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PESTICIDE USAGE IN NORTHERN IRELAND
SURVEY REPORT 216

NORTHERN IRELAND ARABLE CROPS 2006

Agriculture, Fishing and Forestry

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PESTICIDE USAGE SURVEY REPORT 216

NORTHERN IRELAND

ARABLE CROPS

2006

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SUMMARY

This is the ninth survey of pesticide usage practices on arable crops in Northern Ireland, providing comparative data to that obtained in the previous surveys in 1990, (Jess *et al.*, 1992), 1992 (Jess *et al.*, 1995), 1994 (Jess *et al.*, 1997), 1996 (Jess *et al.*, 2000), 1998 (Jess *et al.*, 2002), 2000 (Withers *et al.*, 2004), 2002 (Withers *et al.*, 2004) and 2004 (Withers *et al.*, 2006).

Information on all aspects of pesticide usage was collected from 273 holdings throughout the Province, representing 27% of the total area of arable crops grown. Quantitative data has been adjusted to provide estimates of total pesticide usage.

The total area of arable crops grown in Northern Ireland in 2006 was 41,469 hectares. This represented a reduction of 15% compared to that recorded in 2004 and a 32% reduction to that recorded in the first pesticide usage survey on the arable sector in 1990. Approximately 43% of the arable cropping area was in County Down, 25% in County Londonderry, 16% in County Antrim, 9% in County Tyrone and 7% in County Armagh. There was no significant area of arable cropping in County Fermanagh.

Since the previous survey in 2004, the area of arable crops treated with pesticides decreased by 9%, to 295,635 spray-hectares. In the same period, the area treated with insecticides reduced by 13% but the weight of insecticide applications increased by 4%. This was due to the increased rate of application of the organophosphate, chlorpyrifos to cereal crops. The area treated with fungicides (12%) and herbicides/desiccants (10%) has decreased since 2004 and the weight applied of these pesticide groups also decreased by 5% and 40%, respectively. This reflects the relatively low dose rates of current herbicide applications. The molluscicide-treated area increased four-fold and by more than four-fold for weight applied. This was principally due to increased application of methiocarb, to maincrop potatoes for slug control. Growth regulators were applied primarily to spring barley, winter barley and, most frequently, to winter wheat. The use of growth regulators on cereal crops has increased by 19% when compared with 2004. The principal growth regulator used in 2006 was chlormequat, which is consistent with other recent surveys. The total weight of pesticides applied to arable crops in 2006 decreased to 238 tonnes of active ingredients, a reduction of 30% compared with 2004. As in 2004, the single active ingredients fludioxonil and imazalil, were the most commonly used seed treatments applied to cereals and potatoes, respectively.

Regional pesticide usage during 2006 was related to the area of arable crops grown in each county. Pesticides were applied to 83% of the total area of arable crops grown in Northern Ireland in 2006 with a range of 1.0 - 8.8 applications per crop.

Fungicides were applied to 42% of the pesticide-treated area, accounting for 28% of the total weight of pesticides used. Herbicides and desiccants were applied to 32% of the pesticide-treated area, representing 64% of the total weight of pesticides used.

Insecticides accounted for 10% of the pesticide-treated area of arable crops, representing less than 1% of the weight of pesticides used. Molluscicide treatments represented less than 1% of both area of application and weight of pesticides applied. Growth regulator usage accounted for 7% of the pesticide-treated area and 5% of the weight of active ingredients applied. Seed treatments were applied to 10% of the area of arable crops grown in 2006, representing 2% of the weight of active ingredients applied.

Potato crops comprised 12% of the area of arable crops grown in Northern Ireland in 2006, and accounted for 23% of the total pesticide-treated area. However, the weight of pesticides applied to potato crops represented 64% of the total weight of pesticides used on all arable crops. The total area of potatoes grown comprised 78% maincrop, 15% seed and 7% early potatoes. Potato crops accounted for 37% of the area of arable crops treated with fungicides and received 70% of the total weight of fungicides applied. Furthermore, applications of herbicides and desiccants to potato crops represented 17% and 67% of the area treated and weight applied of this pesticide group, respectively. The most commonly recorded fungicide was mancozeb, applied to arable crops as a single active ingredient and in formulation with other compounds. Mancozeb, used primarily in maincrop potatoes to control blight (*Phytophthora infestans*), accounted for 20% of the fungicide-treated area and 56% of the weight of fungicide active ingredients applied to this crop. Spring and winter barley crops accounted for 54% of the herbicide and desiccant-treated area, but only 18% of the weight applied of active ingredients from this pesticide group. The most commonly applied herbicide, used almost exclusively on cereal crops, principally spring barley, was metsulfuron-methyl. Owing to the low application rate of this active ingredient, the weight applied represented less than 1% of the total weight of herbicides and desiccants used.

A total of 262 products, comprising 114 active ingredients, was recorded in use on field crops in the survey.

In common with previous surveys of arable crops, data relating to post-harvest/storage treatments applied to farm stored potatoes were collected. An estimated 117,554 tonnes of potatoes were stored on-farm following the 2006 growing season. This represented a 24% decrease compared with 2004. Ware potatoes accounted for 79% of the total quantity of stored potatoes, with seed potatoes accounting for the remainder. County Londonderry and County Antrim accounted for 34% and 33% of all potatoes stored, respectively. All potatoes receiving treatments in storage were in County Down. Overall, less than 1% of stored potatoes received pesticide treatment. The protectant conazole fungicide imazalil was the only pesticide used with an estimated 0.76 kg of the active ingredient applied to 76 tonnes of stored seed potatoes in Northern Ireland in 2006. Approximately 43% of all potatoes in 2006 were stored in 'ventilated' stores. An estimated 77% of potatoes were stored on-farm in boxes, while 21% were stored in bulk.

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DEFINITIONS AND NOTES

- 'Basic area' refers to the actual planted area of crop, which was treated with a given pesticide.

- 'Treated area' refers to the total area treated with a pesticide, which includes all repeated applications to the basic area. This is measured in 'spray-hectares'.

- 'Reasons for use' refers to the perceived reasons given by the farmer for the use of a particular pesticide. These reasons may sometimes be inappropriate.

- 'Rounding'; due to rounding of figures there may be slight differences in totals both within and between tables.

- 'Spray applications' refers to the number of treatments of any pesticide type applied to the treated areas.

- 'Comparison tables'; due to restrictions imposed by the foot and mouth outbreak in February 2001 and the inability to complete farm visits, the 2000 report sample size was reduced by over one third. Due to this reduced sample size, data collected on the use of pesticide on potatoes, both grown and stored, was unreliable and had to be omitted from the 2000 report. Therefore, when comparisons are made between this, 2006 report, and previous reports, no comparisons can be made with the 2000 report in relation to total treatment of arable crops and both field and storage treatments of early, seed and maincrop potatoes.

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INTRODUCTION

As a participant of the UK Working Party on Pesticide Usage Surveys, the Department of Agriculture and Rural Development for Northern Ireland (DARD), conducts a cyclical programme of surveys to examine pesticide usage in all sectors of the agricultural and horticultural industries. Principally, the data collected provides information for consideration by the Advisory Committee on Pesticides. However, pesticide usage data may also be used by those involved in residue testing, for public information, provision of data for research and evaluation of trends in pesticide usage.

This is the ninth survey of pesticide usage on arable crops grown in Northern Ireland. Previous surveys reported on pesticide usage on arable crops grown in 1990 (Jess *et al.*, 1992), 1992 (Jess *et al.*, 1995), 1994 (Jess *et al.*, 1997), 1996 (Jess *et al.*, 2000), 1998 (Jess *et al.*, 2002), 2000 (Withers *et al.*, 2004), 2002 (Withers *et al.*, 2004) and 2004 (Withers *et al.*, 2006). Data from previous surveys are included in the report for comparative purposes.

A list of published Northern Ireland Pesticide Usage Survey reports is shown in Appendix 1.

METHODS

The sample of holdings to be surveyed was selected from each of the six counties on the basis of the total area of arable crops grown, using data from the Northern Ireland Agricultural Census, June 2005 (Anon., 2006). However, due to sampling procedures and the distribution of arable crops in Northern Ireland, no holdings were visited in County Fermanagh. The arable crops grown comprised the following; barley, wheat, oats, oilseed rape, peas and beans, triticale, lupins and potatoes.

The sample was stratified into six size groups, according to the total area of arable crops grown in each region. Holdings were selected at random within each of the size groups, the number of holdings being proportional to the total area of arable crops grown.

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 273 holdings were visited during November 2006 to April 2007. A majority of data was collected by personal interview and the remainder by telephone interview. The data collected included; the area of crops grown, area treated, target crop, pesticides used and number of treatments applied. The growers' perceived reasons for pesticide use were also included but may not always seem appropriate. Holdings selected in the original sample that were unable to provide data were replaced with those from the same county and size group held on a reserve list. During analysis, the sample data were raised to the total population level using raising factors calculated from the ratio of the number of farms sampled to the number of farms in the population within

each region and size group. A further adjustment factor corrected the data in accordance with the areas of arable crops published in the Northern Ireland Agricultural Census, June 2006 (Anon., 2007). The total number of farms in each size group and the number of farms sampled are shown in Table 1.

The collected data were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

RESULTS AND DISCUSSION

Crops

The number and area of arable crops surveyed, together with the proportion of the crop area surveyed, are shown in Table 2. Data from 273 farms provided information on 1,014 examples in 16 crop types. The total area of crops sampled in the survey represented 27% of the area of arable crops grown in Northern Ireland in 2006. Areas of arable crops grown in the six counties were estimated from survey data (Table 3, Figure 1) using raising factors discussed previously. Approximately 43% of the area of arable crops was grown in County Down, 25% in County Londonderry, 16% in County Antrim, 9% in County Tyrone and 7% in County Armagh. There was no significant area of arable cropping in County Fermanagh.

Barley crops, including spring barley (42%), undersown barley (2%) and winter barley (11%) were grown on 55% of the total arable area. Potato crops, comprising maincrop (10%), seed (2%) and early potatoes (<1%), collectively accounted for 12% of the total arable crop area (Table 3, Figure 2). A further 21% of the arable area comprised spring and winter wheat crops, while minor crops, including oats, oilseed rape etc. accounted for the remaining 6% of the total arable area.

Regional Pesticide Usage

Generally, regional pesticide usage closely approximated to the areas of arable crops grown in each county (Table 4, Figure 3). County Down accounted for 43%, County Londonderry 28%, County Antrim 15%, County Tyrone 10% and County Armagh 5% of the total pesticide-treated area. Counties Down and Londonderry accounted for 98% and 74% of molluscicide and growth regulator usage, respectively.

Pesticide Usage on Crops

The basic area of individual arable crops treated with pesticides approximated to the areas grown (Tables 3 & 5). Collectively, barley crops accounted for 44% of the total pesticide-treated area and 19% of the total weight of pesticides applied (Tables 5 & 6, Figures 4 & 5). Treatments applied to barley crops also represented 52% of the insecticide-treated area of arable crops and 61% of the total weight of insecticide active ingredients applied. Applications of herbicides and desiccants to barley crops accounted for 55% of the

herbicide and desiccant-treated area of arable crops but only 19% of the weight of this pesticide group applied. Fungicide application to barley crops accounted for 30% of the total area of arable crops treated with this pesticide group and 14% of the weight of fungicide active ingredients applied. Growth regulator applications to barley crops accounted for 51% of the total area of arable crops treated with this pesticide group and 45% of the weight of growth regulator active ingredients applied. In addition, barley crops accounted for 57% of the area of seed treatment applications and 22% of the weight of seed treatment active ingredients applied.

Wheat crops accounted for 29% of the total pesticide-treated area and 15% of the total weight of pesticides applied. Wheat crops also accounted for 37% of the insecticide-treated area of arable crops and 23% of the total weight of insecticide active ingredients applied. Application of growth regulators to wheat crops accounted for 43% of the total area of arable crops treated with this pesticide group and 49% of the weight of growth regulator active ingredients applied. Wheat crops also represented 30% of the arable area treated with fungicides and 23% of the arable area treated with herbicides/desiccants. Applications of seed treatments to wheat crops accounted for 29% of the arable area treated with this pesticide group and 12% of the weight applied. Molluscicide applications to winter wheat represented 6% of the area of arable crops treated with this group and 10% of the weight applied.

Potato crops, grown on 12% of the total area of arable crops, represented 37% of the area of arable crops receiving fungicide application, comprising 70% of the weight of fungicide active ingredients applied. Herbicide and desiccant applications to potato crops represented 17% of the total herbicide/desiccant-treated area. However, owing to the use of sulphuric acid as a haulm desiccant, the weight of herbicides and desiccants applied to potato crops was equivalent to 67% of the weight of this pesticide group applied to arable crops. The significant increase in the application of molluscicide treatments to maincrop potatoes accounted for 75% of the total area of arable crops treated with this pesticide group and 80% of the weight of molluscicide active ingredients.

