

FAPRI-Ireland Partnership



Baseline 2008 Outlook for EU and Irish Agriculture

Teagasc Rural Economy Research Centre

September 29th 2008

ISBN XXXXXXXXXXX

Tel: + 353 (0)91 845 200
Fax: + 353 (0)91 844 296
<http://www.teagasc.ie>
<http://www.tnet.teagasc.ie/fapri>

Rural Economy Research Centre
Teagasc
Athenry
Galway
IRELAND

FAPRIireland
Policy Analysis for the Irish Agri-food sector

Contributors



Julian Binfield

binfieldj@missouri.edu

Julian works on the FAPRI EU modelling system. He was a member of the FAPRI-Ireland team at Teagasc with responsibility for the beef and sheep sectors over the period 1997 to 2001, before moving to FAPRI at the University of Missouri, Columbia.



Trevor Donnellan

trevor.donnellan@teagasc.ie

Trevor is responsible for the dairy and pig sector modelling as well as for the modelling of agricultural inputs and incomes for the FAPRI-Ireland Partnership. He is a researcher at the Rural Economy Research Centre, Teagasc. He joined the team at Teagasc in 1998. He also manages the FAPRI-Ireland website. His previous research experience was in the area of Input-Output analysis.



Kevin Hanrahan

kevin.hanrahan@teagasc.ie

Kevin specialises in modelling livestock markets. He is responsible for the beef, sheep, poultry and cereals sector projections as part of the FAPRI-Ireland Partnership. Kevin joined the staff of the Rural Economy Research Centre in 1995 and worked at FAPRI-Missouri over the period 1996-2000.



Patrick Westhoff

westhoffp@missouri.edu

Pat is Program Director for International Affairs at the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri. Prior to joining FAPRI-Missouri in August 1996, Pat served four years as the chief economist for the Democratic staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry.

Preface

This 2008 Outlook for Irish and EU agricultural markets is produced by staff at the Rural Economy Research Centre, Teagasc, Ireland, in conjunction with our partners at the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri in the USA. The study presents a Baseline (*status quo*) policy view of the agriculture sector over the next ten years assuming normal weather conditions.

In this study the EU GOLD (grains, oilseeds, livestock and dairy) model is used to produce a ten-year 'Baseline' projection for the main agricultural commodities. It is linked to the FAPRI world modelling system and so takes account of, and contributes to, the projections for prices obtained and quantities traded on world markets.

Although the 'Baseline' represents a projection of commodity prices, production and quantities traded, readers should note that these projections of the future are not the main aim of the FAPRI system. The main purpose of the FAPRI system and the FAPRI-Ireland Partnership is the analysis of policy measures, either proposed or actual, and the quantitative measurement of the effects of policy changes *relative to the Baseline*. The Baseline projections allow us to highlight key medium term market developments and draw some conclusions about future policy developments and their likely impact on Irish agriculture. The Baseline projections in this publication are not 'forecasts' or 'predictions'. They are projections made by applying a well defined set of assumptions to our commodity models. These models have been developed based on our knowledge of the economics of agricultural commodity markets.

Of course possible policy changes, such as the World Trade Organisation (WTO) Doha Development round, are also on the horizon. Such policy changes have the potential to change the face of the Baseline presented here. Another of our publications will detail the scenarios that have been examined in 2008. These relate to trade reforms which could come about under a WTO agreement.

Since the publication of our 2006 and 2007 Baseline outlooks, international commodity markets have remained very volatile. The after effects of abnormal weather continue to depress production growth for some commodity sectors. The expansion in the production of biofuels continues. Stocks for a number of commodities remain at historically low levels. Petroleum and natural gas prices continue to remain volatile and are at a much higher level than would have been the case even two years ago. Growth in China and India remains strong, while the credit crunch and energy inflation have pushed a number of developed economies to the brink of recession. Input costs for items such as fuel and fertiliser have risen at a rate that is higher than had been anticipated.

Against this background there have been protests and riots in close to 40 countries in reaction to the increased cost of food. In spite of the high food prices, the rate of food consumption growth for many agricultural commodities remains strong. We are likely to see a medium term Baseline price outlook which for many commodities is more favourable, from a producer perspective, than indicated earlier in the decade.

The compilation of this Baseline continues to be complicated by the need to get up to date market data. Increasingly, we are gathering data on market activity from unofficial sources due to the absence of timely official published data. Every effort has been made to try to ensure that unofficial data sources are matched in definitional terms with the historical official data series used as part of the structure of our economic models. To the extent that these data estimates do not accord with the official sources, when they become available, this will impact on the Baseline we have produced. Data that was available up to July 2008 has been incorporated in this analysis.

Acknowledgements

The development of the Baseline for the analysis contained in this publication has benefited from the input of a large number of industry professionals. In particular we would like to thank staff at the Department of Agriculture, Fisheries and Food.

Thanks to our colleagues Julian Binfield and Patrick Westhoff of FAPRI-Missouri, and our former colleague Robert Young, without whom the work of the FAPRI-Ireland Partnership would not have been possible.



Trevor Donnell
FAPRI-Ireland Partnership



Kevin Hanrahan

Published on September 29th 2008

Rural Economy Research Centre
Teagasc - Atherny
Galway
IRELAND.



ISBN xxxxxxxxxxxxxx

This publication, plus other work from the FAPRI-Ireland Partnership are available on our website at: <http://www.tnet.teagasc.ie/fapri>

Glossary of Terms

AI	Avian Influenza
BSE	Bovine spongiform encephalopathy
CAP	Common Agricultural Policy
DDA	Doha Development Agenda
DDG	Dried Distillers Grains
€	Euro
EISA	Energy Independence and Security Act
EU	European Union
EU10+2	European Union Member States that have joined the EU in the period 2004 to 2007
EU15	European Union of 15 Member States
EU25	European Union of 25 Member States
FAPRI	Food and Agricultural Policy Research Institute
GDP	Gross Domestic Product
GOLD	Grains, Oilseeds, Livestock and Dairy
Hd	Head
Kg	Kilogramme
Mt	Metric Tonne
MTR	Mid Term Review of the Common Agricultural Policy
MS	Member State (EU)
MTBE	Methyl tert-butyl ether (C ₅ H ₁₂ O)
NAMA	Non-Agricultural Market Access
NMS	New Member States (EU)
REPS	Rural Environmental Protection Scheme
SFP	Single Farm Payment
SPS	Sanitary and Phytosanitary Standards
SMP	Skimmed Milk Powder
Teagasc	Irish Agriculture and Food Development Authority
TRQ	Tariff Rate Quota
OECD	Organisation for Economic Co-operation and Development
URAA	Uruguay Round Agreement of Agriculture
UK	United Kingdom
\$	US Dollar
WMP	Whole Milk Power
WTO	World Trade Organisation

Executive Summary

Baseline

This report provides analysis of the prospects for the agricultural and food sectors in Ireland and the EU for the period 2008 to 2017. As its starting point it uses a 'Baseline' (i.e. no policy change) projection for the major agricultural markets. Two possible World Trade Organization (WTO) trade policy scenarios are analysed against this Baseline but these are reported separately in Binfield *et al.* (2008).

The FAPRI-Ireland Baseline 2008 incorporates:

- The accession of 12 new Member States (NMS) to the EU (including Bulgaria and Romania).
- Differential Member State (MS) implementation of the reformed Common Agriculture Policy (CAP) as agreed in 2003.
- The introduction of the additional 2 percent increase in milk quota agreed in March 2008.
- Weather is assumed to follow its historical average.

While inflation is fully taken into account in developing these projections, as a factor affecting production costs, all values presented in this executive summary are in nominal terms. This is in keeping with the fact that markets trade in nominal prices. Of course inflation also impacts on purchasing power and thus should be taken into account when measuring future nominal income levels relative to existing levels.

From both a global and EU perspective, increased volatility in agricultural commodity prices will be a feature of the future. This volatility on agricultural markets is a consequence of low global stocks to use ratios, the increased prevalence of unusual weather events and volatility in energy prices.. While volatility in world agricultural commodity prices is not unusual, CAP instruments largely insulated the EU from this volatility in the past. However, CAP policy is evolving and is less likely to play this protective role in the future.

The Baseline Policies

The agricultural policy assumptions in the Baseline are:

- The CAP is that agreed in the Luxembourg Agreement of June 2003.
- Differential national level implementation of the CAP, as allowed for under the Luxembourg Agreement, is incorporated in the FAPRI-Ireland model.
- The expansion of the EU that occurred on May the 1st 2004 with the accession of 10 new Member States is incorporated in the Baseline. The accession of Bulgaria and Romania on January the 1st is now now also incorporated in the FAPRI-Ireland model.
- The Uruguay Agreement on Agriculture (URAA) remains in place, i.e. no Doha Round Agreement occurs.
- The 2 percent increase in milk quota agreed in March 2008 is implemented but no further increases in quota are introduced over the Baseline projection period.
- Milk Quotas remain in place and continue to operate beyond 2008, i.e. to the end of the FAPRI-Ireland projection period in 2017. While this is unlikely to be the case, the assumption is necessary here in order to avoid later confusion in measuring both the impacts of WTO reform and milk quota elimination in the scenarios examined in our WTO Text (Binfield *et al.* 2008)
- The set-aside derogation agreed by the EU Council of Ministers in September 2007, applies for 2008 and is assumed to be retained for the rest of the Baseline projection period.
- The 5 year Suckler Cow Welfare Scheme introduced in 2008 is incorporated in the Baseline. The scheme ends in 2012.

FAPRI-Ireland Baseline 2008 Results

General Remarks

- In 2007 there was unprecedented volatility on World and EU commodity markets. Much of this has been attributed to increased demand for biofuels and growing incomes in Asia, but weather problems and oil price increases have been of comparable importance and volatility is likely to continue.
- The Baseline cannot itself address this volatility as its main purpose is as a benchmark against which alternative policy options can be evaluated. In terms of future uncertainty, crude oil prices are a case in point. Medium term projections for oil prices by various macroeconomic forecasting groups 12 months ago would have been below \$100 US dollars per barrel while more recently available projections would indicate a price in the \$100 to \$120 per barrel range.
- At the time of writing (August 2008) crude oil prices are about \$115 per barrel. Biofuels policies mean that agricultural markets are increasingly integrated with energy markets, and so when the Baseline is generated with higher crude oil price projections, then crop prices and therefore livestock prices would themselves be higher.

Milk Sector

- When compared to the historically high prices observed in 2007, the projected prices in 2017 of dairy commodities in the EU are lower. Due to the exceptional, and arguably unusual, circumstances of 2007 for the dairy sector, dairy projections for the future are compared with the outcomes observed in 2006.
- Over the medium term, strong international demand, a continuing decrease in EU dairy exports, slower expansion in worldwide dairy production and historically low stock levels, all contribute to higher international dairy commodity prices than have been projected in previous Baseline analyses.
- Under the Baseline, by 2017, EU dairy product prices are projected to decrease from the very high levels observed in 2007, but are projected in general to be higher than the levels observed in 2006.
- At EU level the average milk prices is projected to be € 28.7 per 100kg in 2017 under Baseline policies.
- A farm level Irish milk price of € 26.7 per 100kg by 2017 is projected under the Baseline.
- The value of output of the dairy sector is projected to be over 7 percent higher in 2017 when compared with 2006 (or a decline of 15 percent relative to 2007).

Beef Sector

- An important consideration with respect to the outlook for the beef sector across the EU and Ireland is the effective current restriction on imports of Brazilian beef into the EU. It is assumed that Brazilian beef returns to the EU market slowly over a three year period from 2009 and does not reach 2007 levels until 2012. If Brazilian beef imports return the EU market at an earlier stage then, other things being equal this will lead to lower EU and Irish beef prices and beef production.
- Beef output from the EU dairy herd declines due to the contraction in dairy cow numbers. At the same time consumption remains relatively stable. As a consequence imports increase and exports decline and the EU beef net trade position becomes increasingly negative over the Baseline projection period. This means that over the Baseline period, as EU beef markets tighten, the Baseline cattle prices are projected to increase.
- Over the Baseline projection period (2007 to 2017) the EU27 suckler cow herd increases by 9 percent. This increase in the suckler cow herd in the EU over this period reflects the influence of strong market prices and the continued full coupling of the Suckler Cow Premium in some EU Member States.
- Despite the decoupling of all other payments, the introduction of the coupled Suckler Cow Welfare Scheme in Ireland slows down the decrease in suckler cow numbers in Ireland over the period to 2013, since the payment has a positive impact on suckler cow returns.
- However, in spite of the Suckler Cow Welfare Payment, over the Baseline projection period (2007 to 2017) Irish suckler cow numbers are projected to still decrease by 10 percent.

- Over the Baseline period EU27 beef production declines by 3 percent and Irish beef production declines by over 13 percent.
- EU beef imports increase as the indigenous EU supply of beef contracts. By 2017 EU beef imports increase by over 20 percent relative to the 2007 level, reaching 800 thousand tonnes. EU beef exports decline by over 55 percent to 25 thousand tonnes, reflecting the lower availability of EU beef for export.
- EU beef prices increase over the projection period. The EU average R3 young bull price in 2017 is projected to be 11 percent higher than the level observed in 2007.
- The Irish beef price increases relative to the levels observed in 2007. By 2017 the Irish R3 steer price is projected to be almost 8 percent higher. This projected development reflects the higher beef prices on the EU market.
- In Ireland the combination of a decline in the volume of beef produced, and increasing cattle prices, produce a decrease in the value of output from the Irish beef sector over the Baseline projection period. The value of the output produced by the Irish beef sector in 2017, at €1,489 m, is approximately 1 percent higher than the value of output produced by the sector in 2007.

Sheep Sector

- The decoupling of the ewe premium across the EU has led to declining ewe numbers. Under the Baseline, ewe numbers in 2017 at EU level are projected to be 3 percent lower than in 2007, as strong prices slows the decrease in numbers.
- Irish ewe numbers are projected to decline by 7 percent between 2007 and 2017. This projected contraction represents a significant slow down in the rate of decline when compared with the rate of decline observed over the period 2001 to 2007.
- Declining stocks of breeding ewes lead to a decline in overall lamb production in the EU and Ireland.
- EU sheep meat production is projected to increase by 4 percent over the period 2007—2017. Irish lamb production, under the Baseline, is projected to decline by 13 percent.
- The apparent divergence between the decline in lamb production in Ireland and the smaller projected decline in ewe numbers is due to the base year used in our analysis. In 2007 high levels of ewe slaughter and non-replacement of breeding ewes led to an increase in sheep meat production. With lower breeding stocks and associated lower lamb production, total sheep meat production over the Baseline declines.
- The contraction of indigenous EU supply of lamb, under the Baseline, increases the EU demand for imported lamb. EU lamb imports increase by more than 11 percent over the Baseline period.
- Irish lamb exports decline more than 20 percent between 2007 and 2017 due to the combination of declining production and increased domestic consumption.
- EU lamb prices are projected to increase over the Baseline projection period as domestic use contracts at a slower rate than the decline in production. The 2017 EU sheep meat reference price is projected to be 8 percent above the level observed in 2007. Irish lamb prices are also projected to increase over the Baseline projection period, with the level projected for 2017 at about 6 percent higher than the level observed in 2007.
- Overall, the value of output from the Irish sheep sector in 2017, at € 179 m, is projected to be 2 percent lower than in 2007. Sheep meat prices increase, and the much lower stock change values (which are incorporated in sector output values) that partially offset the decline in the volume of lamb produced.

Pigs

- The outlook for the EU pigs sector is heavily conditioned over the short term by high feed prices, which are set to prevail throughout the projection period. These high feed prices lead to a contraction in production at both the EU level and in Ireland. In response to this decrease in production, prices improve and EU production recovers later in the projection period.

- EU pig meat prices are 12 percent higher at the end of the projection period, while pig meat prices in Ireland are also 12 percent up on the 2007 level by 2017.
- Pig production in Ireland is projected to struggle to recover from the impact of high feed prices. The implementation of the Nitrates Directive in 2011 is set to increase production costs and cause some producers to contract or exit the sector.
- By the end of the projection period, EU pig meat production is unchanged on the 2007 level. Increased domestic consumption, of approximately 3 percent, means that EU pig meat exports decline by 30 percent by the end of the projection period. EU imports of pig meat remain relatively unchanged by the end of the projection period.
- The decline in Irish pigmeat production is accompanied by an increase in Irish pigmeat consumption of 10 percent and hence Irish pigmeat exports contract by over 35 percent by 2017 relative to 2007.
- Overall, under the Baseline, the value of output from the Irish pig sector is projected to decrease to €265 m by 2017, representing a drop of 8 percent over the period 2007 and 2017.

