%	-1%

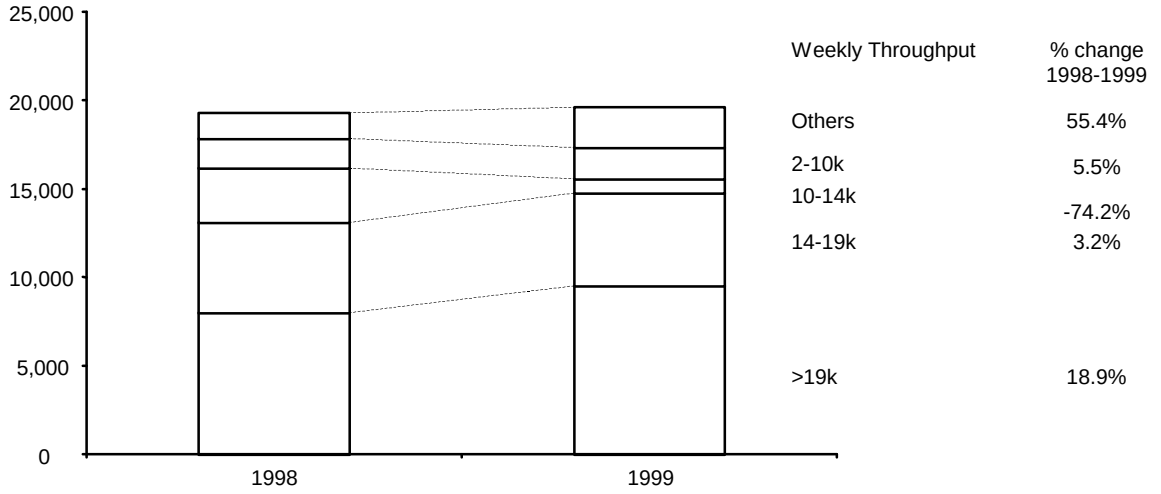
Source: PVE 2000, Dutch experts

Key messages:

- Roughly 70% of Dutch slaughter plants kill at least 10,000 pigs per week
- Plants killing more than 19,000 pigs per week increased their share by 5% in 1999
- Larger plants gained share in 1999, while smaller plants (10-14k per week) saw a 7% decline in plant numbers

[25] Exchange rate IR£1 = NLG2.8

Concentration of slaughter capacity by weekly throughput the Netherlands



Source: PVE 2000, Dutch experts

Key messages:

- Plants killing over 19,000 pigs per week increased their share of the total kill by 18.9% in 1999
- Plants killing 14-19k also experience an increase, whereas, plants killing 10-14k declined dramatically
- Very small abattoirs showed strong growth, however the drivers behind that growth are unknown

Slaughter and Cutting Productivity Measures

As was previously mentioned, the Dutch slaughter industry has focused largely on high volume throughputs and maximising operation efficiencies at the plant level. Following is a comparison of slaughter productivity rates in a number of key pig producing countries:

Table 78: Slaughter Productivity Measures, Comparison of Competing Countries

Country	Number slaughter lines	Chain speed Pigs per hour	Manning Operatives*	Productivity Pigs/oper. Hour	Productivity Kg/oper./ Hour
USA	1	1000	75	13,3	1001
France	1	660	54	12,2	1049
Denmark	average			11,6	882
Germany	1	600	55	10,9	1003
The Netherlands	1	500	46	10,9	954
England	1	430	45	9,5	679
Ireland	1	276	41	6,7	485

Source: DMRI & Prospectus analysis

Key messages:

- The Dutch productivity measures rank below the US, France, Denmark, and Germany in terms of number of pigs per operator per hour
- However, the kg per operator per hour measure reflects a strong performance on productivity (Holland's large carcass weights drive down the number of pigs, but increase the meat weight yield productivity measure)

The Dutch slaughter sector performs particularly well at the cutting level. The table below compares the various productivity levels of competing countries at the cutting stage of processing:

Table 79: Cutting productivity measures of competing countries

Country	Number cutting lines	Chain speed Pigs per hour	Manning Operatives	Productivity Pigs/oper./ Hour	Productivity Kg/oper./ Hour
Denmark	1	530	23	23,0	1748
The Netherlands	1	500	22	22,7	1951
Ireland	1	326	16	20,4	1403
Scandinavia excl. DK	1	223	12	18,6	1507
Germany	1	250	14	17,9	1647

Source: DMRI

Key messages:

- The Dutch have the highest productivity measure in terms of kg per operator per hour at the cutting stage of processing
- The productivity measure for pigs per operator per hour improves significantly in this stage of processing as well

Geographic location of slaughtering capacity

Dutch slaughtering capacity is geographically placed in the highest production regions of the south and east of the Netherlands. The pigs have very short distances to travel and the transport fee that traders attach to pigs can be minimised by this geographic advantage. Despite the strained relationships of farmers and abattoirs, slaughtering capacity (both availability and location) is not an issue in the Dutch industry.

Outputs

The Dutch have long focused on high volume, commodity product outputs. Their slaughter facilities are relatively modern, with significant levels of automation and basic cutting practices. The entire industry is focused on this type of commodity production, and the focus has created a level of proficiency in basic pigmeat production that is very difficult for competitors to match. The commodity nature of Dutch outputs makes it quite competitive on the export markets, which tend to be more price sensitive to non-domestic products. The table below reflects the Dutch output by level of processing as it is sold into domestic and export markets:

Table 80: Dutch Processing Output by Level of Processing

Product	Domestic Market	Export Market
Primals	5%	16%
Boned Out Product	80%	68%
Further Processed	15%	16%
Total Volume (tonnes)		

Source: Dutch experts
Note*: Further processed product is predominantly bacon, and a majority would go into the UK market

Key messages:

- Boneless meat is the primary product output
- A high proportion of Dutch exports are boned-out product

Dutch abattoirs have a close relationship with further processors; however, these two components of the value chain are each quite focused on their core competencies. The Dutch do not have a particularly strong further processing sector and are not known for their value-added product development. They do, however have competent boning capacity and can produce significantly processed pigmeat at competitively low prices. Experts indicate that the Dutch have made an industry commitment toward focusing on higher value-added output, while maintaining international market share in commodity outputs.

Key developments

The Dutch are likely to maintain tight control on slaughtering efficiencies, Dutch companies have already begun the process of rationalising existing slaughter capacity to counter the effects of declining pig supplies. The increasing shortage of live slaughter pigs is creating higher raw material costs and is damaging efficiency levels by constraining throughputs. The rationalisation scheme coupled with enhanced supply chain management efforts should resolve the issue of supply availability for Dutch slaughterhouses.

Due to the developments of the declining herd and live pig exports, abattoir profitability has struggled. In an industry focused on high volume throughput and operational efficiencies, the supply challenges have disrupted throughputs and created significant challenges to profitability in the slaughtering sector. With further decline of the herd expected over the next few years and tough competition in the live trade across borders, Prospectus believe that Dutch slaughter levels will decline by at least 9%.

Modernity and automation

Dutch slaughtering capacity is sufficiently modern and automated. Most of the companies that survived the mid-1990s rationalisation programme invested in plant upgrades and kill line automation to increase and maintain high processing efficiencies. Some of the plants are 20 years old, but all have regular maintenance, and consistent capital investment for plant upgrades. The current rationalisation scheme has allocated 50 million NLG (IR£17.9m) for the modernisation and expansion of plants that will continue to slaughter.

Exports

The Dutch are 268% self-sufficient in pigmeat production. The Dutch industry is heavily dependent on export markets. Exports in total have regained strength since the outbreak of CSF in 1997; however, the export of live animals is still 30% less than that of 1996. The table below reflects the breakdown of product exports by market destinations.

Table 81: Export Markets for the Dutch Pig Industry

Destination	Piglets (live)	Pigs (live)	Pork[3]
Germany	42%	75%	29%
Spain	27%	1%	-
Italy	8%	15%	21%
Belgium/Luxembourg	15%	2%	4%
France	4%	6%	11%
United Kingdom	-	-	18%
Other	4%	1%	5%
Total	100%	100%	88%

Source: PVE 2000

Key messages:

- The key export markets (processed and live pigs) for the Dutch industry are Germany, Spain, Italy, and the UK.
- Dutch export volumes were 1.2 million tonnes in 1999, down 8.2% from 1995. Germany is by far the largest export market for the Dutch pig industry.
- The German market takes 42% of the piglets, 75% of live slaughter pigs, and 29% of the pork[27] that is exported from the Netherlands.
- Spain is a major market for live piglets, but not for slaughter pigs, and pork products. Additionally, the UK is a primary export market for pork, but not for live animals.

The export market share breakdown by company is as follows:

- Dumeco 40%
- Sturko 30%
- Hendrix 30%

[26] Excluding meat products, cooked products, preserved products, and bacon

4.3 Profile of the US Pig Industry

Overview of US Pig Production

Production in the US grew moderately at 3.6% over the last 5 years. 1998 saw a peak in pig production numbers (105 million head), however; most industry observers expect production to plateau at about 102 million pigs over the next 3 to 5 years. Production in volume terms was 8.8 million tonnes in 1999, second only to China. Increases in animal numbers are unlikely to be significant in the future, however growth in production volumes is expected to be driven by more consistent animal size and higher carcass yields in processing.