Proportion of Crops Treated

The proportional areas of crops treated with different pesticide groups, together with the number of spray applications are shown in Table 7. Pesticides were applied to 83% of the total area of arable crops grown, and all crop types received a minimum of one application from one of the pesticide groups. An average of five fungicide spray applications to maincrop, early and seed potatoes were recorded in this survey.

Herbicides and desiccants were applied to 83% of arable crops grown with an average of 2.0 applications. All crop types received herbicide and/or desiccant treatment, with 100% of both triticale and lupins being treated with this pesticide group.

Fungicides were applied to 74% of the area of arable crops grown in 2006, with an average of 4.1 applications. Approximately 98% of spring wheat crops and 94% of winter wheat crops received fungicide treatment. Fungicides were applied to 94% of all winter barley crops.

Pre-planting seed treatments were applied to 70% of all arable crops. Over 93% of winter wheat, 86% of winter barley and 83% of winter oat crops were sown with treated seed. With regard to potatoes, 40% of seed, 40% of early and 45% of maincrop potatoes received seed treatments.

Molluscicides, which are only available as single active ingredients, were applied to 3% of arable crops. Other pesticide groups are available both as single active ingredients and in formulations. Maincrop potatoes (18%), oilseed rape (11%), seed potatoes (5%), Winter barley (2%), and winter wheat (1%) were the only arable crops to receive applications of this pesticide group.

Insecticide treatments were applied to 47% of the area of arable crops grown. Approximately 82% of winter barley, 75% of spring wheat and 73% of winter wheat crops were treated with insecticides. While 48% of seed potatoes were treated with insecticides, 14% of maincrop and 7% of early crops were so treated.

Growth regulators were applied to 32% of the total area of arable crops. All of the oilseed rape crop received one application of a growth regulator. More than 74% of winter wheat crops and 73% of winter barley received applications of growth regulators on at least one occasion. The majority of cereal crop types received growth regulator treatments, the exceptions being undersown oats and undersown barley.

Total Pesticide Usage

Approximately 238 tonnes of pesticide active ingredients were applied to 295,635 spray-hectares in 2006.

Fungicides were applied to 42% of the pesticide-treated area, accounting for 28% of the total weight of pesticides used (Tables 8 & 9). Potato crops, including seed, early and maincrop varieties, received 70% of the weight of fungicide active ingredients representing 37% of the area treated of arable crops treated with fungicides. Cereal crops received 30% of the weight of fungicide active ingredients accounting for 63% of the area of arable crops treated with fungicides. Fluazinam, used exclusively on potatoes and in particular maincrop potatoes, was the most extensively used fungicide applied as a single active ingredient, representing 11% (13,181 sp. ha) of the fungicide-treated area but only 3% of the weight of fungicide active ingredients applied. Chlorothalonil, used as a single active ingredient, was the most commonly used fungicide on winter wheat. However, applications, including formulations with cyproconazole, propiconazole, propamocarb hydrochloride or azoxystrobin accounted for 13% and 19% of the fungicide-treated area

and the weight of fungicides applied, respectively. Mancozeb, used exclusively on potato crops and applied as a single active ingredient or in formulation with diemethomorph, metalaxyl-m, propamocarb hydrochloride or zoxamide was applied to 20% of the fungicide-treated area and accounted for 56% of the weight of fungicide active ingredients applied to this crop. Azoxystrobin was commonly applied as a single active ingredient to spring barley. Overall, the application of this active ingredient represented 8% of the fungicide-treated area, accounting for less than 3% of the weight of fungicide active ingredients applied.

Herbicides and desiccants were applied to 32% of the pesticide-treated area accounting for 64% of the total weight of pesticides used. Sulphuric acid, used as a potato haulm desiccant, accounted for 61% of the weight of herbicide and desiccant active ingredients applied to all arable crops. However, owing to the high concentration of the acid in product formulation, the area treated with this active ingredient represented less than 1% of the total herbicide/desiccant-treated area. Cereals accounted for 79% of the area treated with herbicides and desiccants, while the weight of herbicide and desiccant active ingredients applied to cereal crops represented 32% of the total weight of herbicides and desiccants used. Treatments to spring barley crops accounted for 40% of the herbicide and desiccant-treated area, representing 11% of the weight of herbicide and desiccant active ingredients applied. The non-selective phosphonic acid herbicide glyphosate and the sulfonylurea herbicide metsulfuron-methyl, applied as a single active ingredient and in formulations with thifensulfuron-methyl and tribenuron-methyl, were the most extensively used herbicides on cereal crops, particularly spring barley, each accounting for 24% and 19% of the herbicide and desiccant-treated area of cereal crops, respectively. Owing to the low application rate of metsulfuron-methyl, the weight of this active ingredient applied represented less than 1% of the total weight of herbicides and desiccants used, whereas glyphosate accounted for 12%. Isoproturon, applied as a single active ingredient or in formulation with diflufenican, pendimethalin or trifluralin, was applied to 39% of the herbicide and desiccant-treated area of winter barley and winter wheat crops.

Insecticides were used on 9% of the pesticide-treated area of arable crops, accounting for less than 1% of the weight of pesticides used. Pyrethroid active ingredients accounted for 92% the insecticide-treated area but only 10% of the weight of insecticides used. The pyrethroid lambda-cyhalothrin was the most commonly used active ingredient, applied to most arable crops but primarily spring barley, and winter wheat, accounting for 40% of the insecticide-treated arable area. However, esfenvalerate, another pyrethroid, used exclusively on cereal crops, represented 37% of the insecticide-treated arable area. The organophosphate fosthiazate was applied to early and maincrop potatoes to control wireworm (*Agriotes spp.*).

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Methiocarb, metaldehyde and thiodicarb were the molluscicide active ingredients recorded. These accounted for less than 1% of pesticide use in both area of application and weight of pesticides applied. These active ingredients were applied to spring barley, winter barley, winter wheat, oilseed rape, seed potatoes and maincrop potatoes solely for slug control.

Growth regulators were used on 7% of the pesticide-treated area and accounted for 5% of the weight of active ingredients used. Growth regulators were applied primarily to spring barley, winter barley and most frequently, winter wheat. Chlormequat was the most commonly used growth regulator active ingredient, accounting for 62% of the area treated with growth regulators and 91% of the weight of growth regulators when applied as a single active ingredient. However, trinexapac-ethyl, 2-chloroethylphosphonic acid, mepiquat chloride and choline chloride were also used either as a single active ingredient or in various formulations. The plant auxin, 3-indolebutyric acid, along with the cytokinin, kinetin, were used as a natural growth regulator on less that 1% of winter barley and winter wheat crops.

Seed treatments applied to arable crops accounted for 10% of the pesticide-treated area, with seed dressings accounting for less than 2% of the weight of active ingredients applied. Overall, 81% of cereal crops and 54% of potato crops were grown from treated seed. The single active ingredient fludioxonil and a formulation of imazalil with triticonazole were the most commonly used seed treatments, representing 46% of the arable area sown using treated seed.

The areas of each crop treated with pesticide formulations, and the quantities of pesticide active ingredients applied to each crop type, are shown in Tables 8 and 9, respectively. The fifty most commonly used active ingredients, ranked by area treated and weight applied, are shown in Tables 10 and 11, respectively.

PESTICIDE USAGE ON CEREALS

Spring Barley (Table 12)

Overall, 84% of spring barley crops received pesticide treatments (Table 7). Applications of herbicides and desiccants to spring barley accounted for 44% of the pesticide-treated area (65% of the weight of pesticides applied), fungicides 24% (20%), seed treatments 15% (3%), insecticides 11% (3%), growth regulators 5% (9%) and molluscicides less than 1% (>1%) (Tables 5 & 6, Figures 6 & 7).

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In common with the previous survey in 2004, the fungicide epoxiconazole, primarily applied for general disease control, accounted for 11% of the fungicide-treated area and was the most extensively-used fungicide active ingredient. The formulation cyproconazole/propiconazole and azoxystrobin, applied as a single active ingredient, together accounted for 10% of the fungicide-treated area of spring barley. More than 98% of fungicide applications were for general disease control, while the remainder were specifically to control *Rhynchosporium* and mildew (*Blumeria graminis f.sp hordei*).

The most extensively used herbicide was metsulfuron-methyl, applied as a single active ingredient, but also in formulations with thifensulfuron-methyl or tribenuron-methyl. This was used primarily for 'general weed control'. The weight of metsulfuron-methyl used represented less than 1% of the herbicide active ingredients applied to spring barley, while accounting for 53% of the herbicide-treated area. Glyphosate, commonly used for 'ground preparation' and 'desiccation', represented 24% of the herbicide-treated area and 44% of the weight applied.

The primary targets for insecticide application to spring barley were 'aphids', with 75% of applications being used for this purpose. Pyrethroids, primarily esfenvalerate and lambda-cyhalothrin, represented 75% of insecticide applications to spring barley crops and 4% of weight applied. However, the organophosphate chlorpyrifos, generally applied to control leatherjackets (*Tipula* spp.), accounted for only 11% of the insecticide-treated area but 94% of the weight of insecticide active ingredients applied.

An estimated 18% of the area of spring barley was treated with growth regulators (Table 7). Chlormequat, applied as a single active ingredient, accounted for 56% of the growth regulator-treated area and 88% of the weight of growth regulators applied. The single active ingredient, trinexapac-ethyl represented 32% of the growth regulator treated area but accounted for only 5% of the weight of growth regulators applied. 2-chloroethylphosphonic acid applied as a single active ingredient or in formulation with mepiquat chloride, was used on the remaining 12% of this treated area.

Approximately 74% of spring barley received a single seed dressing treatment (Table 7). Almost 31% of this area was grown from seed treated with the formulation imazalil/triticonazole representing 11% of the weight of seed treatments used (Tables 8 & 9). The single active ingredient fludioxonil was used on 24% of the area of spring barley grown from treated seed and accounted for 4% of the weight of seed treatment active ingredients used. However, the formulation carboxin/thiram, whilst only representing 7% of the area sown with treated seed contributed 29% of the weight of seed treatments applied.

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Undersown barley (Table 13)

Approximately 95% (620 hectares) of undersown barley crops were treated with a pesticide (Table 7). Herbicides and desiccants accounted for 69% of the pesticide-treated area of undersown barley (96% of the weight of pesticides applied), fungicides 13% (3%), seed treatments 13% (<1%) and insecticides 5% (<1%). Growth regulators and molluscicides were not recorded in use on undersown barley crops in 2006 (Tables 5 & 6, Figures 8 & 9).

The formulation 2,4-DB/linuron/MCPA was the most frequently used herbicide, accounting for 45% of the herbicide and desiccant-treated area and 39% of the weight applied. 'General weed control' was the principal reason for the use of this formulation. Glyphosate, exclusively used for 'ground preparation', represented 29% of the herbicide and desiccant treated area and 27% of the weight applied. The reason given for over 71% of herbicide applications was 'general weed control' with the remaining 29% being attributed to 'ground preparation'.

Fungicides were used exclusively for 'general disease control'. The single active ingredient azoxystrobin represented 43% of all fungicide applications to undersown barley. Applications of the single active ingredient epoxiconazole, along with the formulations carbendazim/flusilazole and fluoxastrobin/prothioconazole, were the only other fungicides active ingredients used.

The formulation imazalil/triticonazole, used on 73% of the area sown with treated seed, accounted for 50% of the weight of seed treatment active ingredients applied to undersown barley crops. The single active ingredient fludioxonil and the formulation carboxin/thiram accounted for the remaining 27% of the area sown with treated seed and 50% of the weight of seed treatment active ingredients applied (Tables 8 & 9).

Esfenvalerate was the only insecticide active ingredient applied to 61 hectares of undersown barley for 'aphid control'.

Winter barley (Table 14)

Fungicides were used on 38% of the area of winter barley treated with pesticides, herbicides and desiccants 30%, growth regulators 13%, insecticides 10%, seed treatments 9% and molluscicides less than 1%. Nonetheless, herbicides and desiccants accounted for 59% of the total weight of pesticide active ingredients applied, fungicides 21%, growth regulators 18%, seed treatments 1% and insecticides 1%. Typically, molluscicides accounted for less than 1% of both area of application and weight of pesticides applied (Tables 5 & 6, Figures 10 & 11).

The formulation fluoxastrobin/prothioconazole, accounted for 16% and 13% of the fungicide-treated area and weight of fungicide applied, respectively. However, chlorothalonil, applied as a single active ingredient represented 14% of the fungicide-

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treated area and 28% of the weight of fungicides applied. 'General disease control' was the primary reason given for over 99% of fungicide applications.