Cereals and other Arable Crops

- With the increased use of crops for energy production, prospects for grain markets are increasing being influenced by energy prices. Crude oil prices in 2008 have remained above most energy market analysts' expectations 12 months ago and this means that ultimately EU grain price in 2008 are likely to be higher than the prices used in our analysis.
- Under the Baseline, we project a continuation of high prices for cereal and oilseeds and therefore we assume that the zero rate of set-aside will continue for the rest of the projection period.
- Biofuel policy continues as an important driver of change. Though EU biofuels production increases, it does not increase to the full extent required to meet the targets set out in the EU biofuels directive (Directive 2003/30), or the higher targets set out in the proposal for a directive on the promotion of the use of energy from renewable sources.
- Give the very exceptional rise in cereal prices in 2007, we make comparisons between projections for 2017 and the average level for 2004 to 2006.
- High prices, favourable weather, and setting set aside to zero lead to a further increase in EU cereal areas in 2009, before a moderation of prices leads to a leveling off in growth in cereal areas. By the end of the projection period there is an increase in area of 1 per cent in the case of wheat and 2 percent in the case of barley, while maize area contracts by 6 percent.
- Under the Baseline, EU soft wheat prices are projected to increase by 30 percent relative the average recorded in the 2004 to 2006 period. EU barley prices by 2017 are expected to be 42 percent higher than the average price prevailing over the period 2004 to 2006. While EU maize prices are projected to be almost 18 percent higher in 2017 than over the period 2004 to 2006.
- Irish wheat area harvested is projected to increase by 17 percent, while the barley area harvested is projected to increase by 10 percent relative to the average area over the 2004 to 2006 period.
- Maize area is also set to increase, although data limitations prevent explicit modelling of (green) maize production in Ireland
- By 2017 under the Baseline, Irish wheat and barley prices are projected to be 24 and 26 percent higher than the average of the wheat and barley prices over the period 2004 to 2006.
- Overall, under the Baseline, the value of output from the Irish cereals sector is projected to dramatically increase relative to the 2004-2006 level, with the figure in 2017 more than 85 percent higher than the average level over the period 2004-2006 (a 5 percent increase on the 2007 level). This very strong growth reflects the persistence of high price levels over the Baseline projection period and a projected positive response by Irish farmers' to improved returns.

Outputs, Inputs and Sectoral Income

- The value of overall agricultural goods output (at producer prices) declines under the Baseline. The level projected for 2017 under the Baseline is €5,546 m, a decrease of 2 percent relative to the 2007 level.
- Under the Baseline declining levels of agricultural activity, as reflected in declining agricultural output volumes, are reflected in declining aggregate expenditure on inputs by the Irish agricultural sector.
- Some key expenditure items such as Fertiliser and Energy and Lubricants are projected to increase over the projection period. In the case of Energy and Lubricants, expenditure is projected to increase by 10 percent over the projection period, while fertiliser expenditure increases by over 13 percent.
- Expenditure on feed declines over the projection period by 13 percent relative to the 2007 level but this is mostly due to lower feed use as dairy, beef and pig numbers decline.
- Over the short term, subsidy payments increase due to the introduction of the Suckler Cow Welfare Scheme, which is assumed to operate to 2013. Subsidy payments decline when the Suckler Cow Welfare Scheme ceases and subsidy payments are largely unchanged over the period 2013 to 2017. One notable exception is an anticipated increase in rural environment protection scheme (REPS) expenditure, reflecting a projected increase in REPS participation.
- Total subsidy receipts by Irish agriculture are projected by 2017 to account for 81 percent of sectoral income. This is an increase on the 2007 level where subsidies accounted for 68 percent of agricultural sector income.
- Overall, when declining agricultural output value and increasing input expenditure are combined with a modest increase in subsidy receipts, Irish agricultural sector income under the Baseline is projected to decrease when compared with the high level of the 2007 base year. By 2017 the projected level of Irish agricultural sector income of €2,410 m is almost 11 percent lower than the level observed in 2007

- ENDS -

FAPRI-Ireland

2008 Outlook for EU and Irish Agriculture

Julian Binfield, Trevor Donnellan, Kevin Hanrahan and Patrick Westhoff

Things that can't go on forever, don't

Herbert Stein

1 Introduction

International commodity markets continued to experience a high level of price volatility in 2008. The year began with prices at an elevated level in dairy, cereal and oilseeds markets. The onset of SPS restrictions on Brazilian beef imports into the EU has contributed to a gradual increase in EU beef prices as the year has progressed. However, in the dairy sector, there are already signs that prices are decreasing towards a level which is closer to normal.

Feed costs, which rose sharply through 2007, continue to remain elevated and pose a major problem for grain based livestock producers. Fertiliser costs have risen very sharply due to tight supplies, strong demand and rising production costs. Energy prices continue to move upwards, tracking the progression of rising crude oil and natural gas prices. To some degree these cost increases have been offset by a strong euro currency, but by the same token the strong euro is having a negative impact on the international competitiveness of EU agri-food exports.

Since the publication of our 2007 Baseline outlook (Binfield *et al.*, 2007a), international commodity markets have experienced considerable change. A series of factors, including abnormal weather, a surge in biofuel production, depletion of commodity stocks, sustained high energy costs and strong international macroeconomic growth have combined to alter the projected rate of production growth and increase the projected growth rate of consumption for a number of agricultural commodities.

With the recent advent of the international credit crunch and the downturn in property and equity markets, investors have shown increased interest in commodities, and green commodities in particular. The increased flow of funds into this area is considered by some to be contributing to the current volatility in commodity markets.

Against this background, projecting the future outlook for the various agricultural sectors and commodity markets is particularly challenging. The time lag between markets events and market data describing the circumstances behind these events is critical and contributes to the difficulties associated with modelling future prospects over the short to medium term.

This report provides analysis of the prospects for the agricultural and food sectors in Ireland and the EU for the period 2008 to 2017 and represents a 'Baseline', i.e. no policy change, projection for the major agricultural markets. In broad terms, from a producer's perspective, the medium term Baseline price outlook for many agricultural commodities remains positive. Readers should, however, recall that the Baseline is not a forecast, because there will be changes in agricultural and trade policy, developments in the overall economy, and unanticipated weather events that will impact the future outturn of production, demand and prices. The principal use of this set of Baseline projections is as a benchmark against which to measure the impact of policy changes on Irish agriculture.

While inflation is taken into account as a factor affecting production costs, all values presented in this executive summary are in nominal terms, in keeping with the fact that markets operate on the basis of nominal prices. Of course inflation also impacts on purchasing power and thus should be taken into account when measuring future nominal income levels relative to existing nominal income levels.

The remainder of this report is presented in the following sections:

- Section 2 provides a background to the Baseline. It also presents some important caveats which need to be borne in mind when interpreting the results that are presented later in the text.
- Section 3 describes the macroeconomic perspectives which underlie the Baseline projections.
- Section 4 describes the Baseline agricultural and trade policy assumptions used in this Baseline analysis.
- Section 5 describes the Baseline commodity sector results, as well as results for aggregate agricultural sector output, input expenditure and sector income in Ireland. It also comments on the importance of the Baseline in the context of the analysis of other policy scenarios.

It is important to emphasise that this is a Baseline. It is analogous to the concept of a control experiment in the physical sciences. Its main purpose is to help us understand where the agricultural sector might be ten years from now if policies did not change. In a related publication (Binfield *et al.*, 2008) we examine the outlook under a series of alternative policy assumption sets that relate to possible outcomes to the Doha Development Round of the World Trade Organisation (WTO), by reference to this Baseline, we can then infer the impact of the agricultural trade policy changes analysed on agriculture.

In 2007 there was unprecedented volatility on World and EU commodity markets. Much of this has been attributed to increased demand for biofuels and growing incomes in Asia, but weather problems and oil price increases have been of comparable importance and volatility is likely to continue.

The Baseline cannot itself address this volatility as its main purpose is as a benchmark against which policy can be evaluated. In terms of future uncertainty, crude oil prices are a case in point. Medium term projections for oil prices by various macroeconomic forecasting groups 12 months ago would have been below \$100 US dollars per barrel while more recently available projections would indicate a price in the \$100 to \$120 per barrel range.

At the time of writing (August 2008) crude oil prices are about \$115 per barrel. Biofuels policies mean that agricultural markets are increasingly integrated with energy markets, and so when the Baseline is generated with higher crude oil price projections, then crop prices and therefore livestock prices would themselves be higher. An updated set of Baseline projections will be available before the end of 2008.

2 Background Issues and Definition of the Baseline

2.1 Recent Events on Agricultural Markets

It is no exaggeration to state that the confluence of factors that have recently led to historically high levels of world agricultural commodity prices was unprecedented. The key question for international, EU and Irish agricultural commodity markets and for Irish agricultural sector incomes, is the degree to which these factors can be expected to persist or can be considered as transitory. In particular, the impact which weather may have on future production remains an important source of uncertainty.

Biofuels have received a lot of attention and widespread blame for the continued high commodity price levels¹. The USA has led the way in biofuel production and legislation in the US led to the replacement of the additive MTBE with ethanol, causing a spike in ethanol prices that prompted even faster development of ethanol production facilities. Subsequent demand for maize increased maize prices, which has prompted a large increase in maize area. The recent US Energy Independence and Security Act (EISA) looks likely to ensure that US biofuel demand for maize will continue to grow (Westhoff, Thompson and Meyer, 2008).

The EU has also been rapidly expanding its biofuels output in the form of biodiesel and is considering increasing the target levels of biofuel inclusion in transport fuels. This has had a direct impact on the oilseed market resulting in large price increases for vegetable oils and oilseeds. More recently

¹ See the recent reports by former Chief Economist of the USDA (Collins, 2008) and the paper by Mitchell (2008).

political support in the EU for the biofuel use of crops has retreated somewhat. Nevertheless, the combination of high maize and oilseed prices that have in part arisen due to the increased biofuel demand, has pushed up the prices of other crops as they compete for land. As feed costs rise, then so do livestock prices.

While there has been a tendency to ascribe all of the increase in agricultural commodity prices to increased biofuel demand, the recent very large increases in the price of cereals and oilseeds and some livestock products were also the consequence of weather related supply sides disruptions in a number of regions of the world. The droughts in the Australia during 2006 and 2007 significantly reduced the volume of grains, dairy products and livestock produced internationally, while weather conditions also reduced production of grains and oilseeds in the EU in 2007. Undoubtedly, US ethanol policies are responsible for some of the commodity price increases, but exports of maize from the US actually rose in the 2007/08 crop year.

In tandem with the short run disruptions to the supply of agricultural commodities, the ongoing strong performance of the international economy and particularly the economies of east and south-east Asia have maintained the strong growth in the demand for most agricultural commodities that has contributed to recent high prices. In the medium term income growth globally and the switch in developing countries to more protein intense diets will continue to support a positive price outlook for agricultural commodity prices.

Agricultural markets have always been integrated with energy markets through the impact of energy prices on the cost of shipping and agricultural production costs. However, the emergence of wide scale biofuel production has increased the link between energy markets and agriculture, although that relationship is complex. Under certain conditions, the US maize price can be very closely linked to the oil price as increases in US petrol prices will increase the demand for ethanol where mandates are not binding. High commodity prices are therefore closely related to the rise in crude oil price that has occurred in 2007 and 2008.

2.2 Key Baseline Issues

The results presented in this paper should be carefully interpreted as to a degree they reflect assumptions that are made about important variables outside of the scope of the model.

2.2.1 Brazilian Beef Imports into the EU and SPS Restrictions

Brazilian beef has been subject to what amounts to an effective ban from the EU market since early 2008 due to concerns regarding the Foot and Mouth Disease (FMD) free status of farms in many regions of Brazil. This ban has greatly reduced the volume of EU beef imports in 2008 and EU and Irish beef prices have risen considerably as a direct result.

Quite how long it will take for the broader beef industry in Brazil to put in place the type of mechanisms that will satisfy the EU of its disease free status is an open question. In this Baseline analysis it is assumed that restrictions allow Brazilian beef to return to the market over the next three years. In the event that Brazilian beef remains out of the EU market, prices in the EU would be higher than indicated in this Baseline.

2.2.2 Environmental Restrictions on Agriculture

Policy changes designed to reduce the negative impact which agriculture has on the environment and policy changes which promote the positive impact of agriculture on the environment are both likely to emerge over the course of the Baseline projection period. It would be highly speculative to anticipate what these policies might be and thus they are not factored into the Baseline. However, it should be noted that such policies could have consequences for the way in which food is produced and for the costs associated with food production.

2.2.3 The Euro / US Dollar Exchange Rate

The euro/US dollar exchange rate has moved within a very wide band through the course of this decade, ranging from \$ 0.80 per euro to almost \$ 1.60 per euro. Exchange rate movements have

consequences for the competitiveness of the output produced by a country. Historically, the agricultural sectors of the EU MS were insulated from this volatility by the EU's internal price support regime (principally export subsidies), but as these supports are dismantled, exchange rate volatility will become a bigger issue for EU agricultural commodity markets and agricultural incomes. Other things being equal, a stronger euro has a negative impact on EU third country exports and on internal EU prices by increasing the World/EU price gap (when expressed in euro). Importantly, the dramatic weakening of the US dollar in recent years has greatly increased the purchasing power of non-US dollar currencies and may make the US dollar denominated price of a commodity, as traded on world markets, a less reliable measure of how supply and demand in the market is moving.

2.2.4 Biofuels and Petroleum Prices

The rise in crude oil prices through 2007 and 2008 has been well in excess of the price level projected by various international macroeconomic research agencies. For example the International Energy Agency's medium term projections for petroleum prices, which date from December 2007, are below 110 US dollars (OECD, 2007).

Quite how the EU or Ireland is affected by the changes that arise from increased international biofuel production will depend to a large degree on policy decisions taken by the EU, and how these are implemented by the Member States. Even in the absence of a biofuel sector in the EU, commodity prices in the EU would have risen in response to rising international prices. The EU has set targets for biofuel usage and these targets require that biofuel crops are either grown in the EU or imported and processed in the EU. Alternatively, Member States can import biofuels that have been already processed. In practice the most likely outcome is some combination of these three options. The greater the extent to which the EU tries to meet its biofuel requirements through the growing and processing of biofuel crops within the EU, the greater the impact will be on EU cereals and oilseeds prices. It should be noted that the process of producing ethanol results in by-products that are used as feed for the livestock industry (dried distiller grains or DDGs). In addition, increasing biodiesel production increases the volume of oilseed meal available for feed and, other things being equal, lowers the prices of these meals. Recently there has been some softening of political support for biofuels within the EU; however, given the investments in processing capacities to date, it is highly likely that demand for biofuel feedstocks in the EU will grow over the projection period.

2.2.5 Weather conditions and climate change

Weather remains a continuing uncertainty in our Baseline projections. Drought conditions in 2007/08 in New Zealand depressed its dairy production. By contrast heavy rain during the 2008 planting season in the US are expected to reduce the maize harvested area, although damage to the 2008 crop is not as large as was initially feared. With recent very low international stock to use ratios for many agricultural commodities, the impact of weather event related supply shocks on agricultural market prices is stronger than would otherwise be the case.

2.2.6 Impact of WTO reform

While no successor to the Uruguay Round Agreement on Agriculture (URAA) has yet been agreed, it is likely that a WTO agreement will occur during the projection period. We do not try to anticipate the outcome of such a WTO agreement in the Baseline projections given that such a policy change has yet to be agreed. The impact of such an agreement is examined in a related FAPRI-Ireland scenario analysis paper (Binfield *et al.*, 2008).

2.3 Macroeconomic Projections

The macroeconomic backdrop to the Baseline, based on January 2008 projections from Global Insight, was positive in terms of the outlook at a global level. At a domestic level the outlook for Ireland has deteriorated relative to the recent past, with Irish economic growth rates projected to be closer to the EU average over the Baseline projection period. On the international scene an ongoing feature is the projected continuation of strong economic growth in Asia. Income growth in these countries remains a significant driver of international demand for agricultural commodities.