Several key trends have characterised US production in recent years:

- Increasing vertical integration
- More stringent environmental regulations
- Concern over density of pig populations
- Labour issues
- Consumer and retail focus on food safety
- Low producer prices

The US industry has a considerably lower cost base than most of its international competitors due to its location near an abundant source of feed in the "cornbelt" of the United States. Traditionally, pig production has been concentrated in the mid-western states, as this is the largest corn-producing region in the country. In the 1990s, however, production has shifted somewhat to the South and the West of the country. This shift is likely to be permanent, as producers (increasingly corporate farms) must seek sparsely populated areas for larger production bases.

The crisis faced by US pork producers very much resembled that faced by producers around the world in 1998 and 1999. A surplus of pigs created a significant decline in prices and an abundance of product on the consumer market. Additionally, 1997 saw the close of 4 slaughter facilities, which were in fact under-utilised, but would have critical to the industry for 1998's record production of 105 million pigs.

The US industry does not have the same issues surrounding animal welfare as the EU. Stall and tether housing for sows is not a problem for consumers or retailers in the US. There have been some producers who have adopted pasture style and loose housing production systems, however the large land and labour requirements of these systems have limited these methods to being niche segments of overall US production. Intensive farming systems in various types of contained housing are most common to US pig production.

The 1990s saw large fluctuations in pig numbers, but demand increased steadily at about 8% p.a. This demand drove producers to increase their pig numbers. Coinciding with the increase in production was the growth of Canadian imports of live slaughter pigs, and the closure of significant slaughter capacity (c. 55k per week). These conditions contributed to over-supply in the market, and prices plummeted. The parallel timing of

each of these conditions precipitated the 1998 and 1999 price crisis in the US. Demand was continuing to grow, as were US exports, however, the glut of animals in the marketplace drove producer prices to all time lows.

The sweeping fluctuations in production appear to have been corrected. Two interrelated industry shifts led to this correction:

- Processors eliminated excess capacity
- Contracts/vertical integration increased

The US industry has changed its structure significantly toward contracted supply or vertical integration. In 1990, approximately 80% of the pigs sold for slaughter were sold on the open market. In 2000, only about 30% of all pigs sold for slaughter are sold on the open market.[28] The elimination of excess slaughter capacity sent a message to producers that the processors would no longer maintain enough "cushion" capacity to accommodate huge fluctuations in supply. The elimination of this cushion mandates closer planning and communication between producer and processor, hence the contract agreements and vertical integration that the industry is experiencing more frequently than it ever has.

Current US production is in line with existing slaughter capacity, and processors are operating at an average of 99% capacity utilisation. Canadian imports of live pigs currently represent c.4% of all pigs slaughtered in the US, a level that is not expected to increase. The Canadian pig industry is in the process of ramping up its own presence pig production, and has recently made significant investment in slaughter and processing capacity.

Sow productivity has been increasing steadily (c.2% p.a.), and industry experts expect this trend to continue.[29] Sow numbers are expected to remain flat over the next 3 to 5 years, while productivity is expected to continue its steady increase. The current US average of pigs per sow per year (8.7) is considerably lower than that of the EU (21.3). The low performance of sow productivity is viewed as an area for improvement, and US pig farmers are focusing concerted efforts on improving their performance in this measure. Current social opinion and increasing governmental regulations will drive this focus even further, as mass production of pigs comes under closer scrutiny in future years. Experts agree that the US breeding herd is unlikely to increase significantly, but sow productivity will be a key driver in future increases in production volumes.

The US pig production industry is characterised by wide variations in the size of farm operations, but the bulk of production is concentrated at the large producer end with ownership of 50,000 pigs and higher. There are about 88,000 pig producers in the United States, but the top 100 producers represent 40% of production.

[28] Interviews with industry experts, National Pork Producers Council
[29] National Pork Producers Council

Pig production numbers

The US has seen a significant decline in the number of farms with pigs since 1990.

Table 82: Number of US farms with pigs 1990 - 1999

1990	1995	1999	% change 1990-1995	% change 1995-1999	Total % change 1990-1999
275,440	181,750	98,460	-34.0%	-45.8%	-64.3%

Source: USDA, National Pork Producers Council: Pork Facts 2000

Key messages:

- The number of US farms with pigs decreased by nearly 65% from 1990 to 1999
- The period from 1990 to 1995 saw pig farms numbers reduced by 34%, while the five year period from 1995 to 1999 reflected an even larger decline of 46%

While farm numbers declined, the structure of US production has shifted to larger herd sizes. Table 83 below reflects pig production numbers and average herd size from 1990 to 1999:

Table 83: US pig numbers 1990 – 1999

	June 1 Inventory of Pigs	Year on Year % Change	Number of Pig Operations	Year on Year % Change	Average Herd Size	Year on Year % Change
1990	53,800,000	-	275,440	-	195	-
1991	56,340,000	4.7%	253,890	-7.8%	221	13.3%
1992	59,175,000	5.0%	248,700	-2.0%	237	7.2%
1993	58,795,000	-0.1%	225,210	-9.4%	261	10.1%
1994	60,847,000	3.5%	207,980	-7.7%	292	11.9%
1995	59,329,000	-2.5%	181,750	-12.6%	326	11.6%
1996	56,038,000	-5.5%	156,250	-14.0%	359	10.1%
1997	57,366,000	2.4%	122,160	-21.8%	470	30.9%
1998	62,213,000	8.4%	113,830	-6.8%	547	16.4%
1999	60,896,000	-2.2%	98,460	-13.5%	618	13.0%
Total Change 1990-1999	7,096,000	13.2%	-176,980	-64.3%	423	216%

Source: USDA, National Pork Producers Council: Pork Facts 2000

Key messages:

- Pig inventory numbers fluctuated throughout the 1990s. The largest single year increase was in 1998, when pig inventory was up 8.4% over the previous year
- Although farms numbers declined steadily from 1990 to 1999, pig numbers showed a net increase of 7.1 million animals over the same period
- The average US herd size grew 216% during the 90s, from 195 pigs in 1990 to 618 pigs in 1999

Pig farm size and structure

The size of farms selling pigs has changed dramatically in the last 15 years. Pig numbers have increased as farm numbers have declined. The market share of small producers (<1000 head marketed) has been eroded as larger farming concerns gained share. Table 84 demonstrates this dynamic:

Table 84: Market Share by Farm Size 1988 – 1997

Size of Farm (# of pigs marketed)	Market Share 1988	Market Share 1991	Market Share 1994	Market Share 1997	Total Change in Market Share 88-97
1000 & less	32%	23%	17%	5%	-27%
1,001 – 2,000	19%	20%	17%	12%	-7%
2,001 – 3,000	11%	13%	12%	10%	-1%
3,001 – 5,000	10%	12%	12%	10%	0%
5,001 – 10,000	9%	10%	12%	10%	+1%
10,001 – 50,000	12%	13%	13%	16%	+4%
50,001 plus	7%	9%	17%	37%	+30%

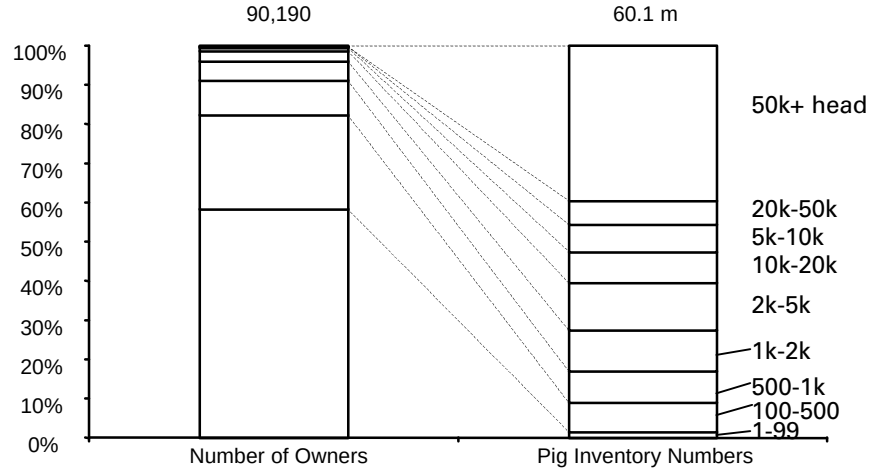
Source: Pork Industry Structure Study, University of Missouri, National Pork Producers Council, Pork 98, PIC, DeKalb Swine, Land O'Lakes & Iowa State University

Key messages:

- The largest pork producers experienced a 30% gain in market share from 1988 to 1997
- Almost all of the 50,000+ farm market share gain was taken from the smallest producers (less than 2,000 head)

The structure of US pig production is highly concentrated. The growing herd size, discussed earlier in this chapter reflects the trend toward larger farms in US pig production. The market strength of larger farms is growing, while many smaller concerns have exited the pig production business. Scale is not a requirement for competitiveness, however many smaller independent producers have had difficulty maintaining competitiveness at the farm level against larger scale farming concerns, which often have corporate ownership structures. The graph below demonstrates the strength of larger farms in the US industry.