An estimated 32 herbicide/desiccant single active ingredients or formulations were applied to winter barley crops in 2006. Isoproturon, applied as a single active ingredient or in formulation with diflufenican pendimethalin or trifluralin, was the most commonly used herbicide, accounting for 36% of the herbicide and desiccant-treated area and 47% of the weight of herbicide and desiccant active ingredients applied. Glyphosate accounted for 31% of the area of application and 27% of weight applied. 'General weed control' was the reason given for 63% of herbicide applications to winter barley crops.

Pyrethroid insecticide active ingredients collectively accounted for 96% of the insecticide-treated area with the single active ingredients lambda-cyhalothrin and esfenvalerate representing 81% of this. Chlorpyrifos was applied to 199 spray-hectares of winter barley, primarily for the control of 'leatherjackets' (*Tipula* spp.). 'Aphid control' continued to be the main reason for the use of insecticides.

Metaldehyde and methiocarb were recorded as used for 'slug control' on 112 hectares of winter barley grown in 2006.

Chlormequat, applied as a single active ingredient, accounted for 54% of the area treated with growth regulators and 87% of the weight of growth regulators applied. The single active ingredient trinexapac-ethyl represented 28% of the area treated and 3% of the weight of growth regulators applied. The natural growth regulator 3-Indolebutyric acid/kinetin was applied to 23 hectares of winter barley. Formulations of chlormequat/2-chloroethylphosphonic acid and 2-chloroethylphosphonic acid/mepiquat chloride along with 2-chloroethylphosphonic acid, applied as a single active ingredient, emcompassed the remaining 17% of growth regulator applications.

Approximately 86% of the area of winter barley was sown with treated seed (Table 7). The most extensively-used seed dressing was the single active ingredient fludioxonil, which accounted for 42% of the area of winter barley sown with treated seed and 5% of the weight of seed treatments used. The formulation carboxin/thiram, represented 15% of the area sown with treated seed and 45% of the weight applied (Tables 8 & 9).

Spring wheat (Table 15)

Fungicides accounted for 41% of the pesticide-treated area and 31% of the weight applied, while herbicide and desiccant applications represented 32% of the treated area and 47% of the weight used. Insecticides were used on 13% of the pesticide-treated area and accounted for 5% of the weight of active ingredients applied. Seed treatments accounted for 8% of the pesticide-treated area of spring wheat and the weight of active ingredients represented 1% of the pesticides applied to this crop. Growth regulators were used on 6%

of the pesticide-treated area and accounted for less than 15% of the total weight of pesticides used (Tables 5 & 6, Figures 12 & 13).

Fungicide treatments applied to spring wheat crops were attributed to 'general weed control'. Azoxystrobin, applied as a single active ingredient and also in formulation with cyproconazole was used on 29% of the fungicide-treated area and accounted for 18% of the weight of fungicide active ingredients applied. However, chlorothalonil, applied as a single active ingredient, accounted for 35% of the weight of fungicide active ingredients applied and 15% of the fungicide-treated area.

An estimated 69% of herbicide and desiccant applications were for 'general weed control'. Glyphosate, used as a single active ingredient for 'desiccation' and 'ground preparation', accounted for 27% of the herbicide and desiccant-treated area and 65% of the weight applied to spring wheat crops. Metsulfuron-methyl, applied as a single active ingredient and also in formulation with thifensulfuron-methyl and tribenuron-methyl, represented 35% of the herbicide and desiccant-treated area and less than 1% of the weight applied.

Esfenvalerate applications accounted for 43% of the area treated with insecticides and 1% of the weight of insecticides applied. However, chlorpyrifos, applied exclusively to control leatherjackets (*Tipula* spp.), represented 16% of the insecticide-treated area and 85% of the weight of insecticides applied.

The growth regulator chlormequat, applied as a single active ingredient, was used on 81% of the growth regulator-treated area and accounted for 98% of the weight of fungicide active ingredients applied. Trinexapac-ethyl was applied to the remaining growth regulator-treated area of spring wheat.

Approximately 51% of spring wheat crops were sown with treated seed (Table 7). The single active ingredient fludioxonil was most frequently used, accounting for 52% of the area treated within this pesticide group.

No undersown spring wheat was recorded grown in 2006.

Winter wheat (Table 16)

A total of 7,203 hectares of winter wheat were grown in Northern Ireland in 2006, approximately 57% of which was grown in Co Down (Table 3). Fungicides accounted for 43% of the pesticide-treated area of winter wheat crops and 28% of the weight of pesticides used, while herbicides and desiccants represented 24% of the pesticide treated area and 53% of the weight of pesticides applied. Growth regulators accounted for 10% of the pesticide-treated area and 17% of the weight applied. Seed treatments represented 10% of the pesticide-treated area and 1% of the weight of pesticides applied. Insecticide treatments accounted for 12% of the pesticide-treated area and less than 1% of the weight

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used. Molluscicides represented less than 1% in both area of application and weight of pesticides applied (Tables 5 & 6, Figures 14 & 15).

There were no specific reasons provided for fungicide applications to winter wheat and 'general disease control' was the reason given for 99% of treatments. Azoxystrobin used as a single active ingredient or in formulation with chlorothalonil or fenpropimorph was the most extensively-used fungicide active ingredient, accounting for 19% of the fungicide-treated area and 22% of the weight of fungicides applied. However, chlorothalonil applied as single active ingredient, represented 17% and 31% of the fungicide-treated area and weight of fungicides applied, respectively.

In common with 2004, the most extensively-used herbicide and desiccant, applied as a single active ingredient or in formulation, was isoproturon. Applications of this active ingredient accounted for 29% of the winter wheat area treated with this pesticide group and 42% of the weight applied. However, glyphosate applied exclusively for 'ground preparation' and 'desiccation' represented 25% and 22% of the herbicide and desiccant-treated area and the weight of herbicide and desiccants applied, respectively. Approximately 71% of herbicide and desiccant applications were for 'general weed control'.

Approximately 75% of all insecticide applications were to control 'aphids'. The pyrethroid insecticides esfenvalerate and lambda-cyhalothrin represented over 81% of the insecticide-treated area of winter wheat crops, while accounting for 17% of the weight of insecticides applied. The only organophosphate insecticide used was chlorpyrifos, which was applied to less than 3% of the insecticide-treated area of winter wheat crops but accounted for 76% of the weight of insecticides applied.

Metaldehyde or methiocarb, both molluscicides, were applied to a total of 80 hectares of winter wheat to control 'slugs'.

The growth regulator chlormequat, primarily used as a single active ingredient but also in formulation with 2-chloroethylphosphonic acid or choline chloride, accounted for 66% of the growth regulator-treated area of winter wheat and 93% of the weight of growth regulators applied. The natural growth regulator 3-indolebutyric acid/kinetin was applied to 32 hectares of winter barley.

The area of winter wheat planted with treated seed represented 93% of the total area grown. The single active ingredient fludioxonil, was used on 26% of the area sown with treated seed, accounting for 4% of the weight of seed treatment active ingredients applied to winter wheat crops.

Spring oats (Table 17)

Herbicides and desiccants accounted for 37% of the pesticide-treated area of spring oats, and 43% of the weight applied. While fungicides accounted for 27% of the pesticide-treated area of spring oats, the weight applied represented 32% of the total weight of

pesticides used. The area sown with treated seed represented 16% of the pesticide-treated area and seed dressings accounted for 3% of the weight of pesticides applied. Growth regulators accounted for 8% and 20% of the pesticide-treated area and weight applied, respectively. Insecticides accounted for 12% and 3% of the pesticide-treated area and weight applied, respectively (Tables 5 & 6, Figures 16 & 17).

The principal reason given for fungicide usage was 'general disease control'. Fenpropimorph and quinoxyfen, applied either as a single active ingredients or in formulation with each other, accounted for 46% of the fungicide-treated area and 44% of the weight of fungicides applied.

Metsulfuron-methyl, applied as a single active ingredient but also in formulation with thifensulfuron-methyl and tribenuron-methyl, was used on 46% of the herbicide-treated area of spring oats for 'general weed control'. However, this represented less than 1% of the weight of herbicides applied. Applications of mecoprop-P, used as a single active ingredient, accounted for 47% of the weight applied and 27% of the herbicide-treated area. Glyphosate was also frequently applied.

Insecticide applications applied to spring oats were generally used to 'control aphids'. The organophosphate insecticide, chlorpyrifos, was applied to 30 hectares to control leatherjackets (*Tipula* spp.).

The single active ingredients chlormequat and trinexapac-ethyl were the only growth regulators applied and were used on 33% of spring oats (Table 7). Chlormequat represented 94% of the growth regulator-treated area and over 99% of the weight of growth regulators applied.

Approximately 70% of the area of spring oats was sown with treated seed (Table 7). The single active ingredient fludioxonil represented 56% of the treated area (Table 8).

Winter oats (Table 18)

Fungicides accounted for 37% and 30% of the pesticide-treated area of winter oats and the weight applied, respectively. Herbicide and desiccant applications represented 32% of the pesticide-treated area and 44% of the weight of pesticides applied. While seed treatments accounted for 13% of the pesticide-treated area, the weight of active ingredients represented less than 1% of the pesticides applied to this crop. Growth regulator usage represented 13% of the pesticide-treated area and 25% of the weight of pesticides used. Insecticide treatments accounted for 5% of the pesticide-treated area and less than 1% of the weight of pesticides used (Tables 8 & 9, Figures 18 & 19).

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Fenpropimorph, applied as a single active ingredient and in formulation with azoxystrobin, was the most extensively used fungicide, accounting for 28% of the fungicide-treated area and 50% of the weight applied. Chlorothalonil was also frequently used. The principal reason for the use of fungicides on winter oats was 'general disease control'.

Metsulfuron-methyl, applied as a single active ingredient but also in formulation with thifensulfuron-methyl and tribenuron-methyl, was used on 30% of the herbicide-treated area of winter oats for, 'general weed control' and control of fumitory (*Fumaria spp*.). However, this represented less than 1% of the weight of herbicides applied. Mecoprop-P, applied as a single active ingredient, accounted for 29% of the herbicide-treated area and 42% of the weight applied. The principal reason for herbicide and desiccant applications (83%) was 'general weed control'.

Pyrethroid insecticide active ingredients, including bifentrin, cypermethrin, esfenvalerate and lambda-cyhalothrin, were the only insecticides applied to winter oats.

The single active ingredients chlormequat and trinexapac-ethyl were the only growth regulators used on 551 hectares of winter oats.

Approximately 83% of the area of winter oats grown in Northern Ireland in 2006, was sown with treated seed (Table 7). The single active ingredient fludioxonil was the most extensively-used seed dressing, accounting for 83% of the treated area and 36% of the weight applied. The formulations guazatine/imazalil, fuberidazole/triadimenol, bitertanol/fuberidazole and imazalil/triticonazole were also used.

Undersown oats (Table 19)

In 2006, 71 hectares of undersown oats were grown. This represented a three-fold reduction compared to 2004. Herbicides and seed treatments were the only pesticides applied (Tables 8 & 9, Figures 20 & 21).

PESTICIDE USAGE ON POTATOES

Potato crops represented 12% of the area of arable crops grown in Northern Ireland in 2006, while accounting for 23% of the total pesticide-treated area. However, the weight of pesticides applied to potato crops represented 64% of the total weight of pesticides used. The total area of potatoes grown comprised 78% maincrop, 15% seed and 7% early potatoes. Maincrop potatoes accounted for 81% of the total area of potatoes treated with pesticides, and 88% of the total weight of pesticides applied. Seed potatoes accounted for 14% of the area treated and 9% of the weight applied. Early potatoes represented 5% of the area treated and 2% of the weight applied. (Tables 3, 5 & 6).

Seed potatoes (Table 20)

Fungicides accounted for 60% of the area of seed potatoes treated with pesticides, while representing 45% of the weight of pesticides applied. By contrast, herbicides and desiccants represented 25% of the pesticide treated area and 54% of the weight applied. The area of seed potatoes planted with treated seed decreased to approximately 40% of the area planted. This represented 3% of the treated area of this crop and 1% of the weight applied. Insecticides accounted for 11% of the treated area and less than 1% of the weight of pesticides applied to seed potato crops. Molluscicides represented less than 1% for both area treated and weight applied to seed potato crops in Northern Ireland in 2006 (Tables 5 & 6, Figures 22 & 23).

Mancozeb, used as a single active ingredient or in formulation with cymoxanil, dimethomorph, metalaxyl-m, propamocarb hydrochloride or zoxamide continued to be the fungicide active ingredient most extensively used, accounting for 91% of the weight of fungicides applied. Nonetheless, fluazinam, applied as a single active ingredient, was also frequently used. All fungicide applications to foliage were for 'blight control' (*Phytophthora infestans*). Azoxystrobin was applied at sowing to 68 hectares of seed potatoes as an 'in-furrow' general disease treatment.