Real GDP growth rates in the EU-27 are projected to average at 2.1 percent per annum over the Baseline projection period with an annual inflation rate (GDP deflator) of 2.0 percent. While average Irish growth rates over the projection period of 2.7 percent are projected to be higher than the EU

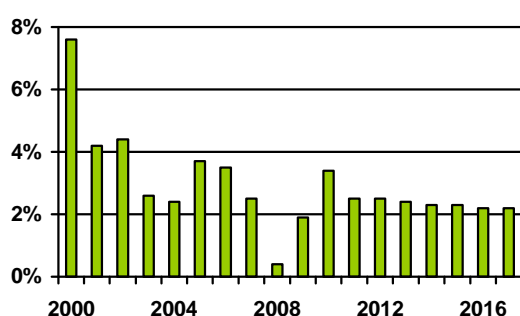
average, the economy has moved out of the high growth rate path and is expected, after the ongoing severe short run correction, to move onto a long term sustainable growth rate.

The ongoing international financial crisis will negatively affect Irish and international economic growth rates. The impact of the most recent events (August 2008) on international financial markets are unknown at this point and have not been incorporated in this FAPRI-Ireland Baseline.

Figure 2-1 illustrates the projections for Irish macroeconomic growth that are used in the analysis and the projected path of the US dollar/euro exchange rate. Under the current Baseline there is a projected weakening in the US dollar over the short term with the US\$ approaching 1.50 per euro by 2009. Thereafter there is some recovery in the US dollar to rates in the range of US \$1.30 to US \$1.40 per euro.

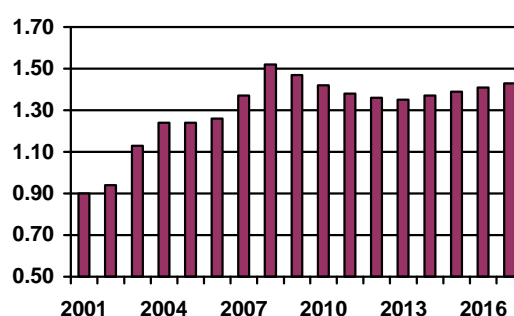
Figure 2-1: Key Macro Economic Projections

Irish Real GDP growth per capita



Fitz Gerald et al. (2008)

US dollars per euro



FAPRI (2008)

2.4 Baseline Policy Descriptions

The key Baseline assumptions are presented in Box 2-1. As is the norm, the FAPRI-Ireland 2008 Baseline is based on the continuation of agricultural policy (as currently defined) and the continuation of existing international agreements that regulate the conduct of agricultural policy and agricultural trade policy instruments.

Box 2-1: The Baseline Policies

The agricultural policy assumptions in the Baseline are:

- The CAP operates broadly as agreed Luxembourg Agreement of June 2003.
- The EU set-aside rate is set to zero in 2008 and maintained at that level over the entire projection period.
- The differential national level implementation of the CAP, as allowed for under the Luxembourg Agreement, is incorporated in the FAPRI-Ireland model.
- Milk quotas increase by 2 percent in 2008 and remain in place and continue to operate at that level right out to 2017. While this is unlikely to be the case, the assumption is necessary here in order to avoid later confusion in measuring both the impacts of WTO reform and milk quota elimination in the scenarios examined in our WTO Text (Binfield et al. 2008).
- The 5 year Suckler Cow Welfare Scheme introduced by the Irish Government in 2008 is incorporated in the Baseline. The scheme ends in 2012.
- The expansions of the EU that occurred on May the 1st 2004 and January 1st 2007 are incorporated in the Baseline.
- The Uruguay Agreement on Agriculture (URAA) remains in place, i.e. no WTO Doha Round Agreement or other bilateral trade liberalisation takes place.
- In later years export subsidies for some dairy products are reintroduced to prevent stock building as prices decline from the highs of 2007.

3 Baseline Results

In the following sections a brief overview of the projections under the current CAP and URAA WTO agreement (the Baseline) are presented for each of the main commodity areas. These are followed by the projections for intermediate consumption (input expenditure) and agricultural sector operating surplus (income) for the Irish agricultural sector.

The Baseline outlook could be summarised as a tightening of all of the main agricultural commodity markets, due to stable or falling supplies and strong demand. Together these deliver relatively strong prices. Detailed baseline results for each of the main commodity sectors now follow.

3.1 Cereals

The high world prices observed in 2007 were the result of a combination of supply side shocks which reduced production and stock levels and positive demand side developments stemming from continued strong income growth globally, and the continued strength of demand for biofuel feed stocks. Under the Baseline the drought and weather related negative supply shocks that characterised markets in 2007 are assumed to unwind. With an assumed return to average agronomic conditions, historically high price levels, combined with the removal of set-aside in the EU, are projected to lead to a strong growth in cereal area harvested at a global level in 2008. Over the Baseline projection period the drivers behind the recent robust demand for cereals at a global level are projected to persist. As a result of projected demand and supply developments, world prices for grains are projected to decline from the highs observed in 2007/08, however, over the Baseline projection period, prices remain above levels observed in the early years of this decade, due to strong demand side growth that at least keeps pace with growth in global supplies.

By 2017, under the Baseline, world wheat prices (denominated in US dollars) are projected to be 30 percent lower than the levels observed in 2007, but it should be noted that this price is still more than 50 percent higher than the average price over the period 2004-2006. Developments in barley prices are broadly similar to those of wheat. Continued growth in biofuel demand for maize is one of the key drivers behind the generally high cereal price levels over the projection period.

Due to the large increase in US maize area in 2007, maize prices did not increase to the same extent as prices of other grains in 2007. As a result maize prices at the end of the projection period drop only marginally from the level observed in 2007.

The full extent of the increases in dollar world prices of cereals in recent years was not fully reflected in EU cereal prices, in part because of developments in the euro/US dollar exchange rate. As prices for many agricultural (and non-agricultural) commodities have increased in dollar terms, the decline in the value of the dollar versus the euro has partially offset the impact of the price increases when expressed in euro. Under the Baseline the world prices for cereals expressed in euro also decline from the peaks observed in 2007, but remain significantly above the price levels observed in the earlier years of this decade.

EU Cereals Sector

Under the Baseline, the increased level of grain prices and the zero rate of compulsory set-aside, mean that the area planted with cereals in the EU is projected to expand. By 2017 wheat area harvested in the EU-27 is projected, under the Baseline, to have increased by 1 percent on the level observed in the period 2004 to 2006. EU barley and maize area harvested under the Baseline are projected to increase by 2 and decrease by 6 percent respectively.

Under the Baseline, EU-27 wheat and maize yields are projected to increase at a faster rate than those for barley. Wheat and maize yields are expected to grow by approximately 1.3 percent and 1.9 percent per annum between 2007 and 2017, while barley yields are projected to grow by approximately 1.1 percent per annum over the same period.

Overall, with increases projected in area harvested, and continued improvements projected in yields per hectare, EU-27 production of wheat, barley and maize is projected to increase strongly under the Baseline. EU wheat and barley production in 2017 are projected to be 7 and 15 percent higher than

the average level observed in the period 2004 to 2006. Maize production in the EU-27 is projected to be 2 percent higher in 2017 than over the period 2004 to 2006. When measured against 2007, the increase in production is more substantial given that due to unfavourable weather conditions the level of EU production was depressed in 2007.

With growing biofuel demands for grains and projections for relatively stable EU feed and non-feed demands for cereals, imports of wheat and maize into the EU fall over the Baseline projection period. With increased EU production, exports of wheat and barley from the EU are projected to increase in the initial years of the projection period and thereafter are projected to return to levels close to those observed in the earlier years of the current decade as domestic use grows. Strong projected growth in EU-27 maize production under the Baseline leads to growth in EU exports of maize over the Baseline projection period. Under the Baseline, the EU moves from a position where it is currently a major net importer of maize, towards being almost a net exporter by the end of the projection period.

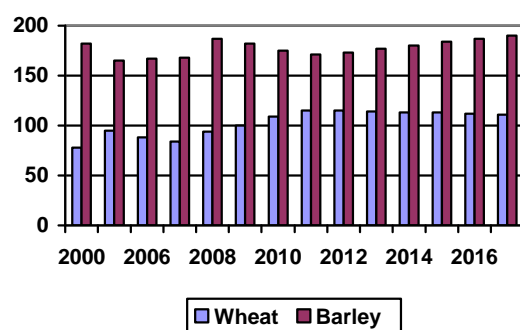
The projected Baseline 2017 EU price for soft wheat of €153 per tonne is almost 40 percent lower than the record prices observed in 2007, but is over 35 percent higher than the average of the prices received in the years 2004 to 2006. EU barley and maize prices in 2017 are projected to be 27 and 33 percent lower than in 2007, but 42 and 18 percent higher than the average of the prices observed over the period 2004 to 2006.

Irish Cereals Sector

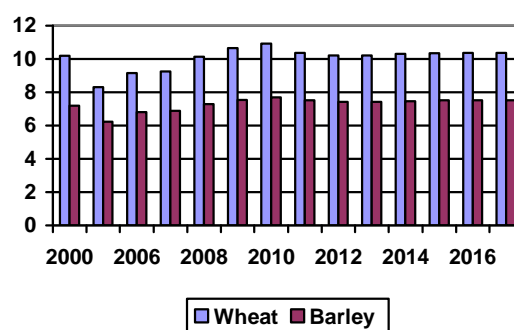
The cereals outlook for Ireland is a little different to that at EU level given the relative absence of maize grain cultivation in Ireland. However, cereal price developments on Irish markets are still almost entirely dependent on prices in EU markets, so that developments on EU markets are reflected in the prices Irish farmers receive for grain. The very high Irish cereal prices of 2007 are not projected to persist throughout the Baseline.

Figure 3-1: Irish Wheat Production, Yields and Use

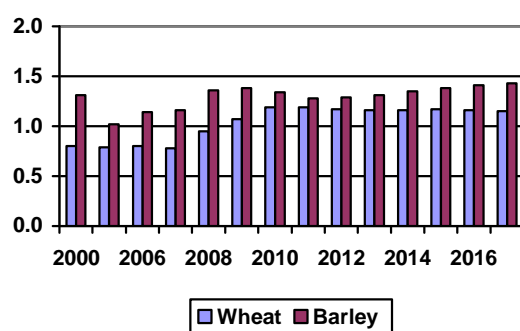
Wheat and Barley Area Harvested ('000 Ha)



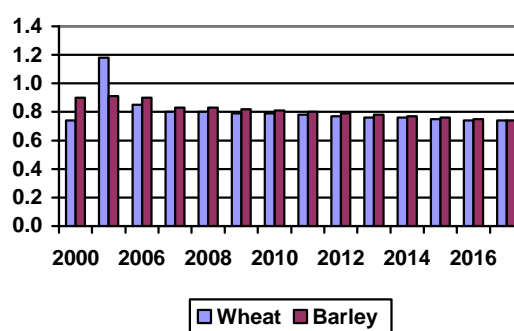
Wheat and Barley Yields (Mt Ha⁻¹)



Wheat and Barley Production (million Mt)



Wheat and Barley Feed Use (Million Mt)



FAPRI-Ireland Model (2008)

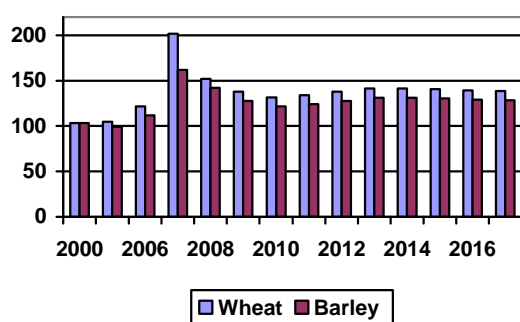
Under the Baseline, with the set-aside rate at zero, Irish grain area harvested is projected to grow by over 10 percent over the period 2007 and 2008. By the end of the projection period, in 2017, total cereals area harvested in Ireland is projected to have grown by 14 percent. By 2017 Irish wheat and barley areas harvested are projected to have increased by 17 and 10 percent respectively on the average 2004 to 2006 levels.

With growth in Irish yields of soft wheat and barley projected to continue under the Baseline, Irish wheat and barley production increases strongly. By 2017 Irish wheat production is projected to have increased by over 33 percent when compared with average 2004-2006 level, while Irish barley production is projected to increase by almost 22 percent between 2007 and 2017.

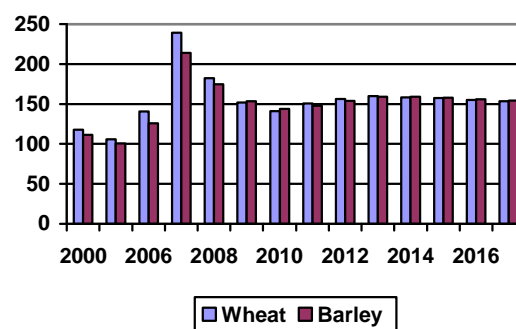
The increased production of grain in Ireland leads to a reduction in Irish grain imports. Under the Baseline Irish barley imports decline. When low barley imports are combined with increases in Irish barley exports, this means that over the Baseline projection period, Ireland once again emerges as a net exporter of barley. Irish imports of wheat also decline due to the increased indigenous production of wheat, with 2017 Irish imports of wheat projected to be almost 25 percent lower than in the 2004 to 2006 period. With the growth of exports and the contraction of imports of wheat, Ireland's net imports of wheat decline over the Baseline projection period.

Figure 3-2: Irish and EU Wheat and Barley Prices

Irish Wheat and Barley Prices (Euro/tonne)



EU Wheat and Barley Prices (Euro/tonne)



FAPRI-Ireland Model (2008)

Irish prices in 2007 for wheat, barley and oats hit historical highs. Grains prices in Ireland for 2008 are projected to be lower than the prices observed in 2007, but should still be significantly higher than the prices observed over the period 2004 to 2006. As noted earlier, over the medium term prices are projected to decline from the levels observed in 2007 due to increases in international production and some limited rebuilding of stocks. Nevertheless, Irish grains prices, like grain prices on EU and international markets, are projected to remain at levels well in excess of those observed over the first 5 years of this decade. By 2017 the price of feed wheat in Ireland is projected to equal €138 per tonne, which is almost 25 percent higher than the average price over the period 2004-2006.

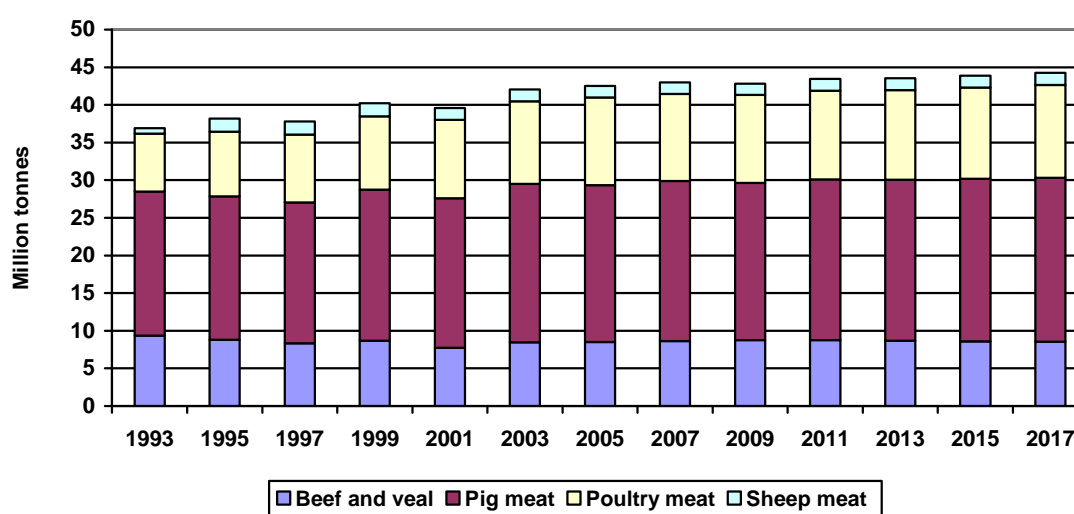
The projected decline in cattle and sheep numbers under the Baseline (detailed in later sections) and the high price of wheat and barley compared to other feeds, mean that under the Baseline Irish feed demand for all grains contracts. By 2017 Irish feed demand for wheat and barley are projected to decline by 35 percent and 24 percent respectively relative to the average of the 2004 to 2006 period. Increases in the Irish population mean that non-feed (food and industrial) demand for grains remain relatively buoyant. Under the Baseline, the overall Irish domestic use of barley is projected to decline by approximately 5 percent, while Irish domestic use of wheat is projected to decrease by over 18 percent when compared with the average for the 2004 to 2006 period.