Pig Operation Ownership and % of Inventory in the US 1999



Source: USDA

Key messages:

- While operations with less than 500 head represent 77% of producers, they represent less than 10% of US pig inventory numbers.
- Ownership of the largest farming operations is highly concentrated, with less than 1% of owners holding nearly 40% of pig inventory numbers

Pig production models

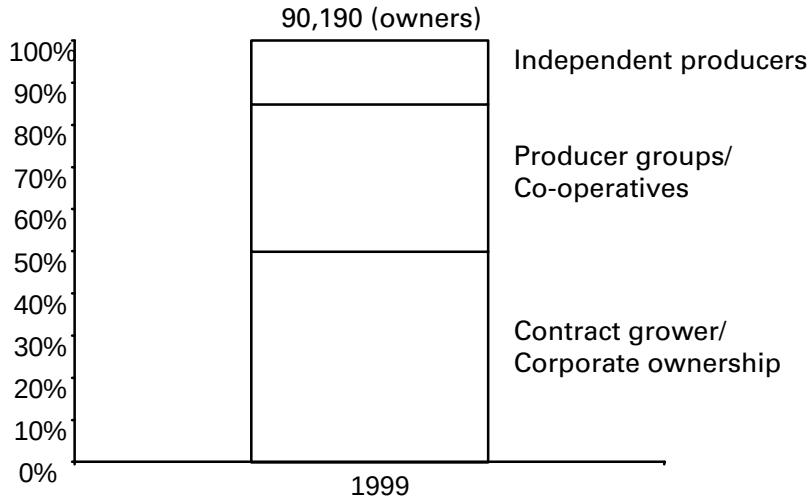
Of the various production models in the US, the most common typically have three things in common: they are large, intensive, and usually in a climate-controlled setting. With the average herd size reaching 618 animals in 1999, the industry has faced numerous challenges surrounding its management of the issues surrounding large scale, intensive farms. Social and environmental resistance these large pig farms will be constraints on further growth in the average size of operations for US pig production.

The US Industry has seen the emergence of 3 distinct models of production:

- The contract grower / corporate ownership
- The producer group / co-operative
- Independent producers

The current industry breakdown for these three models is depicted in the graph below:

Industry Breakdown of US Pig Production Models 1999



Source: Industry interviews, National Pork Producers Council

Segment One: Contract Growers / Vertically Integrated Farms
The majority of production (c.50%) falls into the contract grower / corporate farm ownership category. These producers are either in long term contracts (10-15 years) with slaughterhouses, or they are vertically integrated concerns. The long-term contract growers are producing animals to tight specifications as laid out by the slaughterhouse. Vertically integrated concerns are farms that fall under the same umbrella of corporate ownership as the slaughterhouse where the animals will be processed. Very often, contract growers are supplied with weaners from corporate breeding farms, and they are responsible only for the finishing, which the processor pays for including a built-in margin.

Segment Two: Producer Groups / Co-operatives
The second emerging segment of US pork production is producer groups, also known as networks and co-operatives. These groups make up 35% of the US pig production sector. About 15-20% of this segment is tied into long-term supply agreements with individual slaughtering companies. The remaining portion of co-operative production is sold on the open market. Co-operatives have had mixed levels of success in the US pig industry, however there are some very large co-operatives that have managed to achieve a considerable market share. The largest of these successful co-operatives is Farmland Industries, which also slaughters 10% of the annual kill in the US. The quality and consistency of animal can be greatly improved through co-operative effort in breeding, feed, and standard production methods.

The National Pork Producers Council (NPPC) makes a substantial effort to organise producer networks because co-operatives with strong leadership have proven to enrich the relationship between producer and processor. Many producer groups have long term agreements for production to processor specification, and this has enhanced trust between the two groups.

Segment Three: Independent Producers
Independent production represents 15% of the production pool. Output from these independent farms is usually sold on the open market; however, there are some larger independent producers that have long term contracts with processors. The independent segment has suffered most over the last two years. Many smaller, less efficient producers in this segment have made a painful exit from the industry. However, the overall competitiveness of independent producers is not automatically jeopardised by their independent status. Those producers who run cost efficient farms – no matter what the ownership structure – have proven they have the ability to stay in the industry.

Geographic Distribution of Pig Production
The geographic distribution of pig production in the US has traditionally followed the pattern of the cornbelt – typically along the mid-western states of Nebraska, Iowa, Minnesota, Illinois, Kansas, Missouri, and Indiana. However, in recent years, non-traditional locations have emerged, as large, corporate farming concerns sought to establish production bases in areas if lower human population densities.

Table 85: Geographic Distribution of Pig Population

State	Location	# of Holdings	# of Pigs Marketed	Average Herd Size	% of US Pigs Marketed
Iowa	Midwest	14,500	26,545,000	1,831	21.9%
North Carolina	South	4,000	17,289,000	4,457	14.7%
Minnesota	Midwest	7,500	11,653,000	1,554	9.6%
Illinois	Midwest	6,500	9,113,000	1,402	7.5%
Missouri	Midwest	4,000	7,953,000	1,988	6.6%
Indiana	Midwest	6,200	7,217,000	1,164	6.0%
Nebraska	Midwest	5,000	6,306,000	1,261	5.2%
Oklahoma	South Central	2,800	5,769,000	2,060	4.8%
Ohio	Midwest	6,000	3,560,000	593	2.9%
Kansas	Midwest	1,900	3,306,000	1,740	2.7%
(Midwest Total)	8 of Top 10	51,600	75,653,000	1,466	62.4%
Top 10 States		58,400	99,251,000	1,700	81.9%
Next 10 States		24,400	17,178,000	704	14.2%
Other States		15,660	4,757,600	304	3.9%
Total		98,460	121,186,600	1,231	100%

Source: USDA

Key messages:

- The top ten pig producing states, located in the Midwestern and Southern regions of the US represent 82% of total US production
- Pig production in the top 10 producing states is highly intensive
  - The average herd size in the top ten states is 1,700 pigs
  - 704 pigs in the next 10 states
  - 304 pigs in the remaining producing states

The high densities of pigs in the Midwest and South have driven large farming concerns to seek alternative geographic locations for production. The western part of the US is becoming increasingly important to production investment, particularly due to its mild climate, proximity to feed inputs, and lower densities of human populations. As the size and structure of pig production has shifted to larger herd sizes and denser holdings, some larger corporate farms and vertically integrated operations have encountered social and environmental challenges with local communities. There is by no means a shortage of available land for pig farming, however issues surrounding odour emission, effluent treatment, and noise have contributed to antagonistic relationships between large intensive farms and local communities.

Size and Content of Animals

The average US pig is significantly larger than the average EU pig. US pigs average 250 pounds, or 113.6 kg live weight. The average carcass weight is 83.6 kg, with a typical retail meat yield of 56.8% or 47.4 kg per pig. The lean meat content average is also well below that of European pigs, averaging only 52% in 1999. Boars are castrated at the farrow stage to prevent tainting the meat flavour.

The industry has adopted an ideal pig type, which includes the following targets[30] for an industry standard US pig:

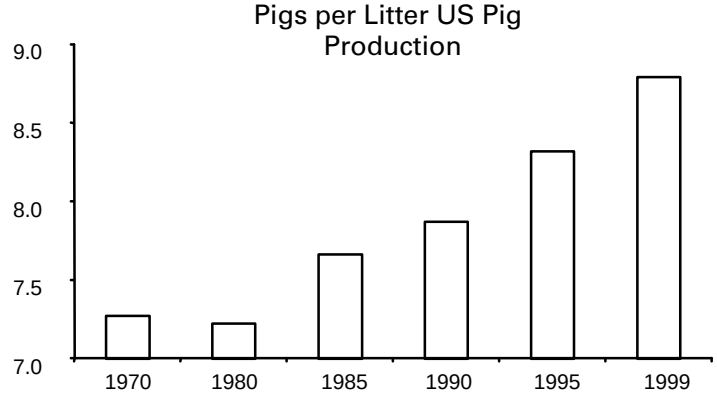
- 195 lb carcass (88.6 kg)
- Intramuscualr fat level greater than or equal to 2.9%
- Live weight feed efficiency of 2.40
- Standard reference backfat of .8
- Minimum loin muscle of 6.5 sq.in. with appropriate:
- Colour
- Walter holding capacity
- Ultimate pH

As the US industry seeks to expand its export markets, particularly in Japan and Mexico, the industry will attempt to specialise production to match consumer tastes for these markets. Additionally, the exit of less efficient and lower quality operations is contributing to a higher standard of industry consistency in terms of quality and specifications. The vertical integration of production has also enabled processors to implement and monitor tighter specification controls on quality and consistency of animals within one company.