An estimated 99% of seed potato crops received a herbicide or desiccant treatment. Diquat, applied as a single active ingredient and used for 'desiccation', accounted for 47% of the area of seed potatoes treated with herbicides and desiccants. Applications of sulphuric acid represented 3% of the herbicide and desiccant-treated area, but accounted for 81% of the weight of active ingredients used from this pesticide group. Approximately 50% of this group of pesticides were used for 'desiccation'.

Approximately 1,008 spray hectares of seed potatoes were treated with insecticides in 2006. The single active ingredient lambda-cyhalothrin was applied to 92% of the insecticide-treated area. Insecticide applications were entirely for 'aphid control'.

The molluscicide, methiocarb, was applied to 77 spray hectares of seed potatoes for 'slug control'.

Imazalil, applied as a single active ingredient or in formulation with pencycuron, were the only seed treatments applied.

Early potatoes (Table 21)

Early potato varieties accounted for approximately 7% of the area of potatoes grown and 5% of the pesticide treated area (2% of the weight applied). Fungicides accounted for 62% of the pesticide-treated area (53%), herbicides and desiccants 33% (45%), insecticides less than 1% (2%) and seed treatments 4% (<1%). No molluscicides were applied to early potato crops in Northern Ireland in 2006 (Tables 5 & 6, Figures 24 & 25).

The dithiocarbamate fungicide mancozeb, applied as a single active ingredient or in formulations accounted for 77% of the weight of fungicide used. Fluazinam, applied as a single active ingredient, was used on 36% of the fungicide-treated area for early potatoes. All fungicide applications were to control 'blight' (*Phytophthora infestans*).

Diquat, applied as a single active ingredient, was the principal herbicide and was used on 38% of early potato crops for 'desiccation'. Sulphuric acid was also applied and although it was only used on 4 hectares it represented 55% of the weight of herbicides and desiccants applied. Approximately 47% of herbicides applied to the treated area were for 'general weed control'.

The organophosphate fosthiazate was applied to 25 hectares to control wireworm (*Agriotes spp.*).

No molluscicides were recorded in use on this crop.

An estimated 40% of the area of early varieties of potatoes was planted with treated seed. Imazalil and flutolanil, applied as a single active ingredients, were the only seed treatments applied.

Maincrop potatoes (Table 22)

Fungicides accounted for 69% of the area of maincrop potatoes treated with pesticides (29% of the weight of pesticides applied), herbicides and desiccants 23% (69%) and insecticides 2% (<1%). Seed treatments accounted for 4% of the pesticide-treated area and 2% of pesticides in terms of weight applied. Molluscicides represented 2% of the pesticide-treated area and less than 1% of the weight of molliscicides applied. No growth regulators or mixed formulations were applied to maincrop potatoes in 2006. (Tables 5 & 6, Figures 26 & 27).

Almost the entire area of maincrop potatoes (99%) received a fungicide application (Table 7). Applications of mancozeb, as a single active ingredient and in formulation, accounted for 54% of the fungicide-treated area and 78% of the weight applied. Fluazinam, applied as a single active ingredient, was also frequently used. Fungicide applications to maincrop potatoes were principally for the 'control of blight' (*P. infestans)*. Azoxystrobin was applied as a sowing treatment to an estimated 318 hectares of maincrop potatoes.

'General weed control' and 'desiccation' accounted for 87% of all herbicide and desiccant applications. Paraquat and diquat, applied as single active ingredients and in formulation together, were the most extensively used herbicide and desiccants, comprising 66% of the area treated. Because of the high rate of application, sulphuric acid, used on only 4% of the herbicide and desiccant-treated area, accounted for 92% of the weight of active ingredients used from this pesticide group. Metribuzin was also frequently used.

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The insecticide lambda-cyhalothrin, applied as a single active ingredient, accounted for 72% of the insecticide-treated area. Fosthiazate, applied to 30 hectares to control wireworm (*Agriotes spp.*), represented 78% of the weight applied. Approximately 97% of insecticide applications to maincrop potatoes were to control 'aphids'.

The molluscicides methiocarb, metaldehyde or thiodicarb were applied to 722 hectares of maincrop potatoes for 'slug control'.

Seed treatments were applied to approximately 45% of the area planted with maincrop potatoes (Table 7). The use of imazalil, applied as a single active ingredient or in formulations with pencycuron, accounted for 64% of the area sown and 21% of the weight applied within this group. Flutolanil was applied to 26% of the area grown with treated seed. Mancozeb and zinc oxide were used on 109 hectares of maincrop potatoes as a seed treatment (Tables 8 & 9).

PESTICIDE USAGE ON MINOR CROPS:

Oilseed rape (Table 23)

The area of oilseed rape grown in Northern Ireland in 2006 increased to approximately 471 hectares. Herbicides and desiccants were applied to 46% of the pesticide-treated area (accounting for 86% of the weight of pesticides applied), fungicides 31% (12%), seed treatments 13% (<1%), insecticides 7% (<1%) and molluscicides 3% (<1%) (Tables 5 & 6, Figures 28 & 29).

All fungicides were applied for 'general disease control'. Azoxystrobin was the main single active ingredient used, accounting for 41% of the treated area and 50% of the weight of fungicides applied.

An estimated 39% of herbicide applications were for 'general weed control' and 28% for both 'desiccation' and 'ground preparation'. Glyphosate was applied to 44% of the herbicide and desiccant-treated area and represented 57% of the weight of herbicides and desiccants applied.

The only insecticides recorded were the pyrethroids lambda-cyhalothrin and cypermethrin, which were used primarily to control aphids.

The molluscicides methiocarb or metaldehyde, were applied to 50 hectares of oilseed rape to control slugs.

Approximately 54% (254 hectares) of the area of oilseed rape crops grown was sown with treated seed (Table 7). The formulations prochloraz/thiram and bitertanol/fuberidazole were the most frequently applied (Tables 8 & 9).

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Peas & Beans (Table 24)

Pesticide usage on these crops declined to approximately 107kg. These were applied to a total of 83 hectares in 2006, 48% of which were grown in County Londonderry, 42% in County Down and 10% in Antrim (Table 3 & 6).

Herbicides and desiccants accounted for 79% of the area treated with pesticides (92% of the weight of pesticides applied), fungicides 13% (8%) and insecticides 8% (<1%) (Tables 5 & 6 Figures 30 & 31).

Azoxystrobin was the most extensively used fungicide. However, chlorothalonil was applied to 6 hectares of beans to control chocolate spot (*Botrytis fabae*).

The formulation bentazone/MCPA, along with the single active ingredient cyanazine, were applied to 12 hectares for 'general weed control'. Glyphosate was applied to 56 hectares for 'desiccation' and 40 hectares for 'ground preparation'.

The pyrethroid lambda-cyhalothrin, was the only insecticide applied to control 'aphids'.

No molluscicides were applied to pea and bean crops.

Triticale (Table 25)

An estimated 12 hectares of triticale were grown in Northern Ireland in 2006 (Table 3). Fungicides accounted for 51% and 31% of the pesticide-treated area of triticale and the weight applied, respectively. Herbicide and desiccant applications were used on 26% of the pesticide-treated area and accounted for less than 1% of the weight applied. Growth regulators were used on 26% of the pesticide-treated area and accounted for 69% of the weight of pesticides applied to triticale. No insecticides or seed treatments were applied (Tables 5 & 6, Figures 32 & 33).

The single active ingredients fenpropidin and metrafenone were the only fungicides applied. The sole reason for applications was 'general disease control'.

The formulation metsulfuron-methyl/thifensulfuron-methyl was the only herbicide applied and the reason for use was 'general weed control'.

Chlormequat was applied to 12 hectares of triticale for 'growth regulation'.

Lupins (Table 26)

Lupins were recorded for the first time in 2002 and the area grown was approximately 67 hectares. In 2004 the area of lupins grown had decreased to 10 hectares, all in County Down. However, during 2006 the area grown has increased to 19 hectares, all in County Antrim (Table 3).

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The herbicide pendimethalin was the only pesticide applied to this crop.

PESTICIDE USAGE ON SET-ASIDE (Table 27)

Information on set-aside was presented for the fourth time in 2006, on an estimated 2,284 hectares.

Willows were grown on 12 hectares in County Down, whereas spring oilseed rape was grown on 189 hectares in Counties Down and Londonderry.

Herbicides and insecticides were the only pesticide groups applied, to a total of 435 hectares.

COMPARISON WITH PREVIOUS SURVEYS OF PESTICIDE USAGE ON THE AREAS OF ARABLE CROPS GROWN. (Table 28)

The total area of arable crops grown in Northern Ireland in 2006 decreased by approximately 15% when compared to that recorded in the 2004 survey. This represented a 32% reduction in the area of arable crops grown when compared to that recorded in 1990 (Figure 34).

Overall, the area of cereal production reduced by 13% when compared to that recorded in 2004 with the area of spring barley grown decreasing by 20%, winter oats by 44% and undersown oats by 70%. However, the area of undersown barley and spring oats increased by 9% and 10%, respectively, while the areas of winter barley, spring wheat and winter wheat remained constant when compared with 2004 (Figure 35).

The total area of potato crops planted in 2006 continued to decline, being 16% lower than that recorded in 2004 and 24% lower than the area in 2002. The area of seed potato crops has reduced by 79% since 1992. A similar trend was observed with maincrop potatoes, with the area grown in 2006 having reduced by 12% and 16% when compared with 2004 and 2002, respectively. The area of early potato crops decreased by 8% compared with 2002 (Figure 36).

The area of oilseed rape grown in Northern Ireland increased by 84% when compared to 2004.

Triticale crops, which were first recorded in 1990, were again recorded in 2006. Having recurred in 1998, the crop area increased almost four-fold from 2002 to 2004. However, in 2006 this crop reduced to 12 hectares which is comparable to that recorded in 1998.

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The area of peas and beans reduced by 61% when compared to 2004.

Lupins were recorded for the first time in 2002 and have again been recorded. When compared with 2004, the area grown has increased by 93% to 19 hectares, all grown in County Antrim.

COMPARATIVE TRENDS IN PESTICIDE USAGE
- Comparison with previous surveys

Arable (Tables 29 & 30, Figure 37 & 38)

Overall, a 15% decrease in the area of arable crops grown was recorded between 2004 and 2006.

During this period the total area of pesticide application and the weight of pesticides applied, decreased by 9% and 30%, respectively.

The area treated with herbicides and desiccants, and the weight applied, reduced by 10% and 40%, respectively, when compared to 2004. The reduction in weight applied is almost totally due to the reduced applications of sulphuric acid to potato crops.

Molluscide applications increased over three-fold when compared to 2004 but reduced by 36% when compared to 2002.

The area treated with insecticides decreased by 13% during the period 2002 to 2004. However, due to increased application rates of organophosphates recorded in the 2006 survey, the weight of insecticides applied increased by 4% over the same period. This was mainly attributable the application of chlorpyrifos to spring and winter wheat for the control of 'leatherjackets' (*Tipula* spp.). Applications of pyrethroids decreased by 7% with an 18% reduction in the weight applied.

The area of fungicide application and weight applied decreased by 12% and 18%, respectively.

The area to which growth regulators were applied increased by 18% and the weight of active ingredients applied also increased by 8% when compared to 2004.

The area of arable crops sown or planted with treated seed in 2006 decreased by 8%. However, the weight of seed treatment applied, increased by 77% in comparison with the 2004 survey. This was due to the use of mancozeb and zinc oxide as a preplanting treatment on maincrop potatoes.

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Cereals (Tables 31 & 32, Figures 39 & 40)

In 2006, the total area of cereal crops to which pesticides were applied decreased by 6%, with the weight of pesticides applied increasing by 12% when compared with 2004.

There was a 10% decrease in the area treated with fungicides compared with 2004 and an increase of 6% in the weight of fungicides applied. The weight of fungicides applied was similar to the level recorded in 1996 but the area of fungicide application has increased by 26% since then.

Fungicide applications to spring barley reduced by 31% and 18% when compared with 2004 and 2002, respectively. The weight of fungicides applied also reduced by 22% and 32% during the same periods. A possible reason for this is that modern cultivars show greater disease resistance and therefore require less fungicide.

There was no drop in strobilurin applications to winter wheat in spite of widespread resistance to this group of fungicides by *Mycosphaerella graminicola* (Septoria tritici). However, there was a trend away from the use of some older triazole fungicides to modern ones such as prothioconazole.

The area of cereal crops treated with insecticides decreased by 5% when compared with 2002. Conversely, because of increased application rates of organophosphates, primarily chlorpyrifos, recorded in the 2006 survey the weight of insecticides applied increased by 19%.

An increase in both weight (8%) and area (38%) of molluscicide application to cereals was recorded when compared to 2004.

In comparison with 2004, the area treated with herbicides and desiccants decreased by 7%. However, the weight applied increased by 16%. This is partly due to increased applications of isoproturon, both applied either as a single active ingredient or in formulation, to winter barley and winter wheat.