3.2 Meats

A number of supply and demand factors lead to a tightening of EU livestock markets over the projection period, with prices for all meats projected to increase. On the supply side the decoupling of direct payments from production, following the 2003 CAP reform, is beginning to have an impact on the supply of beef and lamb in some Member States. Falling dairy cows numbers due to the milk quota restriction in the Baseline, contribute to a decline in beef production. More generally for all livestock sectors, the higher feed prices that emerge under the baseline have a negative impact on the supply of all meats.

On the demand side, continued income growth, particularly in the EC10+2 countries, will boost meat consumption despite the projected rise in meat prices. The actual and projected evolution of meat consumption in the EU is shown in Figure 3-3. It is notable that overall meat consumption is growing and that pig and poultry meat represent an increasing proportion of EU 27 meat consumption.

Figure 3-3: Baseline Meat Consumption in the EU27



FAPRI-Ireland Model (2008)

3.2.1 Beef

EU and Irish beef markets are currently affected by the SPS restrictions on imports of Brazilian beef. The Baseline projection period is projected to be characterised by contracting indigenous EU production of beef, resilient EU consumption of beef and, even with the ending of restrictions on imports of Brazilian beef, some increase in beef carcass prices.

EU Beef Sector

EU beef production is projected to contract by more than 4 percent over the period 2007 to 2017 under the FAPRI-Ireland Baseline. The projected decline in EU beef production is largely due to the decline in the EU dairy cow herd that is projected to occur as milk yields continue to increase and overall EU milk production only expands marginally due to quota constraints. EU dairy cow numbers are projected to decline by more than 15 percent between 2007 and 2017. Dairy cows currently account for approximately two thirds of the total EU cow stocks and consequently changes in dairy cow stocks greatly influence the prospects for beef production within the EU. As prices rise and feed costs fall an increase in the EU-27 suckler cow herd is projected over the Baseline, with numbers in 2017 projected to be 6 percent higher than in 2007. The projected increase is mostly driven by increases in suckler cow numbers in NMS and increases in EU15 Member States that retained a coupled suckler cow premium under their implementation of the Luxembourg Agreement.

Box 3-1: Sanitary & Phyto-Sanitary (SPS) Barriers to Beef Trade and Export Taxes

Under both the Baseline and the WTO reform scenarios analysed in Binfield *et al.* (2008) we have assumed that in the medium term there are no sanitary or phyto-sanitary (SPS) barriers to imports of beef into the EU from South America. We have also assumed that exporters of beef, such as Argentina, do not place restrictions such as taxes or quotas on exports of beef that effectively remove them from the world market. However, given the current restrictions on imports of beef into the EU from Brazil, and the market consequences that flow from the absence of this beef from the market, in constructing our Baseline we have had to make some assumptions about the short run persistence of these SPS restrictions.

Imports from the two largest non-EU suppliers of beef to the EU market, Brazil and Argentina, are restricted. Brazil faces continuing problems in satisfying EU requirements on production standards and traceability. These problems have effectively closed the EU market for Brazilian beef. Argentina has imposed very high taxes on agricultural exports and has intermittently banned beef exports.

These developments have led and can be expected to continue to lead, over the short run, to higher EU cattle prices. In previous papers we assumed in the short-run that SPS barriers are quickly overcome and that implicitly no SPS barriers to Brazilian beef exist (Binfield *et al.*, 2007). In this paper, given the persistence of the SPS problems with Brazilian beef, we have assumed this beef begins to re-enter the market in 2009, but that it takes three years to get back to its pre-embargo level. On balance we still expect, over the medium term, as represented in our Baseline projection period, that the Brazilian beef industry will resolve the problems they have with meeting EU production standards to the satisfaction of the EU Food and Veterinary Office (FVO). We also assume that Argentina will change its policy of punitively taxing its own agricultural exports and that Argentinean beef and other agricultural commodities will return to world markets.

Over the projection period 2007 to 2017, total EU domestic use of beef is projected to decline by 1 percent, while EU exports of beef onto world markets effectively cease. With the projected decline of beef production outstripping the decline in total EU domestic use of beef, an increasing deficit emerges within the EU.

Under the Baseline, EU imports of beef increase strongly, with volumes imported in 2017 projected to be over 20 percent higher than in 2007.² Despite the large increase in the volume of beef imports into the EU, cattle prices are projected to increase over the projection period, with 2017 prices 11 percent higher than in 2007.

The projected changes in trade flows of beef, into and out of the EU, moderate the impact of the tighter EU beef supply and use balance on EU beef prices. Other things being equal, the greater the volume of beef imports into the EU, the more modest the increase in EU beef prices that occurs as a result of contracting EU production.

Irish Cattle and Beef Sector

The outlook for the Irish beef sector is determined by developments on our export markets and in EU agricultural policy and agricultural trade policy. In this Baseline the beef sector outlook is more positive than in recent years. This positive outlook is largely a function of the EU meat market developments projected for the period to 2017. Another important feature incorporated in the FAPRI-Ireland Baseline and WTO scenario analyses (Binfield *et al.*, 2008) is the new Suckler Cow Welfare Scheme.³

² It is worth noting that the volume of EU beef imports in 2007 was approximately 50 percent higher than the volume imported in 2001. If the projected volume of beef imports under the Baseline in 2017 is compared with the volume of beef imports in 2001 the magnitude of change is even more dramatic. Baseline imports of beef into the EU in 2017 are projected to be over 85 percent higher than volumes imported in 2001.

³ Officially this is called the *Animal Recording, Welfare and Breeding Scheme*. Over the next 5 years this scheme, subject to satisfaction of certain criteria and limited by the exchequer funds earmarked for the scheme, will provide a coupled direct payment to scheme participants based on their suckler cow numbers.

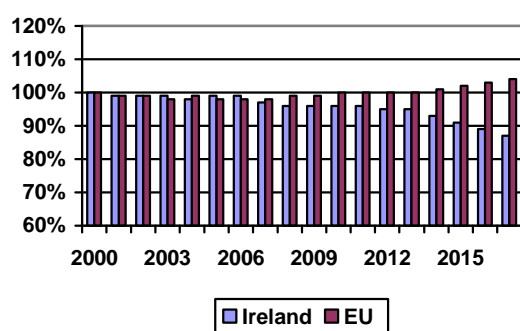
By 2017, under the Baseline, Irish cattle prices are projected to be over 7 percent higher than in 2007. This growth in Irish cattle prices is largely due to the growing gap between the production and consumption of beef within the EU and the general improved medium term outlook for agriculture as global demand growth for grains, oilseeds, livestock and dairy products is projected to outpace growth in the global supply of these commodities.

Under the Baseline, despite projected strong prices and the presence of the Suckler Cow Welfare Scheme Premium for the period 2008-2012, the Irish suckler cow herd is projected to decrease by 11 percent between 2007 and 2017. The Irish dairy cow herd, with the modest 2 percent expansion of milk quota under the Baseline, is projected to decline by over 9 percent, by 2017, as milk yields increase. As a result, overall cattle slaughter is projected to decline by over 10 percent under the Baseline.

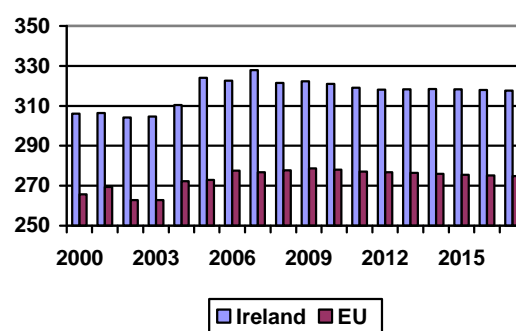
Average slaughter weights are projected to decrease by 3 percent under the Baseline. The decline is due to the increase in feeding costs between 2007 and 2017. There was a lag in the reflection of higher cereal prices in higher feed prices in Ireland and the full effect of higher feed prices has only been felt in 2008. An additional factor influencing projected slaughter weights is the slight increase in the share of dairy cows in the total Irish cow herd. With declining numbers of cattle slaughtered and declining average cattle slaughter weights, Irish beef production under the Baseline is projected to decline, with production projected to be over 13 percent lower in 2017 than in 2007.

Figure 3-4: EU and Irish Cattle and Beef Projections (Baseline)

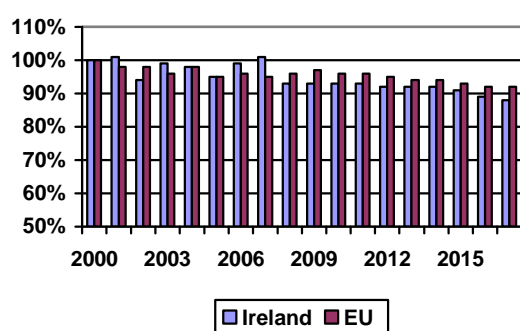
Suckler Cow, Ending Numbers (2000 =100)



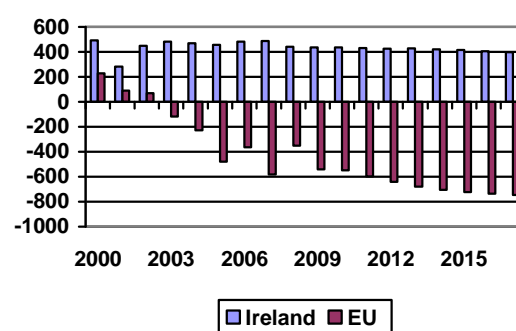
Slaughter Weight (kg per head)



Beef Production (2000 = 100)



EU and Irish Net-Exports ('000 t)



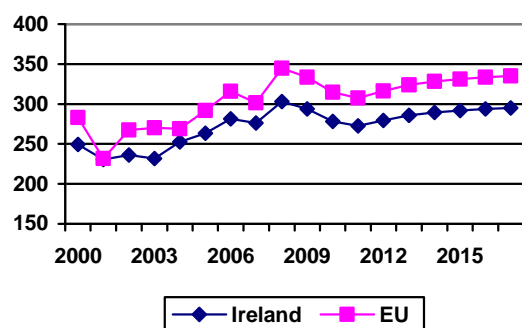
FAPRI-Ireland Model (2008)

Irish per capita use of beef is not projected to decline despite the strong increase in prices. This is due to the projected increases in the prices of other meats and the ongoing positive impact on per capita consumption of projected growth in incomes over the Baseline projection period. When more or less stable per capita demand for beef is combined with a growing Irish population, Irish total domestic use of beef in 2017 is still expected to be 15 percent higher than in 2007.

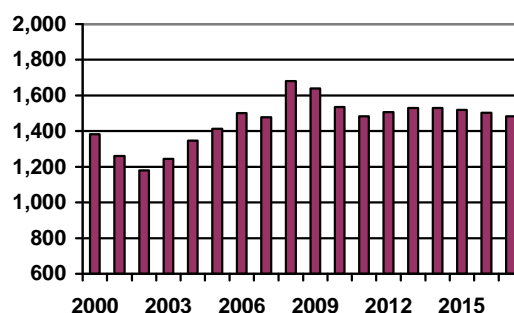
Due to the projected growth in total domestic use of beef in Ireland and the decline in Irish beef production between 2007 and 2017, Irish exports of beef are projected to decline by 15 percent. Irish live exports are projected to be relatively unchanged over the Baseline period.

Figure 3-5: Irish and EU Cattle Prices (Baseline)

EU & Irish R3 Price (Euro/100Kg)



Irish Cattle Sector Output Value (M Euro)



FAPRI-Ireland Model (2008)

By 2017 the Irish cattle sector output value (including stock changes) at producer prices, is projected to be 1 percent lower than in 2007. The higher cattle prices over the projection period, and lower stock change figures, are insufficient to offset the negative impact of the lower volumes of beef production that are projected under the Baseline.

The preceding Baseline discussion is based on the maintenance of beef import tariffs at their current level and does not include any tariff cuts such as might occur under a WTO reform agreement or a bilateral trade reform agreement that might emerge in the event of the WTO negotiations make no further progress. Imports of beef to the EU increase under the Baseline and EU beef import volumes are projected to be in excess of the current EU tariff rate quota (TRQ) quantity. This means that, under the Baseline, growth in EU beef imports is accounted for by growth in full tariff paid imports. A reduction in the tariff protection that is currently afforded to the EU beef sector would see EU imports of beef increase. Trade reform (bilateral or multilateral) over the next ten years is a probability rather than a possibility. Such trade reform would almost certainly increase access to the EU beef market, this would, other things equal, have a negative impact on the EU beef prices and on the overall outlook for the EU beef sector.

3.2.2 Sheep

EU Sheep Sector

Under the Baseline, the contraction in EU sheep production is projected to continue. In most EU Member States, the ewe premium was fully decoupled and this is projected to lead to a continuation of the decline in the EU ewe flock. Ewe numbers in the EU are projected to decline under the Baseline by over 2 percent between 2007 and 2017. The decline in ewe numbers is not matched by a decline in sheep meat production due to increases in the average slaughter weight, which between 2007 and 2017 is projected to increase by over 5 percent. The projected increase in sheep slaughter weight is sufficient to offset the production impact of the decline in ewe numbers and overall EU lamb production is projected to increase by over 4 percent between 2007 and 2017.

EU domestic use of sheep meat is projected to increase over the Baseline period, with total EU domestic use in 2017 over 5 percent higher than in 2007. This increase in sheep meat domestic use is due to increasing per capita consumption of lamb across the EU. Declines in the price of sheep meat, relative to other meats, together with increasing incomes and population, drive the increase in domestic use of lamb in the EU. By 2017 EU sheep meat prices are projected to be over 8 percent higher than in 2007.

Under the Baseline, production of sheep meat in the EU increases, but the rate of increase is less than that projected for domestic use. To fill the increasing gap between EU production and

consumption of lamb, EU imports are projected to increase. By 2017 EU imports of sheep meat are projected to be over 10 percent higher than in 2007, exceeding 300 thousand tonnes.

Irish Sheep Sector

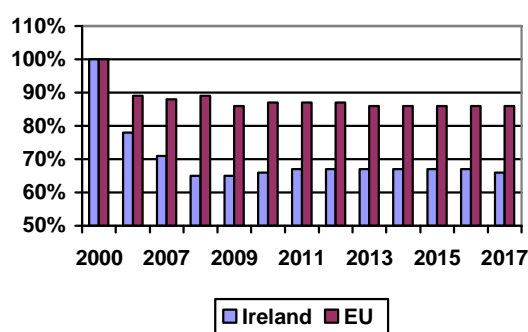
Just as in the Irish beef sector, the price outlook for the Irish sheep sector is largely determined by the prospects on EU export markets. Under the Baseline, Irish lamb prices are projected to increase from the levels observed in 2007, with the 2017 price level projected to be almost 6 percent higher.

Under the Baseline, the Irish ewe flock is projected to continue to decline. Over the period 2000 to 2007 the ending stocks of ewes in Ireland declined by almost 30 percent. Between 2007 and 2017 the rate of decline in ewe numbers is projected to slow considerably. However, the Irish ewe flock is projected to decline by a further 6 percent over the projection period 2007 to 2017, so that by 2017 ending stocks of ewes are 2.7 million head. This compares with an ending stock of ewes in 2000 of over 3.9 million head. The Irish ewe flock, by 2017, is projected to reach levels last observed in the late 1980s.

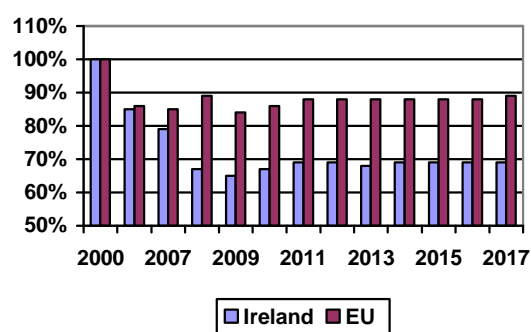
The reduction in ewe numbers is not matched on a one for one basis by reduced lamb slaughter. Under the Baseline, though ewe numbers are projected to decline, the average productivity per ewe, in terms of lambs weaned, is expected to be higher on those farms remaining in sheep production. The percentage change in total sheep and lamb slaughterings between 2007 and 2017 indicates a reduction of 13 percent. The difference between the percentage change in lambs available for slaughter and total sheep slaughter is due to the high rate of ewe slaughter observed in 2007, the base year used for comparative purposes in our analysis for the sheep sector. Over the projection period, from 2008 onwards the high levels of ewe slaughter and non-replacement that have observed over the last 7 years are not projected to continue. Lower slaughter and largely unchanged average slaughter weights mean that under the Baseline the volume of Irish lamb production is projected to decline by over 13 percent between 2007 and 2017.