The US industry is aiming to increase the national brand awareness of US Pork. Greater consistency of meat content, quality, and food safety are the key elements of product positioning that US Pork will emphasise on international export markets.

Sow Productivity

Since the 1970s, the average number of pigs per sow per year has increased by 1.5. Most of this increase occurred in the 1990s. In the 1970s, the US was producing 80-85 million pigs per year on a sow base that was 30% larger than the current breeding herd. The industry has focused on increased productivity of sows to drive production growth in the US, and experts believe most of future growth will be driven by even higher sow productivity and improved carcass yields. The graph below depicts the growth in sow productivity from 1990-1999:



Annual Growth	
1970-1990	1990-1999
0.4%	1.1%

Source: University of Missouri

[30] Source: National Pork Producers Council, not an exhaustive list of targets

Key messages:

- US sow productivity is considerably lower than EU levels, and improvements have been very limited to date
- While the EU has very little room to improve productivity, the US could make considerable improvements

The structure of pig sales

The sale of pigs takes place at two main venues: sales at terminal markets/auctions and direct sales at the slaughterhouse gate. The US industry was originally dominated by terminal markets, which developed in close proximity to slaughter capacity. At these markets, pigs are sold on a liveweight basis to the highest bidder, and significant price competition tends to benefit the producer. Slaughterhouses are forced to compete for supply at terminal markets, which makes forward planning a bit difficult, especially during tight supply periods. The auction method of pig sales traditionally provided attractive levels of price competition for producers, but was vulnerable to huge shifts in supply and demand, and inhibited the processor's ability to plan accordingly. Also, a considerable amount of time and resource is spent on the procurement process under the open market method.

Over time, the US industry has shifted to more direct sales agreements between producers and slaughterhouses. In 1990 80% of pig sales occurred on the open market. Today, only 30% of sales take place on the open market. For non-vertically integrated processors, long-term contracts have replaced traditional auctions and terminal markets. Although only 30% of pig sales go through the open market, many contracts' pricing structures are based (to a certain degree) on prices obtained on the open market. More frequently, however, processors are beginning to pay prices on animals produced to specification.

Contract structures

There are three basic contract structures in the US pig industry:

- Cost – plus
- Ledger
- Quality Spec

The use of cost-plus and ledger style contracts is declining, while the quality specification structure is increasingly popular with processors.

Cost Plus:

This contract bases payment to the producer on the feed cost, plus a built-in margin. This is not the most attractive structure for a processor, because the producer carries none of the margin risk. Even if retail prices are falling, the producer has a guaranteed price.

Ledger:

This structure is similar to the cost plus contract, however, there is a limit set on the price levels: minimum and maximum. Under the parameters of maximum and minimum

levels, the processor and producer share in the risk and reward. The flaw under this model is that the processor carries the loss, crediting the producer until prices rebound. During particularly long troughs in the pig cycle, the processor's balance sheet suffers the weight of these losses, which invariably disappoints shareholders in public companies.

Quality Spec:
The US industry will increasingly adopt the approach of the quality spec contract structure. The producer price is based on a set of specifications for meat quality and content that the producer must meet to obtain optimum price levels for his output. This structure has introduced merit-based pricing to the industry, as it has not existed previously. The objectives of this contract structure are to improve the overall quality of the US pork product, to drive responsibility for meat quality back to the beginning of the value chain, and to provide a more stable basis for producer compensation.

Pricing and Payments to Producers
US pig producers experienced a difficult two years during 1998 and 1999. Already depressed prices hit a massive collapse in December 1998, when producers were losing almost £50 IEP per head. The exit of four primary processing plants exacerbated the significant problem of over-supply, and pig prices hit their lowest point in 50 years.

The introduction of supply contracts and agreements was seen as a critical way forward by producers and processors alike, and now 70-80% of pigs sold are under contract to a specific processing plant.

Many of the contracts, which have been agreed in the last 12 months, have moved toward the payment according to quality spec model. Under these contracts, the prices producers' obtain are linked to specific quality criteria, which determine the appropriate use of each animal in processing (i.e. specific ethnic or export markets).

The tables below depict the prices obtained by producers in the US from 1998 to 1999. The breakeven price and profit/loss for each month is also reflected.

Table 86: Pig Prices, Profit / Loss US Pigs 1998 £IEP

1998	US Market Price £/cwt	break-even £/cwt	Profit / Loss Margin £/head
Jan	24.75	31.96	-17.77
Feb	24.17	33.51	-18.63
Mar	23.77	31.40	-18.73
Apr	24.10	30.98	-16.93
May	29.40	30.60	-2.65
Jun	29.09	30.19	-2.47
Jul	25.14	29.81	-11.11
Aug	24.40	29.31	-11.84
Sep	20.38	28.64	-20.23
Oct	18.89	28.11	-22.60
Nov	12.29	27.90	-38.21
Dec	9.74	27.84	-44.58
Avg.	22.18	30.02	-18.81

Source: Iowa State University, Department of Economics

Table 87: Pig Prices, Profit / Loss US Pigs 1999 £IEP

1999	US Market Price £/cwt	Break-even £/cwt	Profit / Loss Margin £/head
Jan	19.50	29.41	-24.25
Feb	19.66	29.37	-23.42
Mar	19.19	29.45	-24.84
Apr	22.08	29.49	-18.00
May	26.56	29.40	-6.88
Jun	24.39	29.27	-11.92
Jul	22.46	28.93	-15.54
Aug	27.71	28.60	-1.59
Sep	25.87	28.37	-6.10
Oct	25.27	28.19	-7.02
Nov	25.15	28.24	-7.60
Dec	26.44	28.29	-4.52
Avg.	23.69	28.91	-12.64

Source: Iowa State University, Department of Economics

Primary Processing Sector in the US

The number of slaughters in 1999 was 102.6 million. Slaughter figures have been volatile since 1993; bottoming out at 94.5 million in 1996 and peaking at 105 million in 1998. Table 88 below reflects the fluctuations in slaughter number since 1993.

Table 88: Slaughter Numbers in the US 1993-1999

	Number of Pigs Slaughtered	Year on Year Change
1990	85,431,000	-
1991	88,445,000	3.4%
1992	95,157,000	7.1%
1993	93,296,000	-2.0%
1994	95,905,000	2.1%
1995	96,517,000	0.6%
1996	92,394,000	-4.5%
1997	91,960,000	-0.5%
1998	101,029,000	9.0%
1999	101,555,000	0.5%
Total Change 1990-1999	16,124,000	+15.9%

Source: USDA

Key messages:

- Despite year on year fluctuations, slaughter numbers experienced an overall increase of 16% from 1990 to 1999
- Growth figures in years of slaughter growth were significantly higher than the declines in years of slaughter downturn
- 1998 saw the largest single increase in slaughter numbers with an increase of 9% over the previous year's slaughter figure

Slaughter numbers are expected to remain fairly stable over the next 5 years, however, production volumes are forecast to increase. Experts at the National Pork Producers

Council expect production volumes to increase driven largely by higher carcass yields and more consistent animal weights. However, actual pig slaughters are expected to plateau at approximately 101 million pigs, which is down from the 1999 figure of 102.5 million.

In 1999, 101.5 pigs were slaughtered by 54 plants across 34 companies in the US pig meat industry. The top 10 companies in pork slaughtering accounted for 86.5% of the annual kill. The weekly US slaughter capacity was 1.9 million in February 2000, however the recent closure of one of Farmland Industries' plants (55 k per week) has reduced annual US slaughter capacity by eliminating an additional 3 million shackles. Experts believe this capacity will be "covered" by existing plants running at higher utilisation levels.

Table 89: Profile of Top 10 US Slaughtering Companies

Company	# of Plants	Weekly Kill	Weekly Kill per Plant	Annual Kill*	% of Industry Capacity
Smithfield	5	401.5 k	80.3 k	20.9 m	21.3%
IBP	6	347.5 k	57.9 k	18.1 m	18.4%
Swift	3	197.0 k	65.7 k	10.2 m	10.4%
Excel	3	193.5 k	64.5 k	10.1 m	10.3%
Hormel	3	158.0 k	52.7 k	8.2 m	8.4%
Top 5 Total	**20**	**1.3 m**	**65.0 k**	**67.5 m**	**68.7%**
Farmland	3	114.0 k	38.0 k	5.9 m	6.0%
Seaboard	1	80 k	80.0 k	4.2 m	4.3%
Indiana Packers	1	55 k	55.0 k	2.9 m	3.0%
Sara Lee	2	45 k	22.5 k	2.3 m	2.3%
Lundy's	1	40 k	40.0 k	2.1 m	2.1%
Top 10 Total	**28**	**1.6 m**	**57.1 k**	**84.9 m**	**86.5%**

Source: National Pork Producers Council, American Meat Institute, and USDA
Note*: Estimated annual kill

Key messages:

- The top 5 US slaughter plants average 65,000 pigs per week
- Average throughput for the top 10 plants is 57,000 pigs per week
- The top 10 plants slaughter 87% of the total kill

Recent developments in the US primary processing sector include Smithfield's acquisition of production and slaughter capacity over the last 2 years. Its acquisition of Murphy Farms (the largest independent pig farm in the US), which has a sow base of 523,000 may come under attack in Iowa, where vertically integrated production and processing is illegal. The Smithfield acquisition of Morrell's 2 slaughter plants brought its share of the US kill to 21.3%.