The area treated with growth regulators increased by 19% compared to 2004 and the weight applied also increased by 8%.

Oilseed Rape (Tables 33& 34)

The area of oilseed rape grown had almost doubled when compared with 2004, which is reflected in increases in insecticide, fungicide, herbicide/desiccant and seed treatment usage. The weight of pesticide applied was similar to 1994.

Growth regulators were not applied to oilseed rape in 2006.

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Peas And Beans (Tables 35 & 36)

The area of peas and beans grown has decreased by 61% since 2004. Consequently decreases in area treated (88%) and weight of pesticides applied (86%) were recorded.

Set-aside (Tables 37 & 38)

The area of set-aside decreased by 33% since 2004 to 2,284 hectares. In previous years, herbicides were the only pesticide type applied. However, due to the production of willows principally for bio-regeneration and spring oilseed rape for bio-fuel production on set-aside in 2006, insecticides were also used and the area treated and weight of pesticides applied have increased by 31% and 25%, respectively.

Potatoes (Tables 39-46, Figures 41 & 42)

The total area of potatoes grown in 2004 decreased by 16% (5,118 hectares) when compared with 2004. This continues the trend of the decreasing area of potatoes grown which is now under the half the area recorded in 1990 (11,853 hectares). Maincrop and early potatoes showed moderate decreases in area grown of 12% and 8%, respectively. However, the area of seed potatoes grown decreased significantly by 34% to 763 hectares.

The overall usage of pesticides on potato crops, measured by application area of active ingredients, decreased by 17% compared with 2004. This was a reflection of the reduced area grown. However, the weight of pesticides applied decreased by 42% over the same survey period. This was mainly attributed to the reduction in the weight of desiccants applied.

There was a decrease of 13% in fungicide application to potatoes compared with 2004, which was due to reduced fungicide inputs to seed potatoes. This was also reflected in a reduction of 9% in the weight of fungicides applied to potatoes.

Overall, in 2006 herbicide and desiccant application to potatoes decreased by 19% compared with 2004, with the weight applied decreasing by 52%. This decrease can be mainly attributed to a continued reduction in application of sulphuric acid.

The insecticide-treated area of potato crops more than doubled and the weight of insecticide applied increased by almost five-fold in 2004 when compared with 2002. This was mainly due to the increased treated areas of early and seed potatoes, although maincrop treated areas increased also. During 2006 the area treated with insecticides and the weight applied reduced by 58% and 44% respectively. However, although applications of organophosphates reduced (85%) from 365 spray hectares to 55 spray hectares the weight of organophosphates increased by 32% due to applications of fosthiazate to early and maincrop potatoes for wireworm (*Agriotes spp.*) control.

Both the treated area and weight of molluscicides applied increased by approximately ten-fold when compared to 2004.

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PESTICIDE USAGE ON POTATOES IN STORAGE (Tables 47-54, Figure 43)

In addition to information concerning field applications of pesticides to potato crops, data were collected relating to post-harvest/storage treatments applied to farm-stored potatoes. Data collected included; quantity of potatoes stored, the quantity treated, pesticides used, crop type and storage method. Of the 273 holdings visited, 57 grew potato crops, 50 of which stored potatoes on-farm. The data were raised to a province-wide level using raising factors discussed earlier.

The estimated quantity of potatoes stored in Northern Ireland during 2006 decreased by 24% to 117,554 tonnes when compared with 2004. However, the quantity of stored potatoes receiving pesticide treatments decreased from 3772 tonnes to 76 tonnes.

County Antrim accounted for 30% of the potatoes grown and 33% of potatoes stored, and County Down 36% of the potatoes grown and 24% of potatoes stored. County Londonderry accounted for 25% of the potatoes grown and 34% of potatoes stored. Counties Tyrone and Armagh represented 5% and 4% of all potatoes stored, respectively. No potato storage was recorded in County Fermanagh.

The total quantity of potatoes stored in Northern Ireland comprised 79% ware potatoes and 21% seed potatoes (Figure 4). All counties stored both ware and seed potatoes. However, County Armagh only stored a minimal amount of seed potatoes.

Approximately 76 tonnes of seed potatoes were treated in County Down. This accounted for all of the treated potatoes stored in Northern Ireland and represented less than 0.1% of all potatoes stored.

An estimated 0.76 kg of the protectant conazole fungicide imazalil was applied.

Potato stores were classified into five types; ‘barn store’, ‘modified barn’, ‘ventilated store’, ‘refrigerated store’ and ‘unspecified’. Approximately 43% of potatoes held on-farm in 2006 were stored in ventilated stores, 28% in refrigerated stores, 26% in barn stores, 4% in modified barn stores and remainder being unspecified. Approximately 77% of all stored potatoes were boxed, 21% bulked and 2% held in stores where storage method was unknown.

Seed Potatoes:

Seed potatoes accounted for 21% (24,640 tonnes) of the total quantity stored. Approximately 35% of seed potatoes were stored in County Down. An estimated 76 tonnes were treated with 0.76kg of pesticide active ingredients being applied. Imazalil, applied as a single active ingredient, was the only pesticide applied to stored seed potatoes.

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An estimated 74% of all seed potatoes were stored in boxes with 22% being stored in bulk and the remaining 4% unspecified. On-farm ventilated stores accounted for 53% of all types of storage buildings used, refrigerated stores 31%, barn stores 16% and less than 1% were unspecified.

Ware Potatoes:

Approximately 92,914 tonnes of ware potatoes were stored in 2006, accounting for 79% of the total quantity of potatoes stored. It was estimated that 35% were stored in each of Counties Antrim and Londonderry, 21% in County Down and 4% in each of Counties Armagh and Tyrone. However, no treatments were applied.

An estimated 78% of ware potatoes were stored in boxes and 21% in bulk. Approximately 37,015 tonnes (40%) were stored in ventilated stores, 26,937 tonnes (29%) in barn stores, 24,764 tonnes (27%) in refrigerated stores and 4,198 tonnes (5%) in modified barn stores.

COMPARISON OF PESTICIDE USAGE ON POTATOES IN STORAGE (Tables 55-58, Figure 44)

In 2002, potato storage levels decreased due to lower potato yields and extremely high rainfall which interrupted harvesting during the months of October and November, the main potato harvesting period in Northern Ireland. During 2004 the quantity of potatoes stored increased by an estimated 78,026 tonnes when compared with 2002, returning to levels similar to 1998. In 2006, the quantity of potatoes stored reduced by 24%, returning to a level similar to 1994. An estimated 0.1% (76 tonnes) of potatoes stored were treated in 2006 compared with 2% (3,772 tonnes) in 2004, 22% (13,053 tonnes) in 2002 and 9% (14,051 tonnes) in 1998. The 76 tonnes represented an average 99% reduction in quantity treated when compared with previous years (Figure 44).

The trend for reduced application of pesticides to stored potatoes continued with 0.76 kg being applied in 2006 compared with 154 kg in 2004, 488 kg in 2002 and 1,245 kg in 1998.

Imazalil was the most extensively applied pesticide in 2002 and 1998 treating 12,030 and 4,820 tonnes of potatoes, respectively. In 2004 the most extensively-used pesticide was tecnazene, which was used exclusively on 2,937 tonnes of ware potatoes. During 2006 imazalil was the only pesticide applied, which was used exclusively on 76 tonnes of seed potatoes in County Down.

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In 1996 and 1998, the most popular type of storage building was the 'barn store' with 'bulk' storage being the most common method. Of those farms surveyed in 2002, the 'barn store' was the least popular with 'refrigerated' storage buildings and 'boxed' being the most extensively used. The survey in 2004 (Withers *et al.*, 2006) indicated that the most popular type of storage building was the 'barn store' with the 'boxed' method the most extensively used. However, in 2006 the most popular storage building was the 'ventilated' store and the 'boxed' method was the most commonly recorded.

The storage of 'reserved seed' was not recorded in 2006.

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REFERENCES

Anon. (1998). *Statistical Review of Northern Ireland Agriculture 1997.* Norwich: HMSO.

Jess, S., McCallion, T., Kidd, S.L.B. (1992). Arable Crops 1990. *Pesticide Usage Survey Report*
105. Belfast: HMSO.

Jess, S., Kidd, S.L.B., McCallion, T. (1994). Arable Crops 1992. *Pesticide Usage Survey Report 117*. Belfast: HMSO.

Jess, S., Kidd, S.L.B., McCallion, T. (1997). Arable Crops 1994. *Pesticide Usage Survey Report 132*. Belfast: The Stationary Office.

Jess, S., Kidd, S.L.B., McCallion, T. (2000). Arable Crops 1996. *Pesticide Usage Survey Report 146*. Belfast: The Stationary Office.

Jess, S., Kearns C.A., Kidd, S.L.B., McCallion, T. (2002). Arable Crops 1998. *Pesticide Usage Survey Report 168*. Belfast: The Stationary Office.

Withers, J.A., Jess, S., Kearns, C.A., Kidd, S.L.B., McCallion, T. (2004). Arable Crops 2000. *Pesticide Usage Survey Report 177*. Belfast: The Stationary Office.

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Withers, J.A., Jess, S., Kearns, C.A., McCallion, T., Matthews, D. (2004). Arable Crops 2002. *Pesticide Usage Survey Report 194.* Belfast: DARD.

Withers, J.A., Jess, S., Kearns, C.A., Matthews, D., Moreland T. (2006). Arable Crops 2004. *Pesticide Usage Survey Report 206.* Belfast: DARD.

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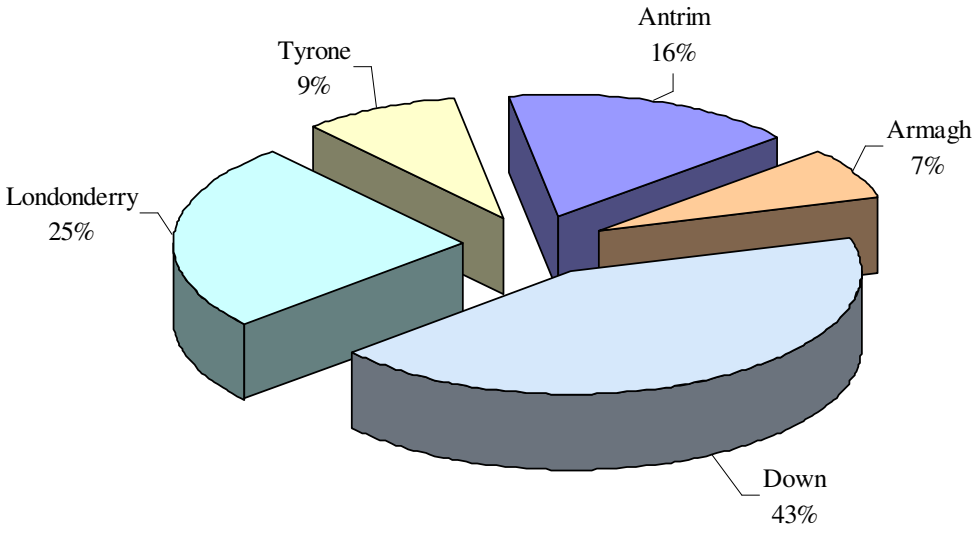
Figure 1: The regional distribution of arable crops grown in Northern Ireland in 2006.