Figure 3-6: EU and Irish Sheep Production, Trade and Prices (Baseline)

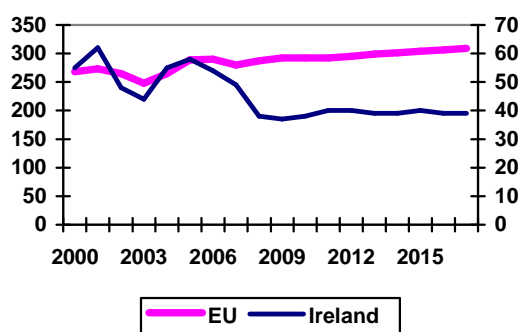
EU & Irish Ewe Flocks (2000=100)



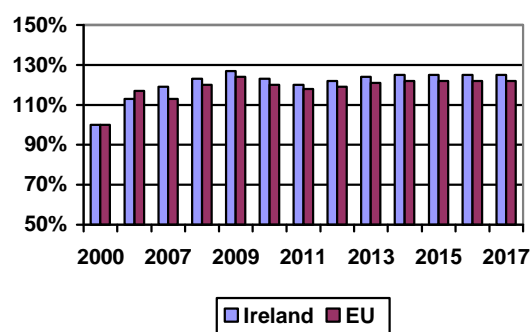
EU & Irish Lamb Production (2000=100)



EU Imports & Irish Exports of Lamb (000 Mt)



EU and Irish Lamb Price (2000=100)



FAPRI-Ireland Model (2008)

Irish domestic use of lamb is projected to increase by more than 8 percent over the Baseline projection period 2007-2017. The increase in total domestic use of sheep meat in Ireland is entirely due to strong population growth that is sufficient to offset the projected decline of over 4 percent in per capita consumption of sheep meat. With increased domestic use, and projected declines in production, Irish exports of lamb decline under the Baseline. By 2017 Irish lamb exports are projected to be almost 21 percent lower than in 2007.

The value of the sheep sector's output at producer prices (inclusive of the value of changes in stocks) in 2017, at €179 million, is projected to be 2 percent lower in nominal terms than that observed in 2007. The projected increase in lamb prices of 6 percent over the Baseline projection period is insufficient to offset the negative impact on output value of the large decline in the volume of lamb produced.

3.2.3 Pigs

EU Pig Sector

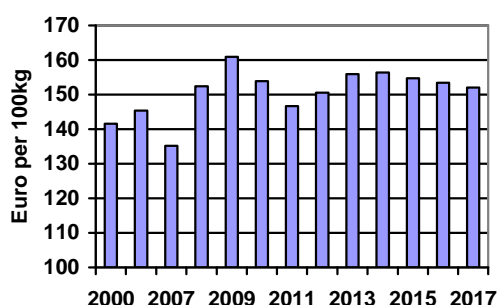
The challenges facing the EU pig sector are numerous and include high feed costs, increasingly stringent animal welfare requirements and environmental regulations. EU pig meat production increases over the Baseline projection period by less than 1 percent and this rate of growth does not match projected consumption growth over the period of 2 percent.

At present EU pig meat imports from outside the EU are negligible at just over 30 thousand tonnes. There is no change in EU pig meat imports over the projection period. EU third country exports of pig meat are low and amount to about 5 percent of EU production in 2007. These exports decline by about 30 percent over the projection period, reaching just over 1 million tonnes in 2017.

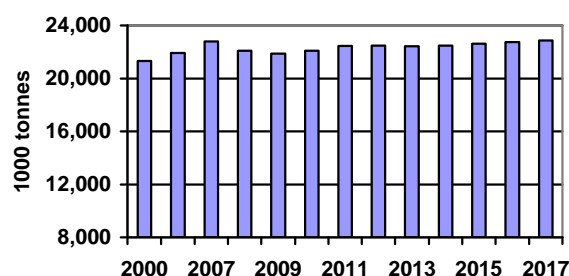
Under the Baseline EU pig prices increase over the short term in reaction to the contraction in production that is brought about by high feed costs. Over the medium term prices decline somewhat and by 2017 are projected to be about 12 percent above the average price level in 2007.

Figure 3-7: EU and Irish Pig Production and Prices (Baseline)

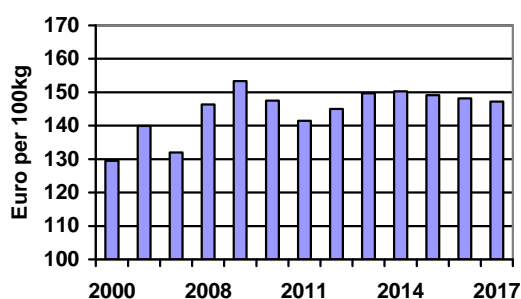
EU Pig Price



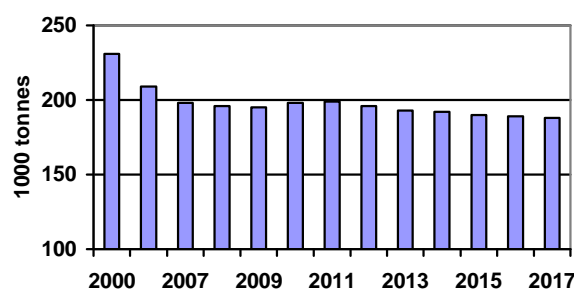
EU Pig meat Production



Irish Pig Prices



Irish Pig Meat Production



FAPRI-Ireland Model (2008)

Irish Pig Sector

Irish pig production is constrained by high feed costs and environmental legislation. Over the period to 2017 Irish pig meat production is projected to decrease by 5 percent. Over the same period, Irish pig

meat consumption is expected to increase by 11 percent due to rising population and higher per capita consumption. The fall in Irish production and rise in Irish consumption means that self sufficiency falls considerably and consequently by 2017 there is a reduction in exports of 36 percent relative to the 2007 level.

Irish pig meat prices rise over the short term in line with the contraction in EU pig meat production but decline again in later years. By the end of the projection period prices are 12 percent above the level achieved earlier in the decade. The value of the sector in 2017 is projected to be down 12 percent relative to the 2007 level.

3.3 Dairying

EU Dairy Sector

The medium term Baseline outlook for dairy sector prices remains positive at a global level. Supply is already responding to the very high world prices for dairy commodities observed recently and this is gradually bringing prices back from the elevated 2007/08 levels. Nevertheless, world prices are projected to settle over the medium term at a level which is considerably higher than those that were observed in the earlier part of this decade.

The milk prices achieved in Ireland and the EU in 2007 were exceptional. With the rise in export prices, intervention stocks were sold off and export refunds were reduced to zero. The EU Commission effectively 'ran out' of market management tools to stabilise prices and EU milk prices rose considerably above the levels that had been anticipated when the Luxembourg reforms of the Common Agricultural Policy (CAP) were agreed. Along with the high milk price, dairy farmers across the EU are currently in receipt of decoupled compensation (for intervention price cuts) in a period when market milk prices have actually increased rather than decreased. Offsetting some of this benefit have been notable increases in input costs, particularly for feed, fertiliser and energy.

The 2008 Baseline analysis includes the 2 percent increase in the EU milk quota in 2008/09 agreed on March 17th 2008, but excludes any further increases that may arise under the ongoing CAP Health Check.⁴ For reason explained in Box 2-1, the Baseline also precludes the removal of milk quotas in 2015.

While there has been much recent industry level discussion about the possibility of switching the Irish dairy product mix to produce more cheese (including more cheese varieties) and less butter and SMP, this discussion has largely taken place against a backdrop of an expected significant increase in the volume of milk available for processing in the short term. Given that the Baseline only considers the 2008/09 2 per cent quota increase, it cannot be expected that such a substantial shift in product mix would take place. It will be possible to consider the issue of changing the product mix in a scenario which looks at the impact of WTO reform and milk quota removal in tandem. The projections reported here incorporate an increase in cheese production over time, but perhaps not at the scale that might be envisaged if milk quota were substantially increased or removed.⁵

The EU Commission is likely to restore dairy export refunds only when it sees that they are required. It could be argued that this may not be unless butter prices fall towards intervention levels. Given that market prospects for the medium term are more promising than might have been expected even two years ago, prices are unlikely to fall to intervention levels, particularly if export refunds are restored to 2006 levels. Hence a major conditioning factor in the Baseline outlook for dairy is the management by the European Commission of dairy export refunds in the coming years. In practical terms for this Baseline, modest export refunds for butter are restored in 2009. The likelihood is that international supply and demand conditions would dictate that export subsidies are unlikely to be high since otherwise internal EU prices could move significantly above the intervention level in the medium term.

One could easily take a very conservative view whereby the Commission reigns in export subsidy expenditure completely over the medium term. In such a case the Baseline milk price outlook would be slightly less promising than in the case where export refunds are restored at a modes level.

⁴ For further detail on the Health Check see the European Commission's communication to the Council (European Commission, 2007) and the widely leaked details of the actual Commission Health Check proposals (Agra Europe, 2008).

⁵ Binfield *et al.* (2007b) examined the impact of milk quota abolition.

Under the Baseline, in spite of tight export subsidy management, the relatively stronger world market environment means that EU cheese and SMP prices are higher at the end of the projection period. Cheese prices are projected to be 4 percent higher while SMP prices in 2017 are projected to be 19 percent higher than they were in 2006. A notable feature of the Baseline projections is the weakness in butter prices, which drop 11 percent on the 2006 level by 2017. However, from an Irish perspective it is important to note that in terms of the farm gate milk price the drop in butter prices is offset to a large degree by the strength in SMP prices.

The EU average milk price reaches 29 cent per kg by the end of the projection period.⁶ By 2017 EU Cheese production expands by 10 percent relative to 2006 in order to meet increased domestic consumption and there is a resultant decline in butter, SMP and WMP production.

Aided by the provision of export subsidies, EU butter exports remain relatively high and consequently butter stocks remain low. SMP stocks are also low but this is due to the decline in SMP production across the EU, which exceeds the rate of decline in domestic consumption. The projected reduction in SMP production is largely due to the lower availability of skimmed milk for conversion to SMP. This lower availability in turn is a consequence of increased production of cheese and higher value added products which require protein. The decline in SMP consumption is due to falling calf numbers and an increase in the cost of feeding SMP due to the removal of the subsidised disposal schemes.

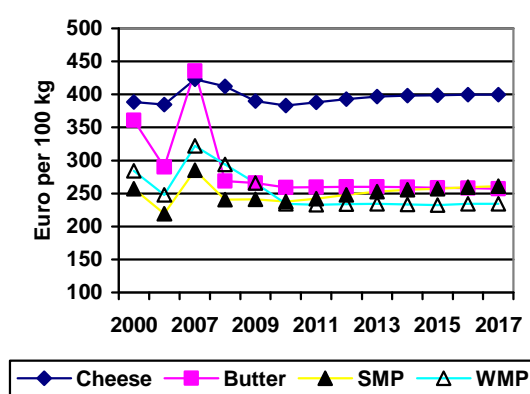
Irish Dairy Sector

The 2 percent EU milk quota increase is used in Ireland and is largely taken up across the EU. This allows EU supply to better keep pace with demand and contributes to the drop in EU milk prices over the short term. There is an increase in Irish milk prices in the later years of the projection period to over 27 cents as the EU markets tighten in the absence of further milk quota increases. In Ireland there is a reduction in the volume of milk used for butter and SMP production as cheese production expands to over 150,000 tonnes.

In the Baseline Irish milk prices are projected to fall back to 26 cent per kg (3.7% vat exclusive) over the short term, before increasing to 27 cent per kg in later years. The milk price outcome for 2008 has been heavily dictated by the pace at which the decline in market returns was passed onto the farm gate price in Ireland. Given the seasonality of production earlier price decreases through the peak delivery months will have had an even more significant negative impact on the Irish milk price in 2008. The projected milk price reflects some continued expenditure on export subsidies which is particularly important in preventing a more substantial decline in the EU butter price.

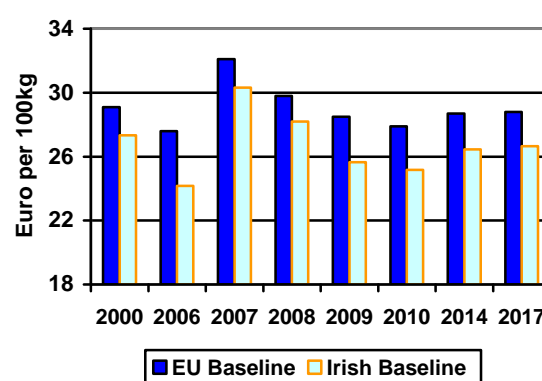
Figure 3-8: EU and Irish Dairy Product and Milk Prices

EU Dairy Product Prices



FAPRI-Ireland Model (2008)

EU and Irish Milk Price (3.7% fat ex vat)



⁶ A weighted average of milk prices in France, Germany, Italy and United Kingdom.

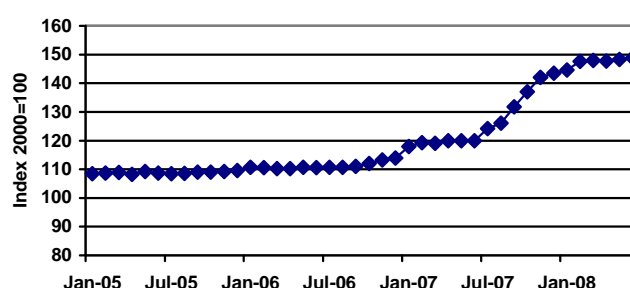
3.4 Intermediate Consumption in Ireland

The total volume of agricultural activity declines over the Baseline projection period. On this basis a decrease in the volume of agricultural inputs used is projected. Inflation in the cost of input items is a feature of the Baseline projection period. Increased efficiency on farms will reduce the input requirement for a given level of output. However, since increased efficiency will only partially address this cost inflation, increased per unit costs of input items are projected to negatively impact on agricultural income over the projection period.

3.4.1 Feed Use and Feed Prices in Ireland

Low stock levels and the consequences of the strong demand from the biofuel sector are keeping international cereal and oilseed prices at elevated levels, well above their intervention floor prices. This has direct knock on consequences for the price of animal feed. Feed prices have been moving upwards since late 2006 and have only recently stabilised. The extent of the increase in unprecedented and is illustrated in Figure 3-9.

Figure 3-9: Monthly Price Index of Cattle Compound Feeding Stuffs in Ireland from 2005 to 2008

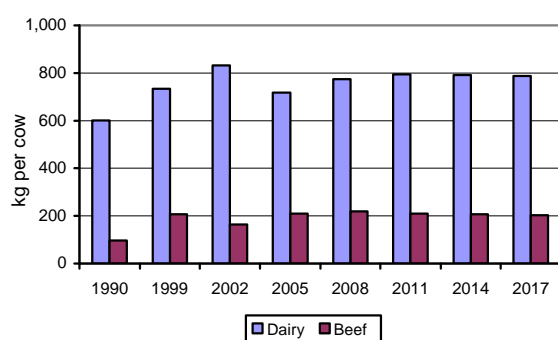


Source: Central Statistics Office

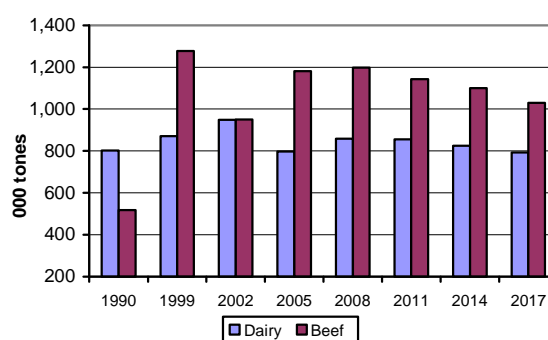
The removal of set aside has increased cereal area in the EU but the scale of the increase in demand means that cereal and feed prices will not fall appreciably due to this measure. Feed prices are projected to remain high in the short term, even allowing for an increase in the available EU cereal area under a zero set-aside rate. In response to higher feed prices, feed use declines, with dairy feed per head in 2017 projected to be down almost 6 percent relative to the level recorded in 2007. Given the projected decline in total dairy cow numbers, total dairy feed use in Ireland is expected to fall by almost 10 percent by 2017 relative to the quite high 2007 level. A reduction in beef feed consumption per head of 8 percent is projected over the period from 2007 to 2017 in response to higher feed prices and due to lower finishing weights. When the projected fall in overall cattle numbers is considered, then total beef feed consumption is projected to decline by 13 percent by 2017. Pig feed use also declines, reflecting the reduction in pig output. Total expenditure on purchased feeds is projected to decline by 13 percent under the Baseline between 2007 and 2017.