Key Performance Statistics

There is very little excess capacity in the US slaughtering sector. Average capacity-utilisation levels are 99%. Most large plants are running on single kill lines on double-shifted working days. The average line speed across the top 20 plants is 1033 pigs per hour. To accommodate line speeds this high; US plants typically have high levels of manual labour and lower levels of automation. Most automated equipment for the kill line is built for line speeds of 350-450 pigs per hour, which is suitable for EU slaughter line speeds, but significantly lower than US plant demands. The cutting stage of processing is more automated than the slaughter stage in US plants.

Prior to the 1998 – 1999 price crisis, slaughterhouses were running at average capacity utilisation levels of 80%. Part of the catalyst in the price crisis was the closure of 4 plants, which were under-utilised and located in unsuitable geographic regions (in terms of pig supplies). The excess capacity represented by these four plants was eliminated at a critical point in US production. There was over-supply in the market place, and this was exacerbated by the closure of 4 plants, which, under ordinary circumstances, would not have been crucial to capacity needs.

The closure of excess capacity was driven by the fact that processors refused to maintain enough "cushion" capacity to accommodate the historically wide fluctuations in the supply of pigs. These closures, in Michigan, Iowa, Georgia, and Texas, instigated a fundamental shift in the processing structure of the US industry. This shift was intended to send a message to producers that long-term contracts and close supply chain management would characterise the industry in the future.

The decision to run plants at peak utilisation levels (often at or above 100%) makes supply agreements and forward planning absolutely critical to the success of the producers and processors. Large producers refusing to enter into some type of supply agreement run the risk of over-producing and not having sufficient slaughter markets on which to sell their pigs.

Geographic distribution of US slaughter capacity

Slaughter capacity in the US is well-matched against the geography of the production base across the country. Additionally, the infrastructure is of a high quality that allows producers to transport pigs across roads for up to 6 hours without damaging or stressing the animals. The closure of 4 plants in late 1997 and early 1998 has further concentrated processor's supply base. The four plants that closed had been drawing supply away from higher production densities, as their own geographic production bases were inadequate.

Table 90: Top 15 Companies Geographic Distribution of US Slaughter Capacity

Location	Company	# of Plants	Weekly Kill	Regional Share of Production	Regional Share of Kill
Midwest	IBP	6	347.5 k		27.1%
Midwest	Excel	3	193.5 k		15.1%
Midwest	Hormel	3	158.0 k		12.3%
Midwest	Swift	2	157.0 k		12.2%
Midwest	Smithfield*	2	150.0 k		11.7%
Midwest	Farmland	4	114.0 k		8.9%
Midwest	Indiana Packers	1	55.0 k		4.3%
Midwest	Premium Standard Farms	1	40.0 k		3.1%
Midwest	Iowa Pack	2	40.0 k		3.1%
Midwest	JH Routh	1	25.0 k		2.0%
Midwest Subtotal		**25**	**1.28 m**	**62.4%**	**67.7%**
Southeast	Smithfield	3	282.5 k		56.8%
Southcentral	Seaboard	1	80 .0 k		16.1%
Southeast	Lundy	1	50.0 k		10.0%
Southeast	Sara Lee	1	45.0 k		9.0%
South	Swift	1	40.0 k		8.0%
Southern Total		**7**	**497.5 k**	**25.3%**	**26.4%**
MidAtlantic	Hatfield Packing	1	50.0 k		n/a
West	Clougherty	1	30.0 k		n/a
Total Share of US (top 15 companies)		**34**	**1.86 m**		**98.4%**

Source: American Meat Institute

Key messages:

- Slaughter capacity is well matched against production locations in the US
- The top 15 slaughter companies (located primarily in the Midwestern and Southern regions) hold 94% of slaughter capacity
- 88% of production is located in the Midwest and Southern regions

Profile of US Outputs

In 1999, the US industry produced 8.8 million tonnes of pig meat. The breakdown of products is reflected in the table below:

Table 91: US Pig Meat Industry Outputs (tonnes)

Product	Retail Pork	Other Products	% Carcass Total
Cured Ham	1,188,000		13.5%
Fresh Ham	96,800		1.1%
Trimmings	272,800		3.1%
Skin, Fat, Bone		528,000	6.0%
Ham Total	**2,094,400**		**23.7%**
Back Ribs	149,600		1.7%
Boneless Loin	510,400		5.8%
Country Style Ribs	360,800		4.1%
Sirloin Roast	272,800		3.1%
Tenderloin	8,800		0.1%
Trimmings	8,800		0.1%
Fat & Bone		158,400	1.8%
Loin Total	**1,610,400**		**18.3%**
Cured Bacon	906,400		10.3%
Spare Ribs	272,800		3.1%
Trimmings	431,200		4.9%
Fat		8,800	0.1%
Side Total	**1,663,200**		**18.9%**
Blade Steaks	211,200		2.4%
Blade Roast	369,600		4.2%
Trimmings	79,200		9.2%
Fat		38,219	0.0%
Shoulder Total	**702,280**		**8.0%**
Cured Picnic Hams	123,200		1.4%
Trimmings	510,400		5.8%
Skin, Fat, Bone		167,209	1.9%
Picnic Total	**793,051**		**9.0%**
Jowls, Feet, Tail, Etc.	735,722		8.4%
Fat, Skin, Bone		1,108,360	12.6%
Shrink & Loss		85,993	0.1%
Miscellaneous Total	**1,930,076**		**21.9%**
Total Meat Production	**8,800,000**		**100%**

Source: National Pork Producers Council, Purdue University, Texas A&M University
Note*: Retail Cuts based on semi-boneless basis

US pigmeat exports have grown significantly over the last 15 years. Annual growth has been 15.5% per annum, and the overall increase in US exports has been nearly 700%. The table below reflects US pigmeat export growth from 1985 to 1999.

Table 92: US Pigmeat Exports 1985-1999

	Tonnes	Year on Year % Change
1985	58,000	-
1986	39,000	-32.8%
1987	45,000	15.4%
1988	62,973	39.9%
1989	92,539	47.0%
1990	82,187	-11.2%
1991	93,753	14.1%
1992	140,253	49.6%
1993	148,486	5.9%
1994	178,670	20.3%
1995	263,895	47.7%
1996	305,881	15.9%
1997	324,507	6.1%
1998	398,864	22.9%
1999	438,683	10.0%
Total Change	**380,683**	**656.4%**

Source: USDA Foreign Agriculture Service

Key messages:

- US exports of pigmeat experienced year on year growth in all but 2 years since 1985
- Overall exports grew 656% from 58,000 tonnes in 1985 to 439,000 tonnes in 1999
- US exports have not shown a decline in any single year since 1990

The US is the second largest producer of pigmeat exports in the world, along with Denmark. The table below shows the top pork exporting countries in 1999.

Table 93: Top 10 Pigmeat Export Nations 1999

Country	Tonnes (Carcass Weight)
Canada	560,000
United States	530,000
Denmark	530,000
France	239,000
Poland	200,000
Germany	185,000
China	119,000
Korea	115,000
Brazil	75,000
Belgium-Luxembourg	70,000
Netherlands	70,000

Source: USDA Foreign Agriculture Service

Key messages:

- Canada, the US, and Denmark are by far the largest exporters of pigmeat in the world. France is more than 300,000 tonnes behind each of these top three countries
- Poland, which may enter the EU in the next 5 years, is the fifth largest exporter in the world
- Brazil, which has been acknowledged as an emerging competitor on the international pigmeat marketplace, is currently the eighth largest exporter in the world

Japan and Mexico are the top US export market destinations. The table below shows the data for the top US export markets in 1999.

Table 94: Top 10 US Export Markets 1999*

Destination Country	Volume (tonnes)	Value ($USD '000)	% Volume Share of Total Exports	% Volume Share of Total Exports
Japan	184,666	$638,961	42.1%	57.5%
Mexico	60,848	$110,682	13.9%	10.0%
Russian Federation**	51,810	$93,824	11.8%	8.4%
Canada	39,727	$94,459	9.1%	8.5%
Taiwan	28,167	$37,935	6.4%	3.4%
Republic of Korea	17,504	$35,272	4.0%	3.2%
Hong Kong	15,973	$19,812	3.6%	1.8%
Philippines***	3,154	$7,796	0.07%	0.07%
Columbia	4,959	$6,341	1.1%	0.06%
Dominican Republic	3,279	$5,500	0.07%	0.05%
Total	**438,683**	**$1,111,393**	**100%**	**100%**

Source: USDA Foreign Agriculture Service
Notes: (*) Excludes variety meats, (**) Includes 47,505 tonnes of food aid (US Meat Export Federation), (***) eighth by value

Key messages:

- Japan is the most significant export market for US pigmeat, representing 42% of total US export volumes
- Japan is the only export market, which has a value share (58%) that exceeds its volume share of total US exports
- Mexico is the second largest export market, representing 14% of export volumes. However, the value of exports to Mexico is only 10% of total US export values
- The top 5 export markets for the US represent 83% of total export volumes and 88% of total export values

Although the US exports nearly half a million tonnes of pigmeat annually, there is still a need for certain parts of the pig to be imported. In 1999, the US imported nearly 400,000 tonnes of pigmeat in 1999.