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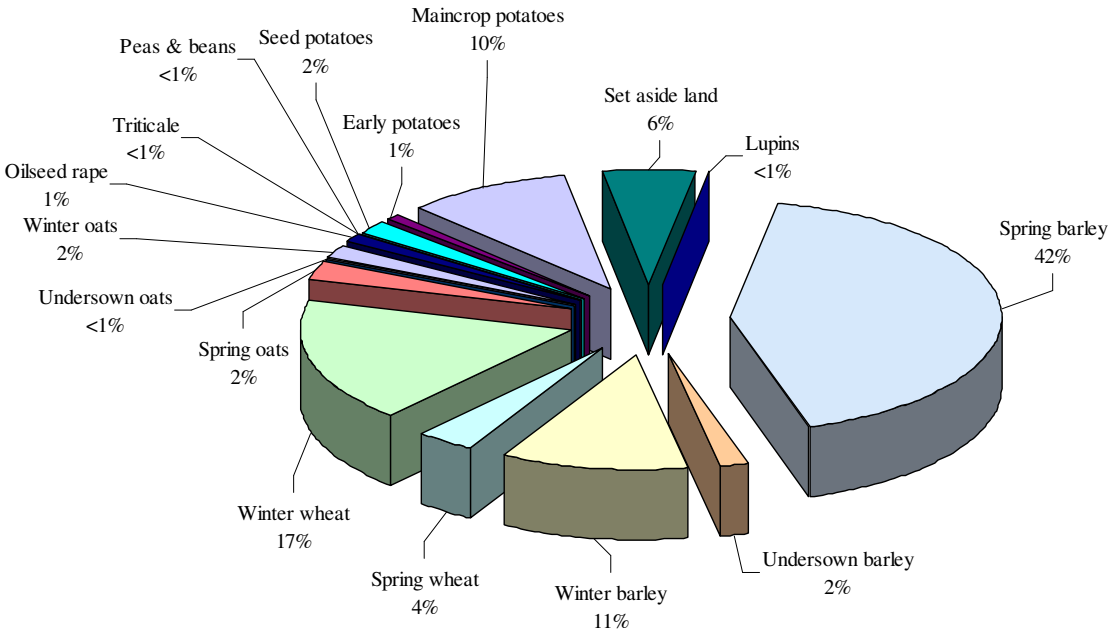

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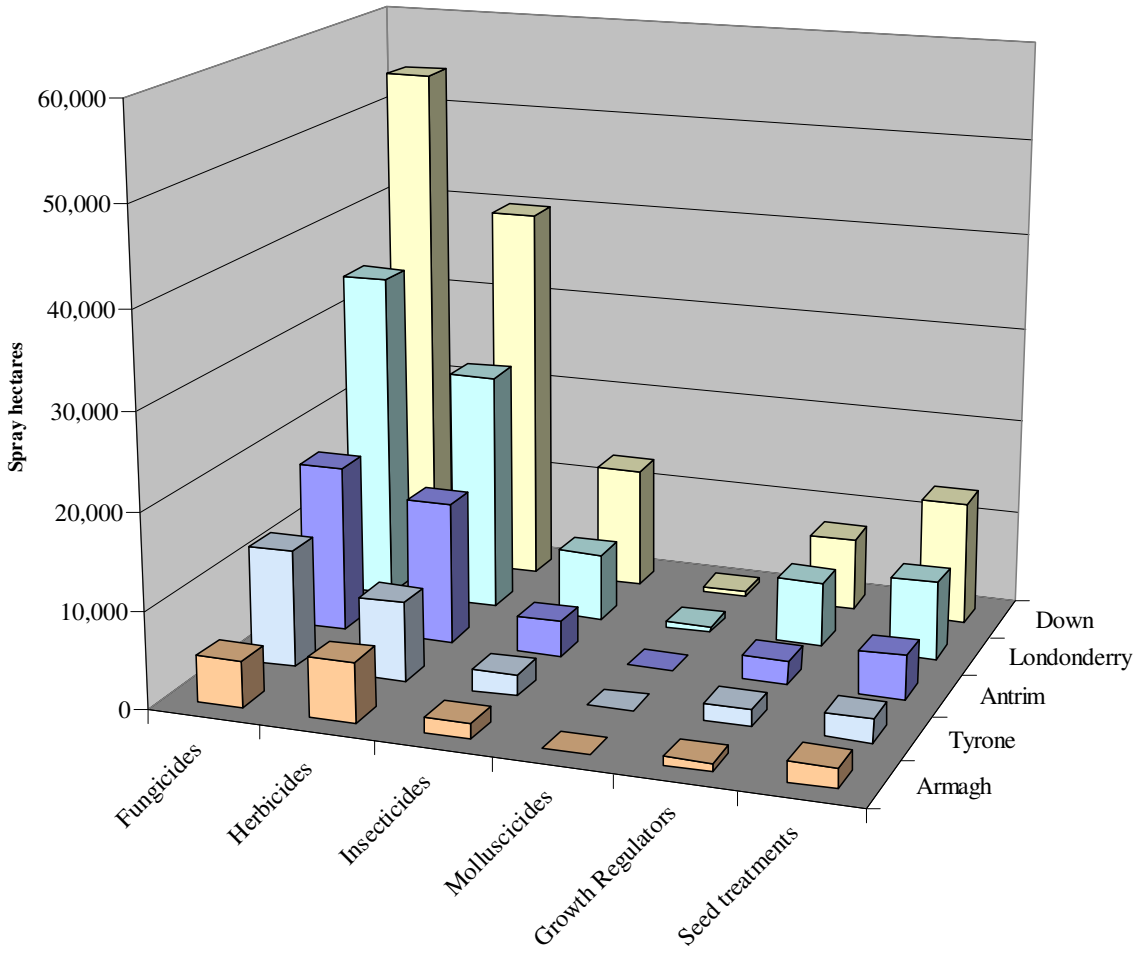

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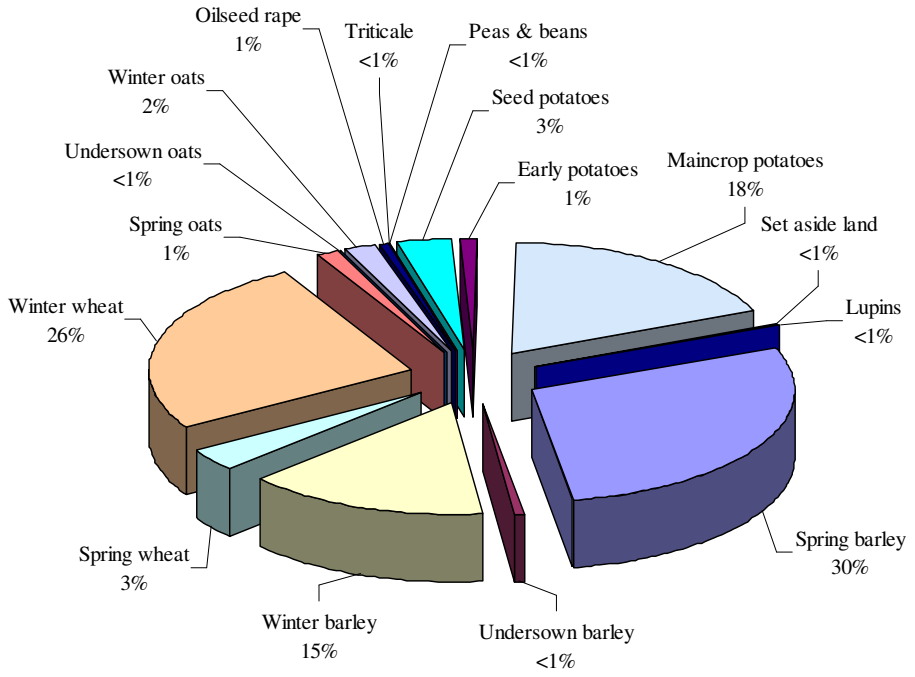

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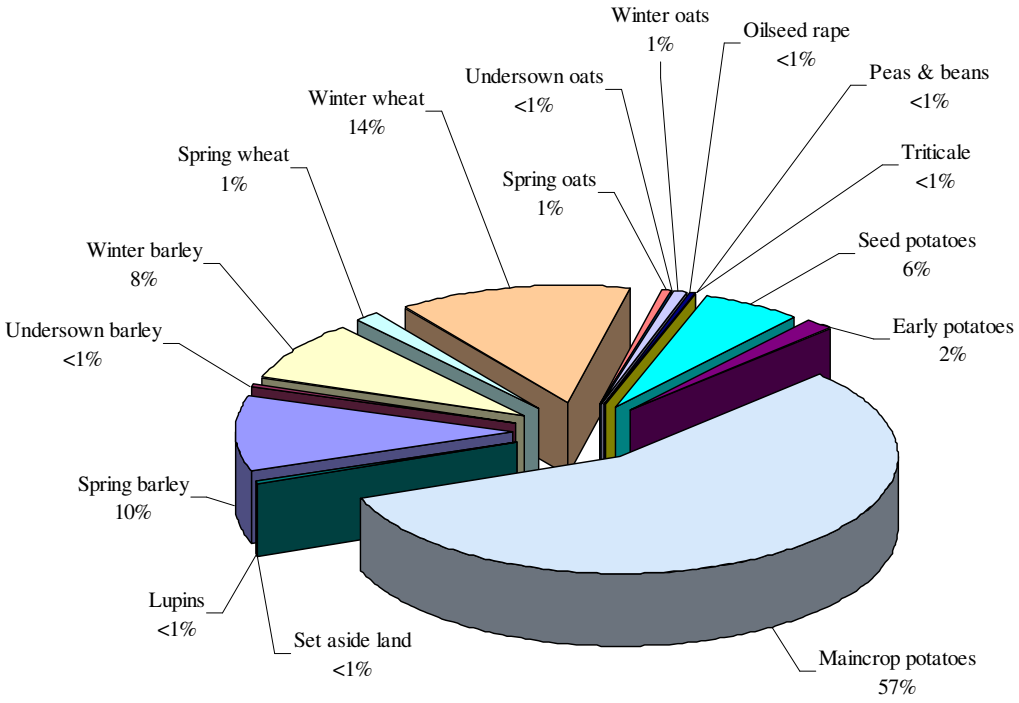

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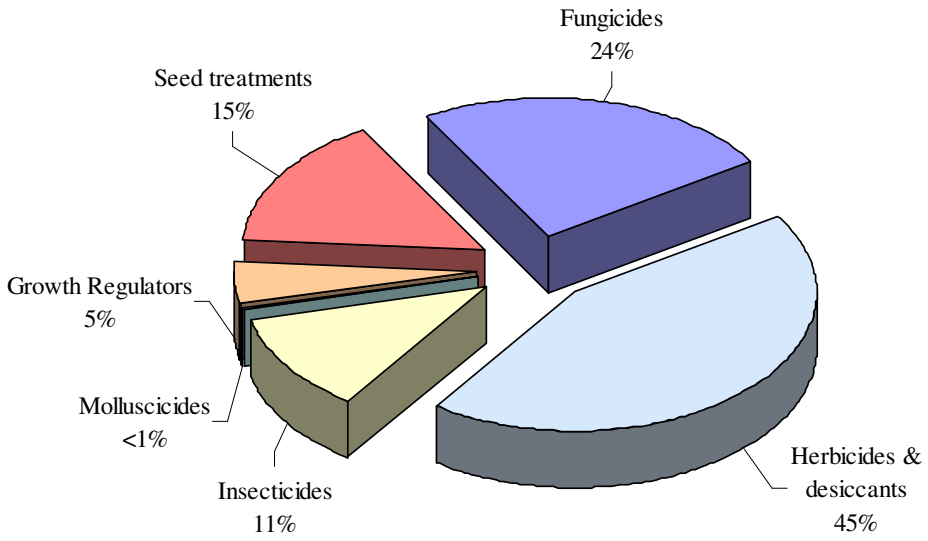

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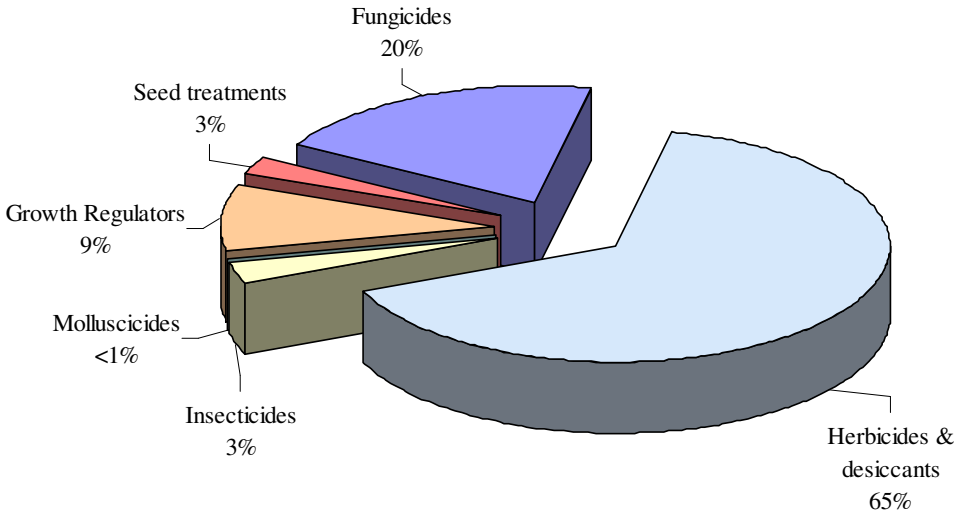