Figure 3-10: Dairy and Beef concentrate Feed purchases in Ireland

Feed Usage per head



Total Feed Usage

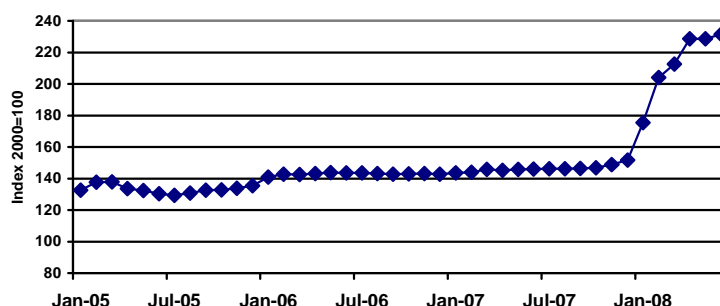


FAPRI-Ireland Model (2008)

3.4.2 Fertiliser Use and Fertiliser Prices in Ireland

Given that fertiliser prices tend to track energy prices, there has been a sharp increase in fertiliser prices in 2008. Strong international demand, some of it related to increased cereal and oilseed production is also a factor. The extent of the increase can be observed in Figure 3-11.

Figure 3-11: Price Index of Straight Fertilisers 2005 to 2008 in Irish Agriculture



Source: Central Statistics Office

The high prices of 2008 will reduce fertiliser application in 2008, although some of this fertiliser will have been bought in 2007 in anticipation of the increase in prices. In the expectation that fertiliser prices will remain at elevated levels, projections of fertiliser usage are below those of the 2007 Baseline. It is projected that over the projection period that fertiliser prices will increase by over 46 percent relative to the 2007 level.

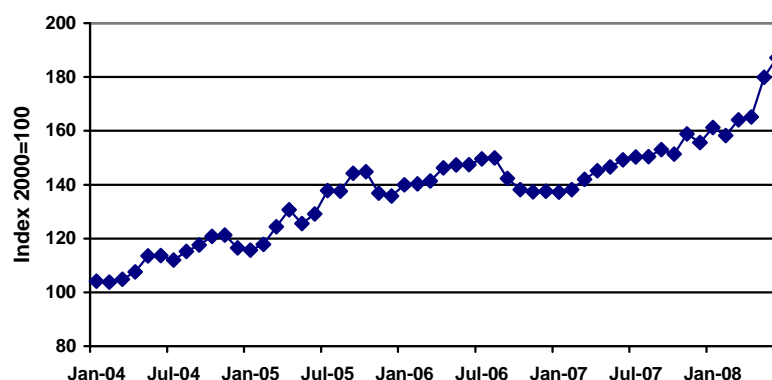
Nitrogen application per hectare is projected to decrease on both grassland and cropland. This decrease in total fertiliser application would be more substantial was it not for the increase in cereal area resulting from relatively higher cereal prices and re-planting of some set-aside land due to the zero rate of compulsory set-aside.

Nitrogen application fell to 321,000 tonnes in 2007, the lowest level since the mid 1980s. Total fertiliser application is expected to continue to decline over the projection period and to be about 8 percent below the 2007 level by 2017. This is due to a combination of factors, including high fertiliser prices, more extensive livestock production and increased rates of participation in agri-environmental schemes.

3.4.3 Energy Expenditure in Ireland

Energy prices have increased substantially since 2004 and this has been reflected in a large increase in the agriculture sector's energy expenditure since that time. The extent of the price increase can be observed in Figure 3-12.

Figure 3-12: Price Index of Energy 2005 to 2008 in Irish Agriculture

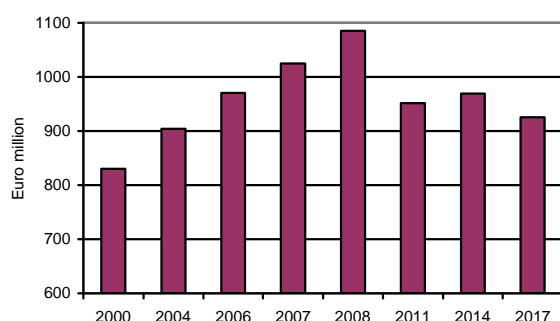


Source: Central Statistics Office

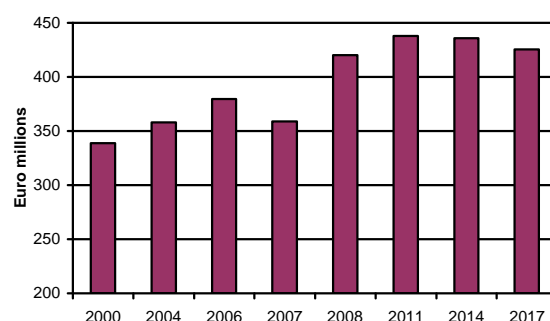
In the short term energy prices are projected to remain at currently high levels. Later in the projection period energy prices and agriculture's energy expenditure increases even further. Over the Baseline period, energy expenditure in the agriculture sector is projected to increase by over 10 percent. Figure 3-13 summarises the projected path of the main input expenditure items over the projection period.

Figure 3-13: Feed, Fertiliser, Energy and Total Intermediate Consumption in Irish Agriculture

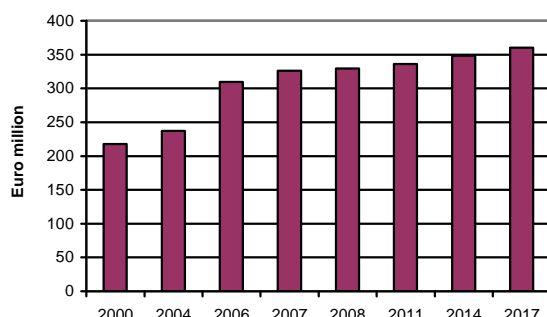
Feeding Stuffs Expenditure



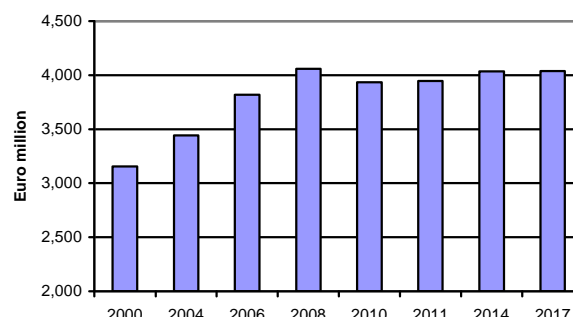
Fertiliser Expenditure



Energy and Lubricants expenditure



Intermediate Consumption



FAPRI-Ireland Model (2008)

3.5 Implications for Operating Surplus (Agricultural Income)

3.5.1 Irish Agricultural Output Value

Over much of the projection period, agricultural output prices average out at a higher level than earlier in the decade. However, there is, in general, a contraction in output volumes due to the ongoing impact of decoupling and the simultaneous increase in the costs of production faced by Irish farmers. The cereals and dairy sectors are exceptions, where the volume of output increases over the Baseline projection period due to favourable prices developments and the recent 2 percent milk quota increase.

Relative to 2007, the value of Irish agricultural output (at producer prices) declines by 2 percent by 2017. Mainly this is due to the decline in milk prices from the peak experienced in 2007. The contraction in the sheep and pig sectors also contribute to the decline in overall output value.

The cattle sector output value is projected to remain relatively static between 2007 and 2017, with a projected decrease in the volume of beef production of 13 percent partially offset by the projected 8 percent increase in cattle prices.

The value of the sheep sector decreases by 2 percent by 2017 relative to 2007 due to lower volumes of production, partially offset by higher prices. By 2017 the pig sector is expected to decline in value by almost 8 percent relative to 2007, reflecting a decrease in output volume that is driven by higher input costs and the increased costs of compliance with environmental regulation.

The value of the dairy sector is projected to decrease from the high level recorded in 2007. By 2017 the value of the sector is up 6 percent on the 2006 level or (or down 15 percent by 2017 relative to 2007).

Total output value for the crops sector is expected to increase by 4 percent over the Baseline projection period due to increased yields and projected increases in area harvested and increased cereals prices. It should be noted that the output value in the crops sector in 2007 was 10 percent up on the 2006 level. The value of cereals sector output is projected to increase by 5 percent between 2007 and 2017.

3.5.2 Input Expenditure by the Sector in Ireland

Input spending (or intermediate consumption) under the Baseline is expected to rise by 2 percent between 2007 and 2017. The usage of most input items is set to fall over the projection period due to falling livestock numbers and a reduction in the intensity of production. In the case of some input items this also leads to an overall reduction in expenditure. However, in other instances the reduction in usage volumes is offset in expenditure terms by higher prices.

The expenditure on purchased animal feed stuffs is projected to fall by 13 percent by 2017 compared with the level observed in 2007 when feed volumes per head were about normal. The decline in animal feed expenditure is due to lower feed use per head and declining animal numbers.

By 2017 energy expenditure is projected to increase by 10 percent relative to the 2007 figure, which itself was a historic high. Declining fertiliser usage is offset by rising prices so that fertiliser expenditure is projected to increase by 19 percent over the period 2007 to 2017. By 2017, expenditure on forage plants decreases by 6 percent relative to the 2007 level.

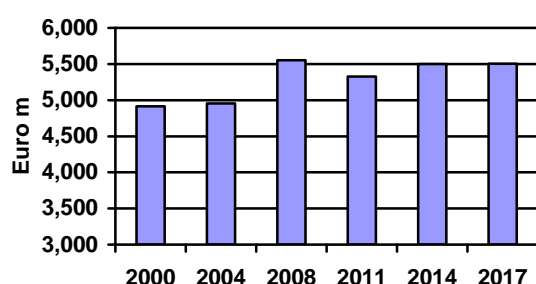
3.5.3 Subsidies and Operating Surplus

Most subsidy payments to Irish agriculture are projected to remain relatively unchanged over the Baseline projection period. However, there are notable exceptions. Payments under the Rural Environmental Protection Scheme (REPS) increase over the projection period. In addition the newly introduced Suckler Cow Welfare Payment is worth over € 70 million per year in the period 2008 to 2012. Total subsidy receipts by Irish agriculture increase by 6 percent between 2007 and 2017. By 2017 subsidies represent almost 81 percent of agricultural income.

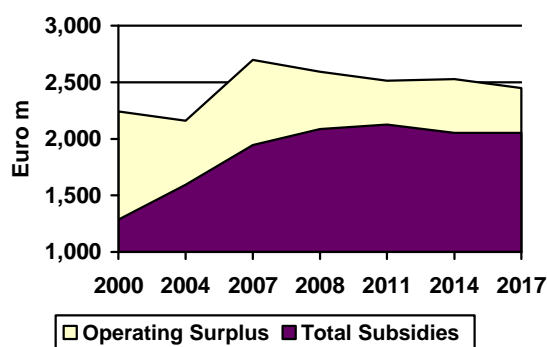
Overall, it is projected that there will be an decrease in the nominal value of agricultural sector income (operating surplus) of approximately 15 percent by 2017 relative to the corresponding 2007 levels.⁷ By 2017 the value of income arising in the sector is projected to be € 2,410 m.

Figure 3-14: Irish Good Output at Producer Prices and Operating Surplus

Goods Output at Producer Prices



Operating Surplus and Total Net Subsidies



FAPRI-Ireland Model (2008)

⁷ It should be noted that agricultural sector incomes in 2005, 2006 and 2007 considerably higher than those observed earlier in this decade.

References

- Agra Facts (2007). "Special Edition – Details of Draft Health Check Communication." No 77-07, Brussels.
- Binfield J., Donnellan T., Hanrahan K. and Westhoff P. (2007a). Baseline 2007. In *Outlook for EU and Irish Agriculture*. FAPRI-Ireland Partnership Teagasc, Carlow, Ireland.
- Binfield J., Donnellan T., Hanrahan K. and Westhoff P. (2007b). *FAPRI-Ireland CAP Health Check Analysis: Impact of EU Milk Quota Expansion* FAPRI-Ireland Partnership Teagasc, Carlow, Ireland.
- Binfield J., Donnellan T., Hanrahan K. and Westhoff P. (2008). *FAPRI-Ireland 2008 WTO Reform Analysis: Potential Impact on EU and Irish Agriculture*. FAPRI-Ireland Partnership Teagasc, Carlow, Ireland.
- Collins, K. (2008) "The Role of Biofuels and Other Factors in Increasing Farm and Food Prices: A Review of Recent Developments with a Focus on Feed Grain Markets and Market Prospects." Available to download at <http://www.foodbeforefuel.org/files/Role%20of%20Biofuels%206-19-08.pdf>.
- Commission of the European Communities (2007) "Communication from the Commission to the European Parliament and the Council: Preparing for the 'Health Check' of the CAP reform." COM(2007) 722 final. Brussels, 20.11.2007.
- Fitz Gerald, J., A. Bergin, T. Conefrey, S. Diffney, D. Duffy, I. Kearney, S. Lyons, L. Malaguzzi Valeri, K. Mayor and R. Tol. (2008) *Medium Term Review: 2008-2015*. ESRI Macroeconomic Forecasting Series. Economic and Social Research Institute, Dublin.
- Food and Agricultural Policy Research Institute-FAPRI (2008) FAPRI 2008 U.S. and World Agricultural Outlook. Iowa State University and the University of Missouri-Columbia. Available to download at <http://www.fapri.iastate.edu/outlook2008/>
- OECD (2007) OECD Economic Outlook No. 82, December 2007, Paris
- Mitchell, D. (2008) "A Note on Rising Food Prices." Policy Research Working Paper No. 4682. The World Bank Development Prospects Group, July 2008. World Bank, Washington, D.C.
- Westhoff, P. W. Thompson and S. Meyer. (2008) "Biofuels: Impact of Selected Farm Bill Provisions and other Biofuel Policy Options" FAPRI-MU Report #06-08, June 2008. Available to download at: http://www.fapri.missouri.edu/outreach/publications/2008/FAPRI_MU_Report_06_08.pdf.

Annex I Baseline Output Input and Income Table

Table A-I-1: Output Input and Income in Agriculture (Baseline)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007 v 2017
Livestock	2,409	2,350	2,545	2,522	2,414	2,354	2,389	2,428	2,438	2,430	2,417	2,400	2.2%
of which: <i>cattle</i>	1,502	1,477	1,682	1,638	1,538	1,485	1,509	1,532	1,533	1,522	1,507	1,488	0.8%
<i>pigs</i>	321	290	279	288	282	273	272	276	275	272	268	265	-8.4%
<i>sheep and lambs</i>	191	182	165	171	172	171	174	177	180	180	180	179	-1.7%
Livestock Products	1,369	1,711	1,579	1,436	1,406	1,426	1,445	1,459	1,465	1,465	1,468	1,467	-14.2%
of which: <i>milk</i>	1,326	1,668	1,534	1,391	1,360	1,380	1,399	1,413	1,419	1,419	1,422	1,421	-14.8%
Crops	1,465	1,613	1,574	1,572	1,572	1,578	1,592	1,611	1,628	1,645	1,660	1,676	3.9%
Total Cereals	160	273	263	255	258	260	269	279	284	287	288	287	5.3%
Root Crops	107.2	92.1	105.3	110.9	112.2	114.3	115.7	117.4	118.9	120.7	122.4	124.0	35.1%
Forage Plants-Output	859.9	911.9	862.3	856.4	848.1	844.9	844.3	845.8	848.8	852.8	857.2	862.5	-5.4%
Goods output producer prices	5,242	5,674	5,697	5,531	5,393	5,358	5,425	5,498	5,531	5,540	5,545	5,543	-2.3%
Contract Work	276	274	287	288	285	286	289	295	301	309	316	325	18.5%
Subsidies less taxes on products	-17	-21	51	51	51	51	51	-21	-21	-21	-21	-21	0.0%
Ag. Output basic prices	5,501	5,927	5,964	5,798	5,656	5,623	5,694	5,772	5,812	5,828	5,842	5,847	-1.3%
Intermediate consumption	3,818	3,926	4,002	3,924	3,892	3,909	3,948	3,982	4,004	4,018	4,028	4,008	2.1%
Feedingstuffs	970	1,025	1,053	956	912	916	934	942	936	924	910	895	-12.6%
Fertilisers	380	359	422	434	438	438	438	437	435	433	430	425	18.6%
Energy & Lubricants	310	326	327	329	331	334	337	341	346	350	355	358	9.8%
Forage Plants-Input	846	897	845	839	830	827	826	828	831	835	840	845	-5.8%
Contract Work-Input	276	274	287	288	285	286	289	295	301	309	316	325	18.5%
Gross value added basic prices	1,683	2,001	1,962	1,874	1,764	1,714	1,746	1,790	1,808	1,809	1,814	1,840	-8.1%
Fixed capital consumption	688	710	722	745	764	781	799	813	827	840	841	842	18.7%
Net value added basic prices	995	1,291	1,239	1,128	1,000	933	947	976	981	969	973	998	-22.8%
Subsidies less taxes on production	1,847	1,862	1,932	1,960	1,970	1,970	1,970	1,970	1,970	1,970	1,970	1,969	5.8%
Factor income	2,842	3,153	3,171	3,088	2,971	2,903	2,917	2,946	2,951	2,939	2,943	2,968	-5.9%
Compensation of employees	418	451	471	482	487	493	499	507	517	528	543	556	23.1%
Operating surplus	2,424	2,702	2,700	2,606	2,483	2,410	2,418	2,439	2,434	2,411	2,401	2,410	-10.8%

Source: FAPRI-Ireland GOLD Model (2008).
Historical data, CSO Output, Input and Income in Agriculture.