Table 95: Top 10 Import Markets for Pigmeat 1999*

Country of Destination	Volume (tonnes)
Japan	857,000
United States	375,000
Russia	350,000
Hong Kong	254,000
Korea	160,000
Mexico	100,000
China	80,000
Taiwan	80,000
Canada	67,000
Poland	34,000

Source: USDA Foreign Agriculture Service
Note*: Excludes variety meats

Key messages:

- Japan is the largest importer of pigmeat in the world. Its demand exceeds that of the US and Russia combined
- Hong Kong and Korea are key import opportunities on the world market
- Poland imports less than a quarter of its export volumes, indicating that it has the potential to become self-sufficient, and a significant player on other export markets

The US is the second largest producer of pigmeat in the world. It produces over twice the volume of its nearest follower: Germany. Table x below shows the production volumes, production inventory, and annual slaughter for the top 15 pork producing countries in the world:

Table 96: Top 15 Pork Producing Countries in the World 1999

Country	Production Volume (000 tonnes)	Inventory (000 head)	Slaughter (000 head)
China	39,250	422,563	507,500
United States	8,758	62,206	101,544
Germany	4,110	26,299	44,360
Spain	2,802	21,715	35,117
France	2,386	15,864	27,250
Denmark	1,658	11,991	21,346
Brazil	1,775	31,427	23,352
Netherlands	1,706	13,418	19,500
Poland	1,700	19,275	23,250
Russian Federation	1,490	16,400	27,350
Canada	1,485	12,409	18,261
Italy	1,470	8,225	13,050
Japan	1,280	9,873	16,905
United Kingdom	1,200	7,554	14,730
Belgium - Luxembourg	1,003	7,632	10,785

Source: USDA Foreign Agriculture Service

Key messages:
- The US is the largest producer outside of China
- The EU has five of the top ten pork producing nations in the world
- Poland, which may enter the EU within 5 years is already one of the top ten pork producing countries in the world
- Brazil and Canada have high production capacities ranking seventh and eleventh in the world. There is the potential for either or both of these to become stronger players on the world market in the future

Marketing
The US pork industry has a very strong support network to co-ordinate sales and marketing efforts of the industry as a whole. There are a number of industry organisations, which focus on developing domestic and external markets for US Pork. These key industry organisations are listed below:
- The United States Department of Agriculture, Agricultural Marketing Service (USDA and AMS)
- The National Pork Producers Council (NPPC)
- The American Meat Institute (AMI)
- The United States Meat Export Federation (USMEF)

The USDA is a government agency, which provides support in terms of regulatory affairs, statistical data, and foreign agricultural market development and trade. The AMS would oversee the collection of check-off funds, which support the development of market initiatives and agricultural development strategies for pork producers.

The check-off is a legislatively supported levy paid by pork producers. The levy (0.45% of the market price) is withheld from the payment to producers, and submitted to the AMS Pork Board. From the check-off funds, the budgets for the National Pork Producers Council as well as the individual states' producers councils are provided. The annual budget for the national programme is approximately $US 35 million, while the individual states split roughly $US 15 million. 70% of the check-off funds are designated for demand enhancement initiatives. The check-off levy has been in place for 14 years, during which the growth in market demand has grown dramatically.[31]

The National Pork Producers Council operates on behalf of the nations' pork producers; however, much of the work that the organisation undertakes supports the whole industry. The main functions of the NPPC are as follows:

- Demand Enhancement
- Producer Education
- Legislative Lobby
- Science & Technology
- Research & Development

[31] National Pork Producers Council

The National Pork Producers Council works toward improving consumer demand for pigmeat products, educating producers, providing a voice at the legislative level for the country's 88,000 pig producers, and improving the overall quality of animals and pigmeat products. All producers' in the country are represented by delegates who voice individual state opinions at the national level. The NPPC has headquarters in Des Moines, Iowa, and an office in Washington, DC.

In 1987, the NPPC launched a campaign called "Pork: The Other White Meat". The campaign was aimed at increasing consumer demand through higher visibility advertising, consumer education, and foodservice development. The NPPC provided processors with feedback as to consumer trends and worked with the industry to implement the necessary response to market research. The campaign has been hugely successful, and demand for pigmeat products has experienced a steady increase throughout the 1990s. The campaign used a three-pronged approach to the marketplace:

- Auxiliary services to retailers: consumer trends, advertising, recipe leaflets
- Consumer education: recipe leaflets and health and preparation facts about pork
- Foodservice: top chef recipe contests, targeted efforts to increase pigmeat on catering menus

The American Meat Institute is an industry association representing packers (slaughterhouses) and processors of meat products. AMI also represents suppliers of meat equipment, ingredients, products, and other services. It provides a number of key services including[32]:

- Legislative and Public Affairs
- Regulatory Affairs and Administration
- Convention and Member Services

The US Meat Export Federation works with the various meat industries in the US to identify and develop international markets for US products. USMEF works to increase exports by creating higher visibility of and demand for US meat products. It runs promotions, educational programmes, and advertising and public relations activities. Its headquarters are in Denver, Colorado.

[32] American Meat Institute, Meat and Poultry Facts Handbook

Appendices

5.1 RoI pig production SWOT analysis

Strengths	Weakness
• Highly efficient farms • Modern housing stock • Large average herd size • Good health status • Consumer loyalty to domestic product • Effective quality scheme	• Structurally high feed costs • Non-welfare friendly housing • Non-environmental compliant production • Poor relationships with processors • Variable carcass consistency (weight) • Quality scheme not obligatory • Lack of price transparency • Exposure to entrenched pig cycle • Peripherality to key markets
Opportunities	**Threats**
• Improved processor interface • Mechanism to address pig cycle • Closer co-operation with processor to target new markets • Obligatory quality and traceability scheme • Improved animal consistency • Use of island status to establish and guarantee quality of product	• Cost of environmental compliance • Shortage of spreadlands • Labour cost and availability • Cost of welfare transition (UK or EU) • Age structure of existing producers • Reduced supply of new young farmers • Cost favoured competition from within EU (Spain, Poland) • WTO and GATT reform • Dominance of one price-setting processor

5.2 NI Pig Production SWOT analysis

Strengths	Weakness
• Low dependence on hired labour • Good animal health • Welfare friendly housing in place • Welfare compliant farms • Low pig density	• Structurally high feed costs • Poor relationships with processors • Relatively low efficiency • Exposure to strength of sterling • Variable carcass consistency (weight) • Low relative importance of farming/pig farming in eyes of central government. • Lack of price transparency • Exposure to entrenched pig cycle • Peripherality to key markets • Inability to use bonemeal in feed
Opportunities	**Threats**
Low environmental costs Potential to realise full benefit of access to UK market Improved processor interface Mechanism to address pig cycle Closer co-operation with processor to target new markets Improved animal consistency Use of island status to establish and guarantee quality of product	Cost of transition to welfare housing Decreasing efficiency because of poor transition to welfare housing Labour cost and availability Age structure of existing producers Reduced supply of new young farmers Cost favoured competition from within EU (Spain, Poland) WTO and GATT reform Dominance of one price-setting processor

5.3 RoI producer survey

1. In which county are you located?

Cavan 12.5%	Laois 5%	Roscommon 2.5%
Clare 2.5%	Leitrim 2.5%	Tipperary 15%
Cork 12.5%	Longford 5%	Waterford 10%
Donegal 2.5%	Meath 7.5%	Westmeath 2.5%
Kerry 2.5%	Monaghan 2.5%	Wexford 2.5%
Kilkenny 5%	Offaly 5%	Wicklow 2.5%

Total responses 40

2. What size unit do you operate? (please tick as appropriate)

Sow Places:	NUMBER IN CATEGORY	Finishing places	Number in category	TYPE OF UNIT	
<50 sows	0	150-499	4.4%	Breeding:	
50-99 sows	2.2%	500-999	13.3%	Finishing:	
100-299 sows	31%	1,000-2,999	37.7%	Integrated:	100%
300-499 sows	22.2%	3,000-4,999	20%		
500-999 sows	20%	>5,0000	24.4%		
1000+ sows	24.4%				
Total responses	45	Total responses	45		

3. How many pigs per sow did you sell in 1999?

<20	20	21	22	23	24	>24
	2.2%	27.2%	27.2%	22.7%	11.36	4

Total Responses: 44

4. How many sow/finishers can you farm sensibly currently accommodate (capacity)?

	At full capacity	Spare capacity of 1-5%	Spare capacity of 5-10%	Spare capacity of >10%
Sows	62%	26.6%	8.8%	2.2%
Finishers	64%	24.4%	6.6%	4.4%