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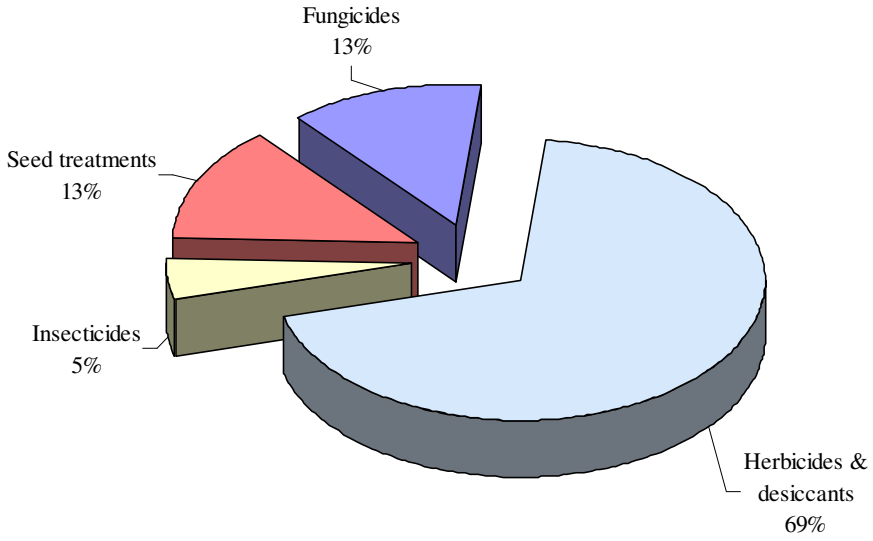

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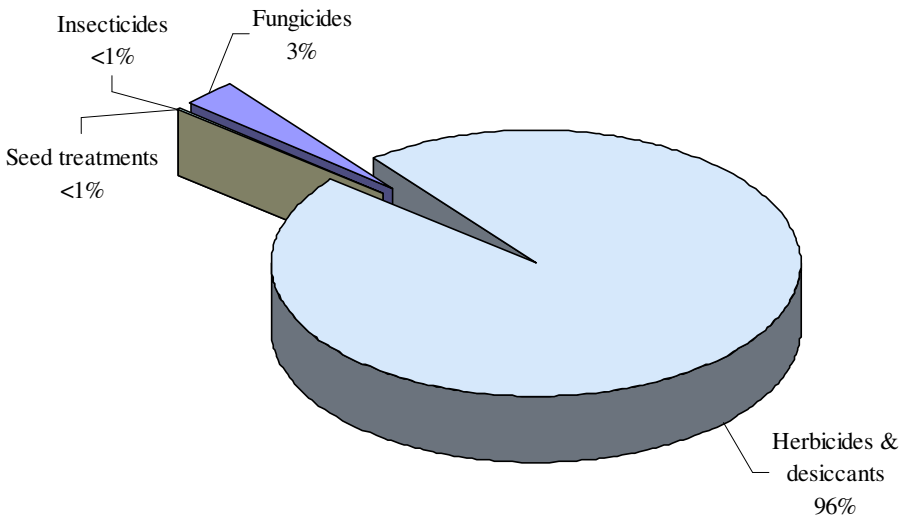

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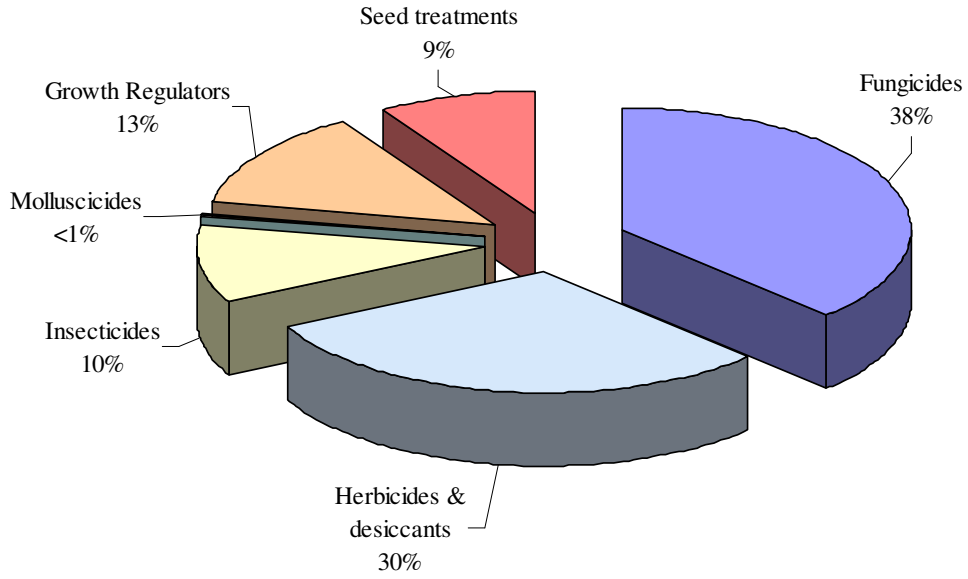
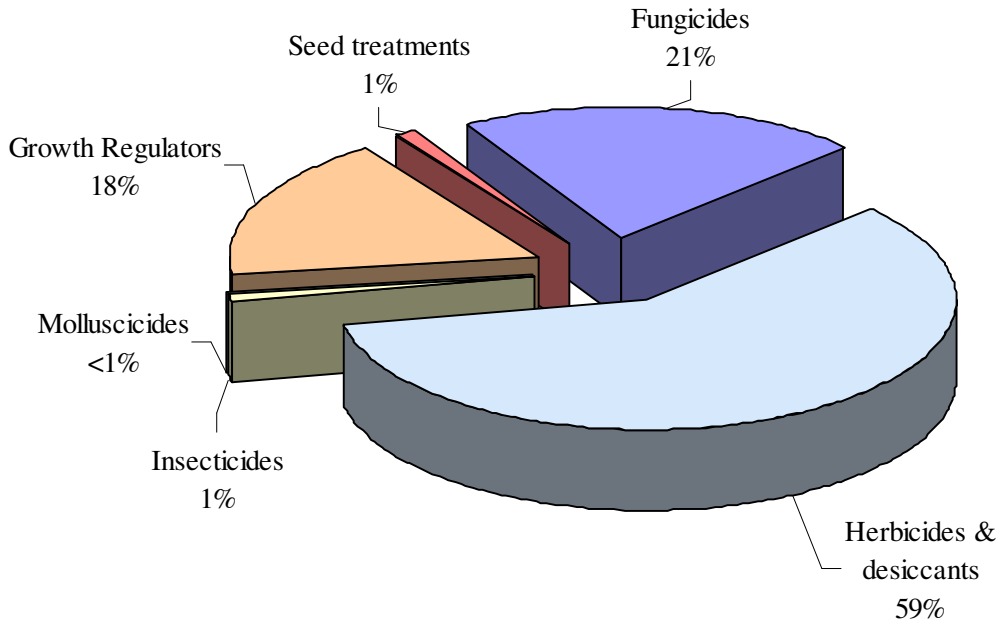


Figure 11: The proportional distribution of pesticides applied to winter barley in Northern Ireland in 2006, categorised by weight applied.



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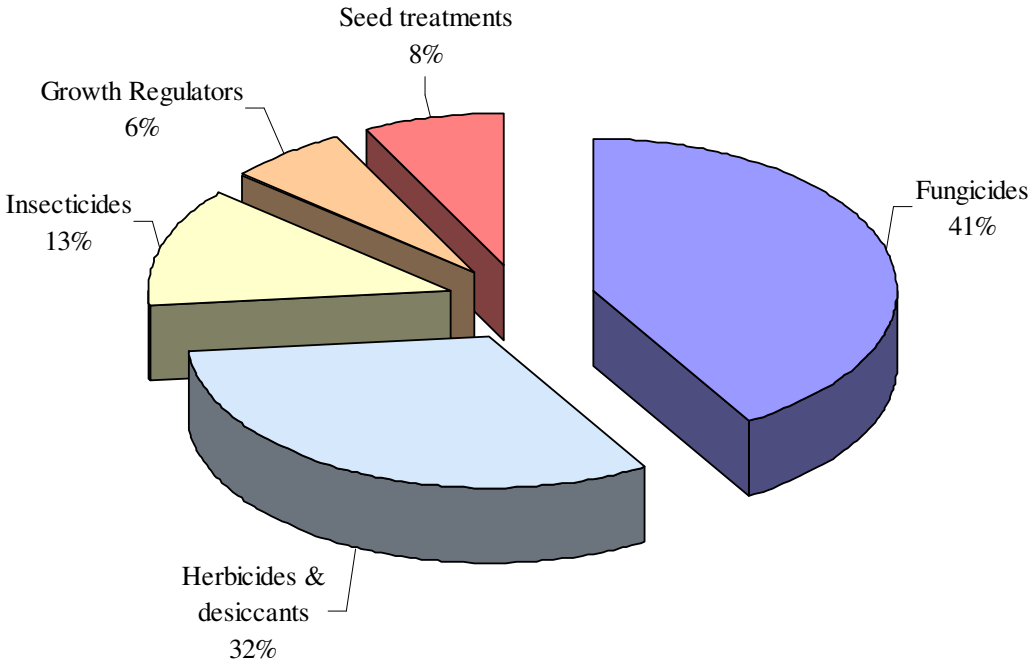

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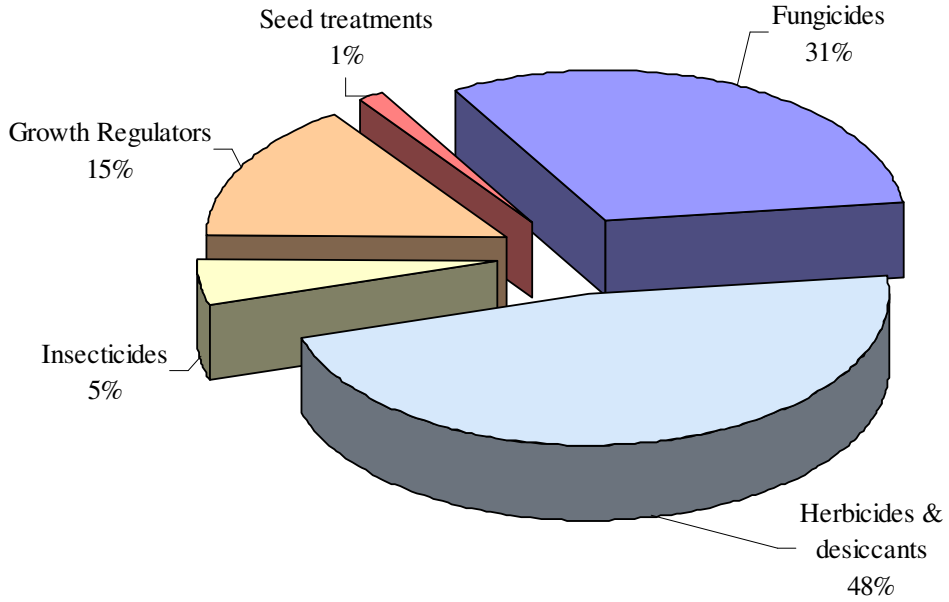

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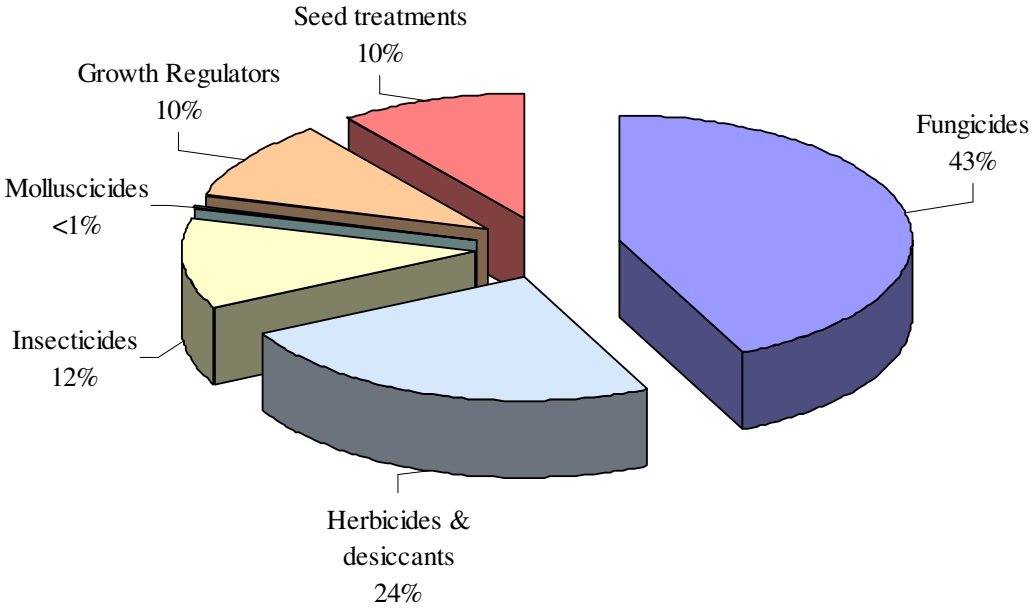