Annex II Baseline: Commodity Supply & Use Projections

Table A-II-1: Baseline: EU 27 Cereal Supply & Use Projections
EU-27 wheat supply and utilisation

	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Area harvested	24,899	24,671	25,850	26,814	26,224	25,445	25,451	25,806	26,081	26,122	26,156	26,175
Yield	5.07	4.84	5.30	5.31	5.36	5.42	5.47	5.48	5.50	5.54	5.57	5.61
Production	126.13	119.36	137.03	142.27	140.48	137.90	139.09	141.44	143.54	144.67	145.81	146.86
Beginning stocks	26.94	20.59	18.66	18.13	18.24	18.52	18.44	18.37	18.42	18.59	18.78	18.99
Imports	5.00	6.36	4.52	5.84	7.13	4.09	3.45	3.64	3.91	3.99	4.11	4.23
Total supply	158.07	146.32	160.21	166.24	165.85	160.51	160.99	163.45	165.87	167.25	168.70	170.08
Domestic use	124.38	117.70	130.07	131.62	136.24	135.79	137.45	139.53	141.27	142.30	143.30	144.22
Feed	52.58	47.41	54.18	54.07	56.20	55.18	54.96	55.16	55.76	56.15	56.64	57.11
Other	71.80	70.29	75.88	77.55	80.04	80.61	82.48	84.38	85.51	86.15	86.66	87.11
Exports	13.10	9.96	12.02	16.38	11.10	6.27	5.17	5.50	6.00	6.17	6.41	6.66
Ending stocks	20.59	18.66	18.13	18.24	18.52	18.44	18.37	18.42	18.59	18.78	18.99	19.20
Net exports	8.10	3.60	7.50	10.54	3.96	2.19	1.72	1.86	2.09	2.18	2.30	2.43
Set-aside rate	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prices	euro per tonne, Jan.-Dec.											
Intervention price	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
Soft wheat	140.8	239.3	182.1	152.0	141.1	150.5	156.2	159.7	158.4	157.4	155.1	153.5

EU-27 barley supply and utilisation

	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Area harvested	13,799	13,731	14,059	14,087	14,285	14,293	14,136	14,062	14,072	14,114	14,112	14,098
Yield	4.04	4.20	4.48	4.37	4.41	4.46	4.52	4.55	4.59	4.63	4.67	4.71
Production	55.74	57.62	62.96	61.53	63.01	63.79	63.85	63.96	64.52	65.30	65.92	66.47
Beginning stocks	13.21	11.05	12.64	11.58	11.65	12.09	12.31	12.31	12.24	12.29	12.44	12.65
Imports	0.30	0.36	1.90	0.88	0.32	0.34	0.33	0.33	0.33	0.34	0.35	0.37
Total supply	69.25	69.03	77.50	73.99	74.97	76.22	76.49	76.60	77.09	77.92	78.71	79.49
Domestic use	52.60	49.19	52.97	54.10	56.77	57.41	57.71	58.02	58.43	58.89	59.20	59.48
Feed	39.69	35.88	36.49	37.17	38.72	39.10	38.59	38.13	38.16	38.46	38.70	38.94
Other	12.91	13.31	16.47	16.93	18.05	18.32	19.12	19.89	20.27	20.43	20.50	20.54
Exports	5.60	7.20	12.95	8.24	6.11	6.49	6.47	6.34	6.37	6.59	6.86	7.13
Ending stocks	11.05	12.64	11.58	11.65	12.09	12.31	12.31	12.24	12.29	12.44	12.65	12.88
Net exports	5.30	6.85	11.05	7.36	5.79	6.16	6.13	6.01	6.04	6.25	6.50	6.76
Set-aside rate	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intervention price	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
Market price	125.8	213.9	174.8	153.3	144.0	148.0	153.8	158.9	159.0	157.8	155.8	154.4

EU-27 maize for grain supply and utilisation

	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Area harvested	8,521	7,972	8,592	8,289	8,256	8,434	8,541	8,573	8,583	8,608	8,632	8,628
Yield	6.44	5.92	6.58	6.93	6.96	7.02	7.08	7.11	7.17	7.24	7.31	7.38
Production	54.88	47.16	56.56	57.41	57.48	59.19	60.51	60.97	61.54	62.32	63.09	63.64
Beginning stocks	17.54	15.60	15.19	15.88	16.56	17.06	17.45	17.74	17.86	18.08	18.40	18.81
Imports	5.20	11.42	3.42	3.93	3.79	3.64	3.51	3.51	3.60	3.55	3.56	3.53
Total supply	77.63	74.17	75.16	77.22	77.83	79.89	81.47	82.21	83.01	83.94	85.05	85.98
Domestic use	60.33	57.58	57.08	59.09	58.49	59.72	60.82	61.44	62.08	62.64	63.35	63.86
Feed	47.53	45.14	44.68	46.35	45.17	46.15	46.69	46.78	47.09	47.45	47.99	48.36
Other	12.80	12.44	12.40	12.74	13.32	13.57	14.13	14.66	14.99	15.19	15.36	15.50
Exports	1.70	1.40	2.20	1.57	2.28	2.72	2.91	2.91	2.85	2.91	2.90	2.92
Ending stocks	15.60	15.19	15.88	16.56	17.06	17.45	17.74	17.86	18.08	18.40	18.81	19.19
Net exports	-3.50	-10.02	-1.21	-2.36	-1.51	-0.92	-0.60	-0.60	-0.76	-0.63	-0.67	-0.61
Set-aside rate	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intervention price	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
Market price	140.9	218.4	160.6	144.6	142.7	146.0	149.5	153.3	152.4	150.8	147.5	145.3

Table A-II-2: Baseline: Irish Cereal Supply & Use Projections

Irish all wheat supply and utilisation

	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18		
Area harvested	88	84	94	100	108	thousand hectares		114	113	113	112	112		
Yield	9.15	9.25	10.13	10.65	10.92	tonnes per hectare		10.36	10.22	10.35	10.37	10.36		
Production	0.80	0.78	0.95	1.07	1.18	million tonnes		1.19	1.17	1.17	1.17	1.16		
Beginning stocks	0.04	0.02	0.05	0.06	0.08	0.10	0.10	0.11	0.11	0.11	0.11	0.11		
Imports	0.86	0.76	0.72	0.68	0.64	0.64	0.65	0.65	0.65	0.65	0.64	0.65		
Total supply	1.70	1.56	1.72	1.81	1.91	1.92	1.92	1.92	1.92	1.93	1.91	1.91		
Domestic use	1.44	1.11	1.19	1.21	1.23	1.24	1.24	1.25	1.25	1.26	1.23	1.24		
Feed	1.10	0.80	0.80	0.79	0.79	0.78	0.77	0.76	0.76	0.75	0.75	0.74		
Other	0.34	0.32	0.39	0.42	0.44	0.46	0.47	0.48	0.49	0.51	0.48	0.50		
Exports	0.24	0.40	0.47	0.52	0.58	0.58	0.57	0.57	0.56	0.56	0.58	0.57		
Ending stocks	0.02	0.05	0.06	0.08	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.10		
Loss, statistical disc.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Feed wheat price euro/tonne	121.8	201.7	152.1	138.0	131.6	Jan.-Dec. average		134.1	138.0	141.3	141.3	140.5	139.3	138.4

Irish barley supply and utilisation

	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Barley												
						thousand hectares						
Area harvested	167	168	187	182	174	170	173	176	180	183	186	189
						tonnes per hectare						
Yield	6.81	6.89	7.28	7.54	7.70	7.51	7.43	7.43	7.47	7.51	7.52	7.51
						million tonnes						
Production	1.14	1.16	1.36	1.37	1.34	1.28	1.28	1.31	1.34	1.37	1.40	1.42
Beginning stocks	0.10	0.11	0.13	0.14	0.15	0.15	0.14	0.14	0.14	0.15	0.15	0.15
Imports	0.17	0.13	0.11	0.11	0.12	0.13	0.13	0.13	0.12	0.12	0.10	0.10
Total supply	1.41	1.40	1.60	1.63	1.61	1.56	1.56	1.58	1.61	1.64	1.65	1.68
Domestic use	1.27	1.11	1.14	1.16	1.18	1.18	1.18	1.18	1.18	1.19	1.15	1.15
Feed	1.05	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.77	0.76	0.74
Other	0.23	0.28	0.31	0.34	0.36	0.38	0.39	0.40	0.41	0.42	0.39	0.41
Exports	0.05	0.16	0.32	0.32	0.28	0.24	0.24	0.25	0.28	0.30	0.35	0.37
Ending stocks	0.09	0.13	0.14	0.15	0.15	0.14	0.14	0.14	0.15	0.15	0.15	0.16
Market prices						euro per tonne, Jan.-Dec. average						
Feed barley	111.8	161.9	142.0	127.8	121.5	124.0	127.8	131.1	131.2	130.4	129.1	128.2
Malt barley	129.6	179.6	159.8	145.6	139.2	141.7	145.6	148.9	148.9	148.2	146.9	146.0

Table A-II-3: Baseline: EU 27 Livestock and Meat Supply & Use Projections

EU-27 livestock

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cattle	million head											
Beginning inventories	89.64	88.46	88.83	88.70	88.37	87.87	87.14	86.39	85.65	84.95	84.30	83.71
Dairy cows	24.89	24.30	24.11	23.81	23.49	23.15	22.78	22.45	22.14	21.85	21.59	21.33
Suckler cows	12.09	12.01	12.21	12.21	12.30	12.34	12.28	12.34	12.42	12.53	12.64	12.77
Suckler cow quota			13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55
Cattle slaughter	29.31	29.06	29.38	29.50	29.48	29.47	29.20	29.00	28.80	28.63	28.47	28.34
Slaughter weight	277.5	276.8	277.7	278.8	278.1	277.1	276.8	276.4	276.0	275.6	275.2	274.9
Pigs	million head											
Beginning inventories	159.22	161.84	159.57	154.87	154.16	157.83	158.72	157.60	157.43	158.07	158.69	159.20
Sows	15.48	15.62	15.10	14.54	14.95	15.22	15.04	14.93	14.96	15.01	15.03	15.06
Pig slaughter	249.72	257.97	252.49	246.53	248.88	253.66	253.63	252.35	252.75	253.97	255.04	256.05
Slaughter weight	87.81	88.37	87.52	88.70	88.81	88.53	88.63	88.84	88.97	89.06	89.17	89.28
Sheep	million head											
Beginning inventories	96.38	95.24	96.22	94.27	95.06	95.91	95.80	95.60	95.54	95.69	95.91	96.20
Ewes	71.12	70.26	70.77	68.47	69.52	69.74	69.21	68.85	68.69	68.65	68.64	68.66
Sheep slaughter	72.56	70.39	72.91	68.79	69.77	70.83	70.36	69.84	69.55	69.47	69.42	69.44
Slaughter weight	17.27	17.65	17.77	17.75	17.98	18.15	18.27	18.37	18.44	18.50	18.55	18.60

EU-27 meat supply and utilisation

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Beef and veal	thousand tonnes											
Production	8,133	8,043	8,159	8,224	8,198	8,166	8,081	8,016	7,949	7,889	7,837	7,790
Non-EU imports	620	638	376	567	578	631	666	704	730	747	760	771
Domestic use	8,500	8,625	8,519	8,767	8,742	8,758	8,718	8,692	8,651	8,608	8,569	8,533
Non-EU exports	256	56	25	25	29	33	25	25	25	25	25	25
Stock change	0	0	-9	-2	5	7	5	3	3	3	3	3
Intervention/SPS stocks	0	0	0	0	0	0	0	0	0	0	0	0
Pig meat	thousand tonnes											
Production	21,927	22,796	22,098	21,867	22,103	22,458	22,480	22,418	22,488	22,618	22,742	22,861
Non-EU imports	124	34	34	34	34	34	34	34	34	34	34	34
Domestic use	20,963	21,268	21,147	20,886	21,043	21,349	21,387	21,352	21,434	21,567	21,683	21,795
Non-EU exports	1,088	1,562	1,011	1,029	1,079	1,122	1,124	1,104	1,084	1,076	1,084	1,091
Stock change	0	0	-25	-14	15	21	3	-3	4	9	9	9
Poultry meat	thousand tonnes											
Production	11,311	11,507	11,308	11,619	11,784	11,788	11,841	11,925	12,025	12,122	12,226	12,331
Non-EU imports	656	556	623	584	563	564	566	569	570	572	574	576
Domestic use	11,187	11,561	11,469	11,660	11,782	11,790	11,849	11,934	12,028	12,119	12,220	12,322
Non-EU exports	780	502	494	539	547	555	559	560	564	569	573	578
Stock change	0	0	-31	4	17	8	0	0	4	7	8	8
Sheep meat	thousand tonnes											
Production	1,253	1,242	1,296	1,221	1,254	1,285	1,285	1,283	1,283	1,285	1,288	1,291
Non-EU imports	290	280	287	292	292	292	295	299	301	304	306	309
Domestic use	1,538	1,517	1,574	1,508	1,540	1,572	1,575	1,576	1,579	1,584	1,589	1,595
Non-EU exports	5	5	5	5	5	5	5	5	5	5	5	5
Stock change	0	0	0	0	1	1	0	0	0	0	0	0
Consumption	kilograms per capita, cwe											
Beef and veal	18.03	18.24	17.98	18.46	18.37	18.37	18.26	18.19	18.08	17.97	17.87	17.78
Pig meat	44.47	44.98	44.62	43.98	44.22	44.79	44.81	44.68	44.80	45.03	45.23	45.42
Poultry meat	23.73	24.45	24.20	24.55	24.76	24.74	24.83	24.97	25.14	25.30	25.49	25.68
Sheep meat	3.26	3.21	3.32	3.18	3.24	3.30	3.30	3.30	3.30	3.31	3.31	3.32
Total	89.50	90.88	90.11	90.16	90.59	91.20	91.20	91.13	91.32	91.61	91.90	92.20
Prices	euro per 100 kilograms											
Young cattle R3	315.8	301.5	344.6	333.4	314.5	307.6	316.3	323.8	328.3	331.0	333.4	335.1
Pig meat reference	145.4	135.2	152.4	160.9	153.9	146.7	150.5	155.9	156.4	154.6	153.3	151.9
Chicken	151.0	181.2	189.8	186.5	178.6	178.9	184.1	188.2	188.7	187.8	186.5	185.0
Sheep meat reference	418.6	405.0	428.7	442.4	429.3	420.3	425.6	431.9	435.0	435.9	437.1	437.8
Beef intervention	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0