Total responses 45

5. How has this capacity changed in the past 2 years?

No change	Reduced Capacity by				Increased Capacity by				
	>20%	10-19%	6-10%	1-5%	1-5%	6-10%	11-15%	16-20%	>20%
71.1%	2.2%	0%	4.4%	6.6%3	6.6%	4.4%	0%	2.2%	2.2%

Total responses 45

6. Do you have plans to change your production capacity in the next 2 years? (Please tick)

Leave Industry	Reduce Capacity by					Increase Capacity by				
	>20%	10-19%	6-10%	1-5%	0%	1-5%	6-10%	11-15%	16-20%	>20%
4%	4%	0%	4%	13%	40%	16%	7%	0%	0%	11%

Total responses 45

7. What effect will the IPC licensing regime and other environmental costs have on your production and costs?

Production impact		Cost impact	
May lead to exiting industry	15%	Will have no effect	13%
Will reduce production	36%	Will add (0-2p/kg)	22%
Will have no effect	44%	Will add (2-5p/kg)	35%
Will still increase production	4%	Will add (5+p/kg)	29%

Total responses 45 Total responses 45

8. What effect will the UK and EU welfare regulations have on your production and costs over the next 5 years?

Production impact		Cost Impact	
May lead to exiting industry	15%	Will have no effect	18%
Will reduce production	40%	Will add (0-2p/kg)	15%
Will have no effect	35%	Will add (3-5p/kg)	31%
Will still increase production	7%	Will add (6+p/kg)	35%

Total responses 45

9. Have you recently made any major capital investment in production capacity?

Date of investment:	1998	9
	1999	6
	2000	4
	N/A	
Amount of investment:	<50,000	3
	50,000 – 149,999	8
	150,000 – 500,000	7
	>500,000	2
Type of investment: *(please tick as appropriate)*	Extra Housing:	16
	Manure Storage	5
	Other environmental compliance expenditure:	5
	Extra housing	6
Future plans to invest	Manure storage	4
	Other environmental compliance capital expenditure:	10

10. What is your breakeven price? (pence/kg)

65-79:

80-84:

65	1	66		67		68		69	
70		71		72		73		74	
75		76		77	1	78		79	
80	1	81		82		83		84	2
85	2	86		87	2	88	1	89	
90	7	91		92	1	93		94	2
95	4	96	1	97		98	3	99	
100	1	101		102		103		104	
105	3	60 - 74	1	75 - 89	9	90 - 100	18	>100	3

11. What % of your feed do you source from feed compounder and what % is home milled?

	<10%	11-20%	21-30%	31-50%	51-75%	76-90%	>91%
Home milled:		1				2	17
Feed compounder:	11					1	22

12. What credit period do you operate with your feed compounder? (please tick one)

Pay on delivery – within 7 days	4
Between 1week and 8 weeks	22
8 weeks to 14 weeks	12
14 weeks to 20 weeks	2
20 weeks and more	2

13. What %of your pigs are sold to your main buyer in an average week (please tick one)

10-50%	
50-75%	9
75- 90%	
> 90%	36

14. On average how long in advance of selling your pigs have you agreed numbers and a price with your main buyer? (please tick one)

Less than 3 days	14
3 days – 7 days	22
7 days – 14 days	6
Greater than 14 days	3

15. What are your feelings on the issue of contracts for sale of pigs or agreed in advance prices or, quarterly/half yearly prices?

(please tick one)

Would never consider the possibility	2
Would not be positively disposed to contracts	2
Would be willing to consider on merits	41

16. What would be your main issues with contracts for sale of pigs or agreed in advance prices or quarterly/half yearly prices?

(please tick all that apply)

Lack of bargaining power in initial negotiations	14
Long and difficult negotiations to agree contracts	10
Reduced flexibility to sell at the best price	16
Potential for being out of sync with the market	17

17. What do you perceive as the strengths & weaknesses of your competitors? (Simply tick if you feel it applies for each country under each heading)

Country:	Strengths:		Weaknesses:	
Denmark	Cost base	26	Cost base	1
	Animal health:	10	Animal health:	9
	Environmental. Regulation:	8	Environmental. Regulation	15
	Welfare Reg.:	16	Welfare Reg.:	8
	Production effectiveness:	16	Production effectiveness:	6
	Government support:	21	Government support:	
Holland	Cost base	27	Cost base	1
	Animal health:	2	Animal health:	19
	Environmental. Regulation	3	Environmental. Regulation	23
	Welfare Reg.:	6	Welfare Reg.:	9
	Production effectiveness:	15	Production effectiveness:	4
	Government support:	14	Government support:	1
USA	Cost base	34	Cost base	1
	Animal health:	8	Animal health:	12
	Environmental. Regulation	18	Environmental. Regulation	3
	Welfare Reg.:	15	Welfare Reg.:	2
	Production effectiveness:	10	Production effectiveness:	14
	Government support:	18	Government support:	
England	Cost base	11	Cost base	15
	Animal health:	4	Animal health:	15
	Environmental. Regulation	8	Environmental. Regulation	9
	Welfare Reg.:	8	Welfare Reg.:	24
	Production effectiveness:	6	Production effectiveness:	12
	Government support:	4	Government support:	8

18. How many people do you currently employ?

0 – 5	28
6 – 10	9
11 – 15	2
16 – 20	3
>20	1

19. Are you currently at full staffing levels?

Yes: 40____

No: 6____

20. What are the main staffing issues you are facing?

(Rank in order of importance 1-5)

Rank order	**1**	**2**	**3**	**4**	**5**
Issue					
Shortage of staff	11	5	4	3	2
Keeping staff	4	7	4	8	3
Worker flexibility (overtime, weekend work)	4	4	4	6	8
Labour costs	12	6	7	1	3
Lack of skilled labour	11	4	3	3	6

21. What are the possible outcomes of your current labour issues?

(Tick one box for each possible outcome)

Probability / **Possible outcome:**	UNLIKELY	Likely	**Certain**
Contraction of production capacity?	14	8	0
Exit certain parts of the business?	16	2	1
Changes in work practices and/or pay structure?	3	17	6
Future investment in automation/technology?	6	8	14

5.4 NI PRODUCERS SURVEY: JULY 2000

Please note not all producers answered all questions

Sample size 30
(specialised: 23, integrated:6)

1. In which county are you located?

Fermanagh	0	Tyrone	9	Antrim	2
Armagh	6	Down	7	Derry	3

2. What size unit do you operate?

Unit Size:	TOTAL NO. SOWS	Unit size	Total No. Finishing Places	TYPE OF UNIT	
<50 sows	2	150-499	5	Finishing	1
50-99 sows	3	500-999	4	Breeding	2
100-299 sows	10	1,000-2,999	10	Integrated	25
300-499 sows	6	3,000-4,999	2		
500-999 sows	5	>5,0000	4		
1000+ sows	1				

3. How many pigs per sow did you sell in 1999?

<20	20	21	22	23	24	>24
1	4	7	9	6		

4. How many sow/finishers can you farm sensibly currently accommodate (capacity)?

	Full capacity	Spare capacity of 1-5%	Spare capacity of 5-10%	Spare capacity of >10%
Sows	18	1	4	5
Finisher	18	2	3	3

5. How has this capacity changed in the past 2 years?

No change	Reduced Capacity by				Increased Capacity by				
	>20%	10-19%	6-10%	1-5%	1-5%	6-10%	11-15%	16-20%	>20%
21					5	2		1	

6. Do you have plans to change your production capacity in the next 2 years? (Please tick)

Leave Industry	Reduce Capacity by				No change	Increase Capacity by				
	>20%	10-19%	6-10%	1-5%	0%	1-5%	6-10%	11-15%	16-20%	>20%
		1	1		18	4	1	2		1

7. Genetics: Do you buy in genetics or do you use specialised herds

Buy in 11	Specialised herds 3	Mixed 2

8. What is your breakeven price? (St pence/kg)

45-65p	2	66-75p	3	76-85p	9	86-93p	8	Replies : 22

9. Have you recently made any major capital investment in production capacity?

Date of investment:	1998	3
	1999	2
	2000	2
Amount of investment:	<100,000	4
	100,000 – 200,000	4
	200,000 – 300,000	1
	>300,000	
Type of investment:	Housing	9

10. What environmental issues have had the most impact on pig farming in the NI?

Loose Housing 15	Meat and bone ban 1	Disposal charges 6

11. What effects are current environmental regulations (disposal charges etc) having on your production and costs?

(please tick as appropriate)

Effect on production		Effect on cost	
Have/are considering exiting the industry	2	No effect	4
Will reduce production	6	Will add St (0-2p/kg)	3
Will have no effect	16	Will add St (2-5p/kg)	15
Will still increase production	2	Will add St (5+p/kg)	3

12. What effect has the UK/supermarket welfare regulations had on your production and costs?

Effect on production		Effect on cost	
Have/are considering exiting the industry	1	No effect	1
Has reduced production	7	Will add St (0-2p/kg)	3
Has had no effect on production	16	Will add St (2-5p/kg)	17
Production has increased despite regulations	1	Will add St (5+p/kg)	3

13. What % of your feed do you source from feed compounder and what % is home milled?

	<10%	11-20%	21-30%	31-50%	51-75%	76-90%	>91%
Home milled:	10					2	12
Feed compounder:	3	1					14

14. What credit period do you operate with your feed compounder?

Pay on delivery – within 7 days	1
Between 1week and 8 weeks	8
8 weeks to 14 weeks	5
14 weeks to 20 weeks	
20 weeks and more	2

15. What % of your pigs are sold to your main buyer in an average week?

10-50%	1
50-75%	1
75- 90%	1
> 90%	24

16. On average how long in advance of selling your pigs have you agreed numbers and a price with your main buyer?

	Numbers	Price
Less than 3 days	3	12
3 days – 7 days	18	16
7 days – 14 days	1	
Greater than 14 days	6	

17. What are your feelings on the issue of contracts for sale of pigs or agreed in advance prices or, quarterly/half yearly prices?

Would never consider the possibility	0
Would not be positively disposed to contracts	2
Would be willing to consider on merits	26

18. What would be your main issues with contracts for sale of pigs or agreed in advance prices or quarterly/half yearly prices?

Lack of bargaining power in initial negotiations	10
Long and difficult negotiations to agree contracts	6
Reduced flexibility to sell at the best price	15

19. What do you perceive as the strengths & weaknesses of your competitors? (tick if you feel it applies for each country under each heading)

Country:	Strengths:		Weaknesses:	
Denmark	Cost base	19	Cost base	2
	Animal health:	2	Animal health:	16
	Environmental. Regulation	4	Environmental. Regulation	14
	Welfare Reg.:	4	Welfare Reg.:	14
	Production effectiveness:	18	Production effectiveness:	2
	Government support:	20	Government support:	
Holland	Cost base	17	Cost base	2
	Animal health:	2	Animal health:	16
	Environmental. Regulation	3	Environmental. Regulation	15
	Welfare Reg.:	1	Welfare Reg.:	16
	Production effectiveness:	19	Production effectiveness:	
	Government support:	20	Government support:	
USA	Cost base	17	Cost base	1
	Animal health:	3	Animal health:	15
	Environmental. Regulation	1	Environmental. Regulation	18
	Welfare Reg.:		Welfare Reg.:	18
	Production effectiveness:	10	Production effectiveness:	8
	Government support:	19	Government support:	
RoI	Cost base	15	Cost base	2
	Animal health:	4	Animal health:	8
	Environmental. Regulation	12	Environmental. Regulation	6
	Welfare Reg.:	4	Welfare Reg.:	14
	Production effectiveness:	18	Production effectiveness:	1
	Government support:	20	Government support:	

20. How many people do you currently employ?

0	3	1	8	2	6	3	1	4	3
5	1	6	1	7		8	1	9	

21. What are the main staffing issues you are facing?

(Rank in order from most important (1) to least important (5)

Rank order	1	2	3	4	5
Issue					
Shortage of staff	6	7	4		1
Keeping staff	1	6	4	3	3
Worker flexibility (overtime, weekend work)	1	1	2	7	6
Labour costs	5	1	4	3	5
Lack of skilled labour	9	3	3	3	

22. Are you currently at full staffing levels?

Yes: 23

No: 5

23. What are the possible outcomes of your current labour issues?

Probability	UNLIKELY	Likely	**Certain**
Possible outcome:			
Contraction of production capacity?	13	2	
Exit certain parts of the business?	15	1	1
Changes in work practices and/or pay structure?	6	10	
Future investment in automation/technology?	6	6	4

24. What are the main animal health issues facing you right now?

Sows fighting at meal time	1	Pneumonia	5
Disease	1	Abortion	1
Blue Ear	3	Fertility in Sows	2
Aujesky's	3		

25. What is the average weight of pigs that you produce and

65	1	66		67		68	3	69	1
70	4	71	4	72	5	73	2	74	4
75		76		77		78		79	
80	1								

26. Percentage of all pigs that vary by more than +-5% from the average weight kg/dwt:?

Percentage that vary by more than 5% from average weight									
>5%	11	10-14%	6	15-19%	1	20-24%	1	25	1
30	3	35		40	1	45		50	

5.5 Overview of the cooked meat sector on the Island of Ireland

A recent report has been produced on the cooked meat sector on the island of Ireland. We have summarised some of the key points from the report, which have direct relevance to the pig meat industry.

Consumer trends

- The growth of cash rich and time poor consumers on the island of Ireland who are increasingly seeking food solutions that are convenient, take less time to present at the table and offer a range of experiences and taste
- Less formal eating in the home and an increase in snacking.
- A move toward individual food solutions where each member of the household may have different requirements at different times of the day
- The increasing affluence of consumers have allowed them to spend more on food and in many cases be more indulgent in choosing more expensive or exotic products
- Concerns over food safety and health has facilitated the growth in products targeting healthier food – low fat, low salt additive free etc.
- Food scares such as BSE and salmonella have created demand for organic foods and for traceability of raw materials used in food production
- Consumers are also becoming more aware of environmental issues such as packaging and waste disposal and the effects that processing methods may have on the environment.

Retail trends

- Continued growth in the market share controlled by British multiples
- Entry of German discounters (Aldi and Lidl) into the retail market
- Reinvestments in the sector in the form of new layouts and regard to the cooked meats and new deli counter service (Typically prepacked products return a gross margin 0f 18-20%, deli counter loose products achieve gross margins of 25-35% with speciality niche products returning 35-40% gross
- Retailers will require suppliers to display the financial and technical ability to promote and support the product through advertisement, in store tasting, special offers and point of sale support materials
- Efficient Consumer Response (ECR) as an operations model is fast becoming the standard that many retailers wish to implement in the value chain. This system or process requires that retailers and suppliers be in constant contact in regard to ordering, stock levels and invoicing. As this system is implemented it will be a necessity that suppliers are in a position to communicate to the retailer electronically. Those who do not progress to this form of communications will be in danger of being de-listed

Product trends

- In the cooked meat sector, premium quality products both in pre-pack and deli counter formats are achieving growth of 20% against an overall growth rate of 7-8% in Republic of Ireland. The growth rate in Northern Ireland is modest in the pre-packed segment and there are indications that the market for deli meats is in fact contracting.

- The cooked meat sector is valued at approximately IR£90-100 million in Republic of Ireland and £25-30 million in Northern Ireland Pre-packed products make up 30-40% of the total retail sales and deli counter products represent 60-70%. Ham products account for over 70% of this market.

- There is a shift to premium quality products that have less fat, reduced water content and reduced salt. The presentation of these products has also changed from the traditional pre-pack format of 4*4 to a more carved look.

- Packaging trends have also changed dramatically in recent years with gas flush packaging being largely displaced by resealable packaging, which increases the life of the product after the pack has been opened. However, manufacturers are questioning the economics of supplying small quantities of cooked meats in this relatively expensive packaging format.

- Branding deli counter products has become more difficult and there is a tendency by multiples to promote higher margin own label product.

- Consumer concerns with the level of additives used in products and food safety issues have resulted in demands for product labels to contain ever-increasing amounts of information. This trend add significant costs to producers

- The single most important criteria for achieving a new listing with major retailers is that the product must have some innovation or value-added aspect to the offering. "Me too" products offer no additional benefit to the consumer or the retailer have little chance of success in an environment where the number of similar products is being reduced.

Future trends and opportunities in the cooked meats sector

- Own label market share of the cooked meats market in Ireland will most likely track own label share in the UK market where total delicatessen foods own label product have achieved 56% share.

- Research conducted into the European retail market concludes that own label share of the grocery trade is set to increase from 25% to 30% in 2002. These trends are likely to be mirrored in Ireland.

- Further rationalisation if the grocery market is likely in the short term and may involve the sale of one of the retail groups to a US or GB multiple.

- Central distribution is well advanced in the Northern Ireland market and is in the process being implemented by retailers in Republic of Ireland. In the short term retailers in Republic of Ireland are using or intend to use a single agent for the distribution of frozen and chilled product. This development will facilitate the reduction of "me too" products.

- Indigenous retailers both multiples and symbol groups will enter into buying partnerships with major European alliances in order to compete against GB multiples. This will induce downward pressure on prices and force Irish manufacturers to reduce costs in order to compete on the home market

- The power of the retailers in the purchasing relationship with the suppliers is set increase even further.

- The opportunities for new innovative products in this sector seem to be very limited at present. The larger Irish food processors are competing in the UK markets against domestic and international suppliers and this will require significant investment and management skill to achieve and sustain product excellence and innovation, strong relationship management and competitiveness.

- Smaller processors need to develop niche products that do not have the volume to attract the attention of the larger players. The area of organic products with full traceability and certification is a worthwhile niche market.