Table A-II-4: Baseline: Irish Livestock Supply & Use Projections

Irish livestock supply and utilisation

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cattle	million head											
Beginning inventories	6.19	6.00	5.90	5.89	5.89	5.87	5.84	5.79	5.73	5.66	5.58	5.50
Dairy cows	1.10	1.09	1.09	1.09	1.08	1.07	1.06	1.05	1.04	1.03	1.01	1.00
Suckler cows	1.15	1.13	1.12	1.12	1.12	1.12	1.11	1.11	1.09	1.07	1.04	1.02
Other cattle	3.94	3.79	3.70	3.68	3.68	3.68	3.66	3.64	3.60	3.56	3.52	3.48
Calf crop	2.10	2.07	2.06	2.07	2.06	2.05	2.03	2.01	1.99	1.96	1.93	1.89
Cattle imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total supply	8.30	8.07	7.96	7.96	7.95	7.92	7.87	7.81	7.72	7.62	7.51	7.39
Cattle slaughter	1.78	1.78	1.67	1.66	1.67	1.67	1.67	1.67	1.66	1.64	1.62	1.59
Cow slaughter	0.36	0.36	0.37	0.37	0.38	0.38	0.38	0.39	0.38	0.38	0.37	0.35
Calf slaughter	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other slaughter	1.42	1.42	1.30	1.28	1.28	1.28	1.28	1.28	1.27	1.26	1.25	1.23
Cattle exports	0.25	0.21	0.22	0.23	0.24	0.24	0.24	0.23	0.23	0.23	0.22	0.22
Destruction, other loss	0.27	0.19	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.16
Ending inventories	6.00	5.90	5.89	5.89	5.87	5.84	5.79	5.73	5.66	5.58	5.50	5.42
Suckler cow quota	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Slaughter weight	322.6	327.9	321.5	322.9	321.5	319.5	318.5	318.8	318.9	318.7	318.3	318.2
	kilograms per head											
Pigs	million head											
Beginning inventories	1.67	1.62	1.57	1.61	1.60	1.62	1.65	1.63	1.59	1.55	1.52	1.49
Sows	0.18	0.17	0.1619	0.1583	0.1601	0.1611	0.1573	0.1549	0.1538	0.1529	0.1521	0.1514
Other pigs	1.49	1.45	1.41	1.45	1.44	1.46	1.49	1.47	1.43	1.40	1.37	1.34
Pig crop	3.11	2.91	2.72	2.66	2.73	2.75	2.64	2.59	2.57	2.55	2.54	2.52
Pig imports	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Total supply	4.83	4.58	4.35	4.32	4.38	4.43	4.35	4.27	4.20	4.15	4.11	4.06
Pig slaughter	2.76	2.62	2.59	2.57	2.60	2.62	2.57	2.54	2.52	2.50	2.49	2.47
Pig exports	0.45	0.38	0.15	0.15	0.16	0.16	0.15	0.14	0.14	0.13	0.13	0.13
Destruction, other loss	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending inventories	1.62	1.59	1.61	1.60	1.62	1.65	1.63	1.59	1.55	1.52	1.49	1.47
Slaughter weight	75.7	75.8	75.8	76.1	76.3	76.1	76.0	76.0	76.0	76.1	76.1	76.2
	kilograms per head											
Sheep	million head											
Beginning inventories	4.26	3.83	3.53	3.43	3.45	3.46	3.43	3.39	3.38	3.36	3.32	3.28
Ewes	3.21	2.93	2.66	2.64	2.72	2.76	2.77	2.76	2.78	2.78	2.77	2.74
Other sheep	1.05	0.89	0.87	0.79	0.74	0.70	0.67	0.63	0.60	0.58	0.56	0.53
Lamb crop	3.26	3.03	2.75	2.73	2.82	2.87	2.87	2.87	2.89	2.89	2.88	2.85
Sheep imports	0.25	0.25	0.25	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Total supply	7.77	7.10	6.53	6.43	6.54	6.60	6.57	6.53	6.54	6.52	6.47	6.39
Sheep slaughter	3.49	3.26	2.76	2.65	2.74	2.83	2.84	2.81	2.85	2.86	2.87	2.85
Sheep exports	0.10	0.10	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Destruction, other loss	0.35	0.21	0.27	0.27	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.25
Ending inventories	3.83	3.53	3.43	3.45	3.46	3.43	3.39	3.38	3.36	3.32	3.28	3.22
Slaughter weight	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
	kilograms per head											

Table A-II-5: Baseline: Irish Meat Supply & Use Projections

Irish meat supply and utilisation

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Beef and veal												
	thousand tonnes											
Production	572	581	537	537	536	534	530	533	528	523	515	507
Imports	33	37	38	39	40	41	42	42	43	43	43	43
Domestic use	89	94	96	99	101	103	105	106	106	107	108	108
Exports	516	525	480	477	476	472	468	470	465	459	451	442
Intervention/SPS stocks	0	0	0	0	0	0	0	0	0	0	0	0
Pig meat												
	thousand tonnes											
Production	209	198	196	195	198	199	196	193	192	190	189	188
Imports	53	52	48	46	48	50	48	47	47	47	48	48
Domestic use	150	157	161	163	165	167	169	170	171	172	173	174
Exports	109	96	83	79	81	82	75	71	68	66	64	62
Ending stocks	19	15	15	15	15	15	15	15	15	15	15	15
Broiler meat												
	thousand tonnes											
Production	86	81	83	86	87	87	88	89	90	90	91	92
Imports	23	29	32	35	38	42	45	48	52	55	59	62
Domestic use	84	96	102	107	111	114	118	122	126	130	134	138
Exports	25	13	12	13	14	15	15	15	16	16	16	17
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0
Other poultry meat												
	thousand tonnes											
Production	44	41	42	43	44	44	45	45	45	46	46	47
Imports	11	14	16	18	19	21	22	24	26	28	29	31
Domestic use	42	33	33	36	39	41	43	45	47	49	51	54
Exports	13	23	25	25	24	24	24	24	24	24	24	24
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0
Sheep meat												
	thousand tonnes											
Production	70	66	56	53	55	57	57	57	57	58	58	57
Imports	3	3	3	3	3	3	3	3	3	3	3	3
Domestic use	19	19	20	20	20	20	20	21	21	21	21	21
Exports	54	49	38	36	38	40	40	39	40	40	40	39
Stock change	0	0	0	0	0	0	0	0	0	0	0	0
Consumption												
	kilograms per capita, cwe											
Beef and veal	21.04	21.59	21.77	22.15	22.47	22.65	22.69	22.65	22.57	22.45	22.31	22.15
Pig meat	35.38	36.22	36.53	36.59	36.58	36.67	36.61	36.44	36.24	36.05	35.85	35.65
Broiler meat	19.83	22.23	23.29	24.13	24.58	25.04	25.59	26.15	26.69	27.19	27.69	28.18
Other poultry meat	9.91	7.59	7.58	8.10	8.60	8.95	9.27	9.63	9.97	10.31	10.64	10.97
Sheep meat	4.55	4.49	4.63	4.55	4.45	4.41	4.41	4.42	4.41	4.39	4.36	4.32
Total	90.71	92.13	93.80	95.52	96.68	97.71	98.57	99.29	99.88	100.39	100.85	101.28
Market prices												
	euro per 100 kilograms											
Steer R3 Price	281.6	276.3	302.9	293.7	278.2	272.5	279.6	285.8	289.5	291.7	293.7	295.1
Pig meat	139.9	132.0	146.3	153.3	147.4	141.4	145.0	149.6	150.2	149.0	148.1	147.1
Sheep meat reference	339.3	356.4	368.5	381.1	369.0	360.7	365.6	371.4	374.2	375.1	376.1	376.8
Chicken	3.12	3.28	3.56	3.51	3.37	3.38	3.47	3.53	3.54	3.53	3.51	3.48

Table A-II-6: Baseline: EU 27 Dairy Commodity Supply & Use Projections

EU-27 dairy supply and utilisation

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
thousand head, end of year												
Dairy cows	24,891	24,305	24,048	23,625	23,276	22,893	22,570	22,257	21,972	21,701	21,446	21,198
kilograms per cow												
Production/cow	5,898	6,041	6,198	6,331	6,402	6,466	6,529	6,596	6,669	6,745	6,825	6,905
thousand tonnes												
Fluid milk												
Cow's milk production	146.80	146.81	149.04	149.57	149.00	148.01	147.36	146.81	146.52	146.37	146.36	146.37
Milk quota	138.30	138.78	145.45	146.32	146.32	146.32	146.32	146.32	146.32	146.32	146.32	146.32
Other milk production	5.17	5.23	5.24	5.25	5.26	5.27	5.28	5.29	5.30	5.31	5.32	5.33
Fluid consumption	43.79	43.82	43.92	44.10	44.15	44.00	43.82	43.66	43.52	43.39	43.24	43.10
Manufacturing use	102.02	102.07	103.73	103.68	103.18	102.44	102.06	101.76	101.72	101.80	102.04	102.28
Feed use, net exports	6.52	6.50	6.63	7.03	6.93	6.84	6.75	6.67	6.58	6.49	6.40	6.32
thousand tonnes												
Cheese												
Production	8,820	8,906	9,025	9,252	9,299	9,338	9,382	9,426	9,483	9,541	9,605	9,674
Non-EU imports	90	105	104	107	112	114	116	118	120	123	125	127
Domestic use	8,391	8,465	8,621	8,863	9,000	9,053	9,105	9,163	9,229	9,304	9,375	9,452
Non-EU exports	519	547	499	481	401	395	391	379	371	357	352	345
Ending stocks	498	498	506	521	531	534	537	539	542	545	549	552
thousand tonnes												
Butter												
Production	2,086	2,101	2,137	2,105	2,092	2,076	2,071	2,066	2,068	2,073	2,078	2,084
Non-EU imports	80	88	88	88	88	88	88	88	88	88	88	88
Domestic use	1,945	1,943	1,956	1,958	1,964	1,959	1,953	1,948	1,944	1,939	1,933	1,929
Non-EU exports	261	286	262	232	193	193	202	203	208	216	229	237
Ending stocks	184	144	150	154	178	190	193	196	200	205	208	215
thousand tonnes												
Skim powder												
Production	895	952	1,042	881	830	805	791	779	770	763	757	750
Non-EU imports	22	22	22	22	22	22	22	22	22	22	22	22
Domestic use	781	772	761	750	747	738	728	719	713	708	702	698
Non-EU exports	176	242	318	166	112	95	90	86	82	79	77	75
Ending stocks	157	117	102	89	81	76	71	68	66	65	64	64
thousand tonnes												
Whole powder												
Production	774	744	773	695	653	619	590	564	541	522	519	510
Non-EU imports	20	20	14	15	15	15	15	16	16	16	16	16
Domestic use	306	273	295	304	316	319	321	323	325	328	329	331
Non-EU exports	488	491	488	399	344	311	282	256	230	209	206	194
Ending stocks	42	42	47	53	61	65	68	69	70	71	72	72
kilograms per capita												
Consumption												
Fluid milk	92.89	92.66	92.66	92.86	92.78	92.31	91.82	91.36	90.95	90.58	90.18	89.81
Cheese	18.56	18.67	18.92	19.36	19.57	19.62	19.67	19.73	19.83	19.94	20.04	20.17
Butter	4.13	4.11	4.43	4.43	4.43	4.41	4.39	4.37	4.35	4.34	4.32	4.31
euro per 100 kilograms												
Prices												
Milk, 3.7% fat	27.6	32.1	29.8	28.5	27.9	28.1	28.4	28.6	28.7	28.7	28.8	28.8
Cheese market	384.4	422.8	412.4	389.9	383.1	388.1	392.9	396.5	398.3	398.6	399.6	399.5
Butter market	290.3	435.4	268.8	265.7	259.1	259.2	260.1	260.0	259.3	258.4	258.2	257.0
SMP market	219.4	285.2	240.6	240.9	237.4	241.9	247.7	252.7	255.6	257.2	259.5	261.0
WMP market	247.9	322.2	293.9	265.9	234.3	232.6	233.6	234.0	233.4	232.3	234.2	234.1
Butter intervention	259.3	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2
SMP intervention	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7

Table A-II-7: Baseline: Irish Dairy Commodity Supply & Use Projections

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Dairy cows	1,087	1,088	1,086	1,084	1,072	1,059	1,048	1,037	1,025	1,014	1,003	992
Production (including imports)/cow	5,453	5,441	5,497	5,515	5,572	5,628	5,677	5,729	5,780	5,830	5,882	5,936
Output / Cow	4,745	4,817	4,866	4,877	4,914	4,959	5,004	5,049	5,093	5,136	5,183	5,231
Fluid milk												
Milk Production (incl Milk Imports)	6.05	5.96	6.06	6.07	6.06	6.05	6.04	6.03	6.02	6.00	5.99	5.98
Milk quota	5.40	5.40	5.48	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Other milk production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluid consumption	0.60	0.61	0.62	0.63	0.64	0.64	0.65	0.66	0.67	0.68	0.69	0.70
Manufacturing use	5.26	5.16	5.26	5.25	5.24	5.22	5.21	5.19	5.17	5.15	5.13	5.11
Feed use, net exports	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17
Cheese												
Production	135	140	146	144	144	154	154	154	154	153	153	153
Imports	15	15	14	17	18	17	18	20	22	24	26	27
Domestic use	38	40	42	44	46	48	49	51	54	56	58	61
Exports	111	115	119	117	117	123	123	122	122	121	120	120
Ending stocks	29	29	29	29	29	30	30	30	30	30	30	30
Butter												
Production	150	140	131	134	134	130	130	130	130	130	129	129
Imports	3	4	6	4	2	2	2	1	1	1	1	1
Domestic use	17	18	18	18	19	19	19	19	20	20	20	20
Exports	140	130	108	113	113	110	111	111	110	110	109	109
Ending stocks	73	69	80	86	92	94	96	97	98	99	100	101
Skim powder												
Production	76	100	76	76	74	72	71	71	71	71	70	70
Imports	4	4	5	5	5	5	5	6	6	6	6	6
Domestic use	11	10	11	11	11	11	11	11	11	11	11	11
Exports	72	100	69	69	68	67	66	66	66	65	65	65
Ending stocks	62	56	56	57	57	56	56	56	56	56	56	56
Whole powder												
Production	39	34	41	39	37	37	37	37	36	36	36	36
Imports	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	1	1	1	1	1	1	1	1	1	1	1	1
Exports	40	35	42	40	38	38	38	38	37	37	37	37
Ending stocks	1	1	1	1	1	1	1	1	1	1	1	1
Consumption												
Fluid milk	142	140	141	141	141	141	142	142	142	142	142	142
Cheese	9.01	9.19	9.50	9.84	10.14	10.43	10.73	11.05	11.38	11.71	12.05	12.40
Butter	4.23	4.10	4.09	4.10	4.11	4.12	4.12	4.14	4.15	4.16	4.17	4.19
Milk price, 3.7% fat												
euro/100 kg	24.16	30.32	28.20	25.64	25.17	25.59	25.98	26.29	26.44	26.50	26.61	26.6
IR£/100 kg	19.03	23.88	22.21	20.19	19.82	20.16	20.46	20.70	20.83	20.87	20.96	20.99

Table A-II-8: Baseline: Irish Input Use & Expenditure Projections

Irish Input Utilisation											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Feed											
Price	euro per tonne										
Dairy	213.39	236.64	243.69	223.17	213.96	217.57	223.18	227.94	228.01	226.88	225.06
Beef	217.26	251.10	245.90	224.35	214.67	218.46	224.36	229.36	229.44	228.25	226.34
Per head											
	kg/head										
Dairy	936	839	784	786	793	795	795	794	794	793	792
Beef	228	222	219	216	216	210	209	207	208	207	206
	2,080										
Total	000 tonnes										
Dairy	1,024	882	864	865	863	855	846	835	826	816	806
Beef	1,264	1,198	1,199	1,182	1,177	1,142	1,129	1,113	1,103	1,085	1,064
All animals & poultry	3,351	3,144	3,083	3,060	3,053	3,008	2,984	2,942	2,916	2,887	2,857
Fertilizer											
Nitrogen Application	kg/ha										
Per Ha of Grassland Area	95	86	81	80	80	80	81	81	81	81	81
Per Ha of Crop Area	123	122	91	86	85	81	81	83	86	88	89
	000 tonnes										
Total NPK Application	483	442	434	420	416	413	414	415	415	414	412
Intermediate Consumption of Inputs											
of which:											
	million Euro										
feedingstuffs	970	1025	1053	956	912	916	934	942	936	924	910
fertilisers	380	359	422	434	438	438	438	437	435	433	430
energy and lubricants	310	326	327	329	331	334	337	341	346	350	355
forage work	846	897	845	839	830	827	826	828	831	835	840
contract work	276	274	287	288	285	286	289	295	301	309	316