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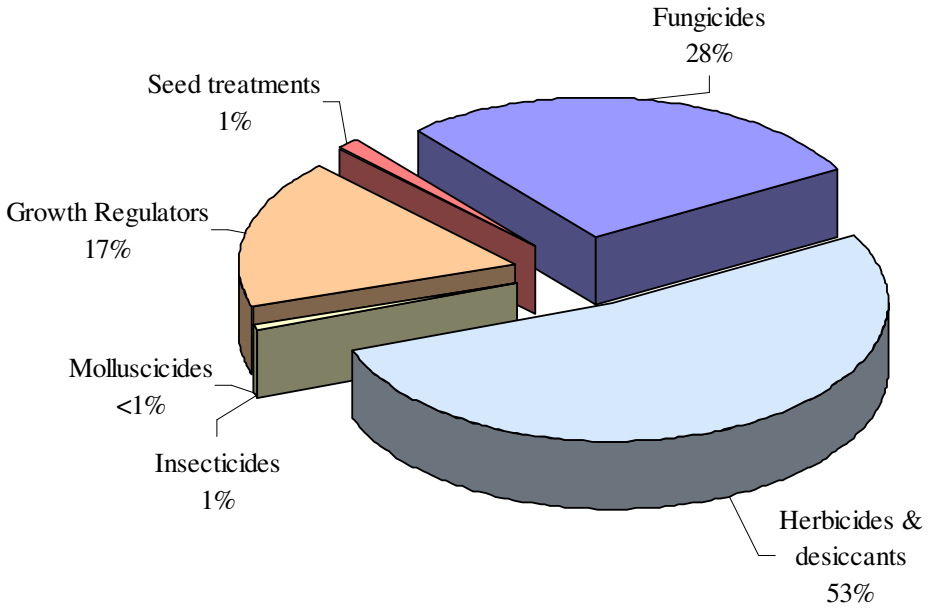
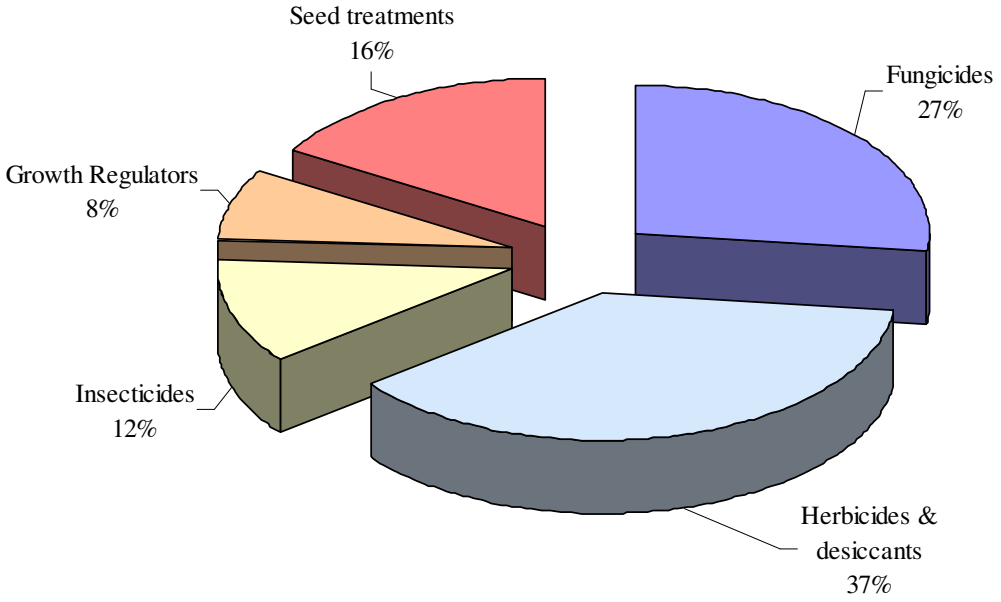


Figure 16: The proportional distribution of pesticides applied to spring oats in Northern Ireland in 2006, categorised by area treated (spray hectares).



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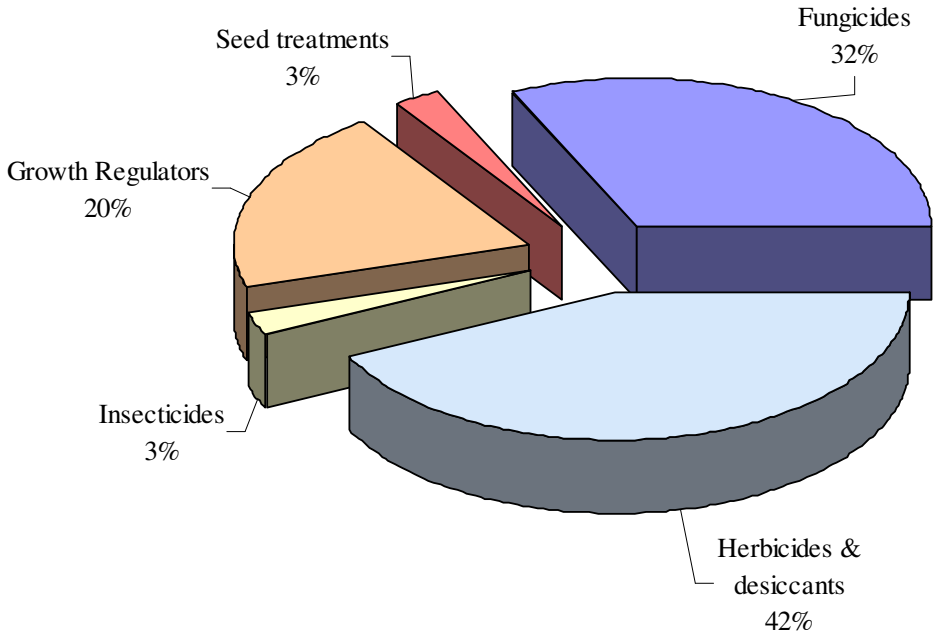

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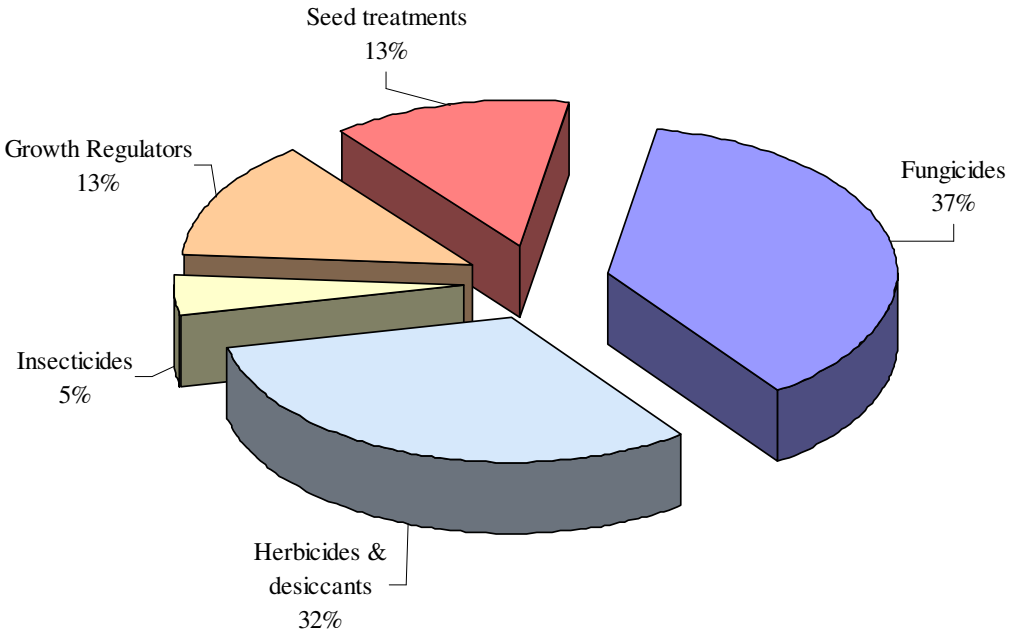

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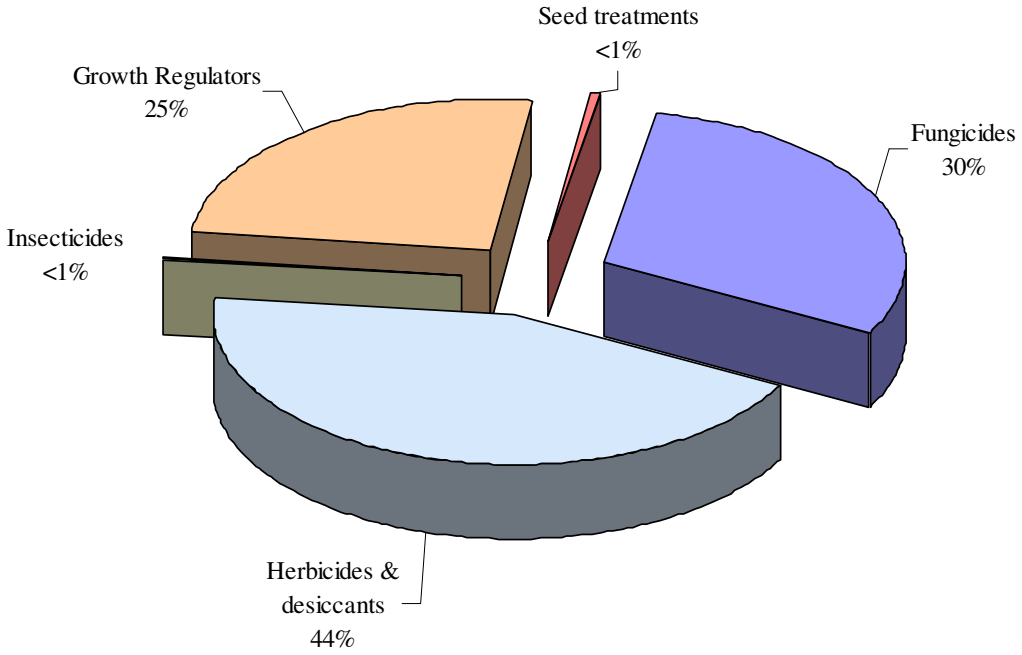
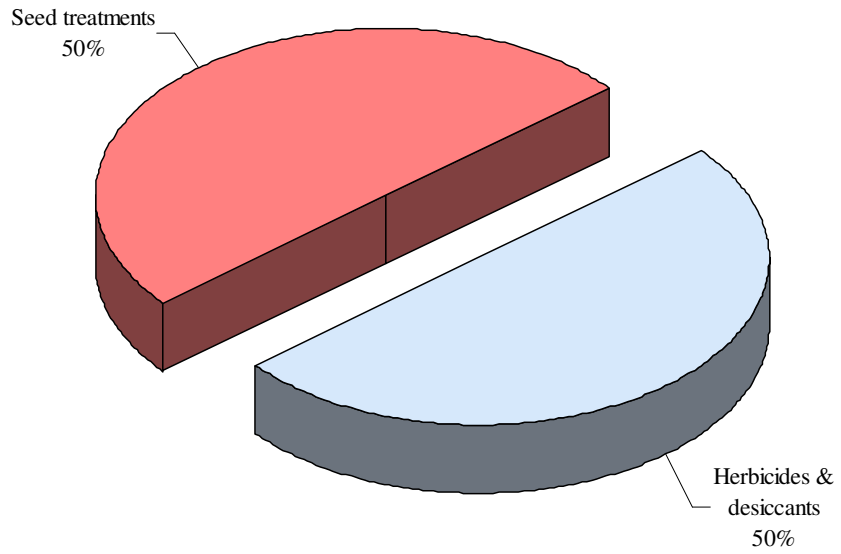


Figure 20: The proportional distribution of pesticides applied to undersown oats in Northern Ireland in 2006, categorised by area treated (spray hectares).



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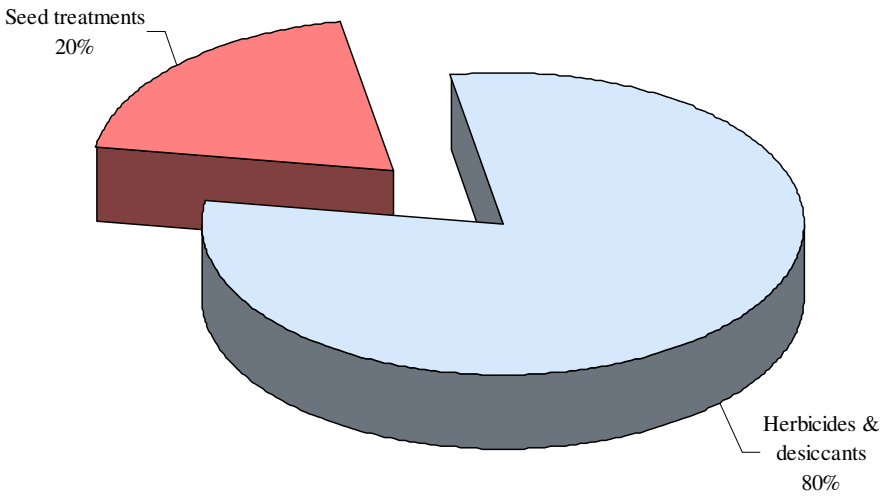

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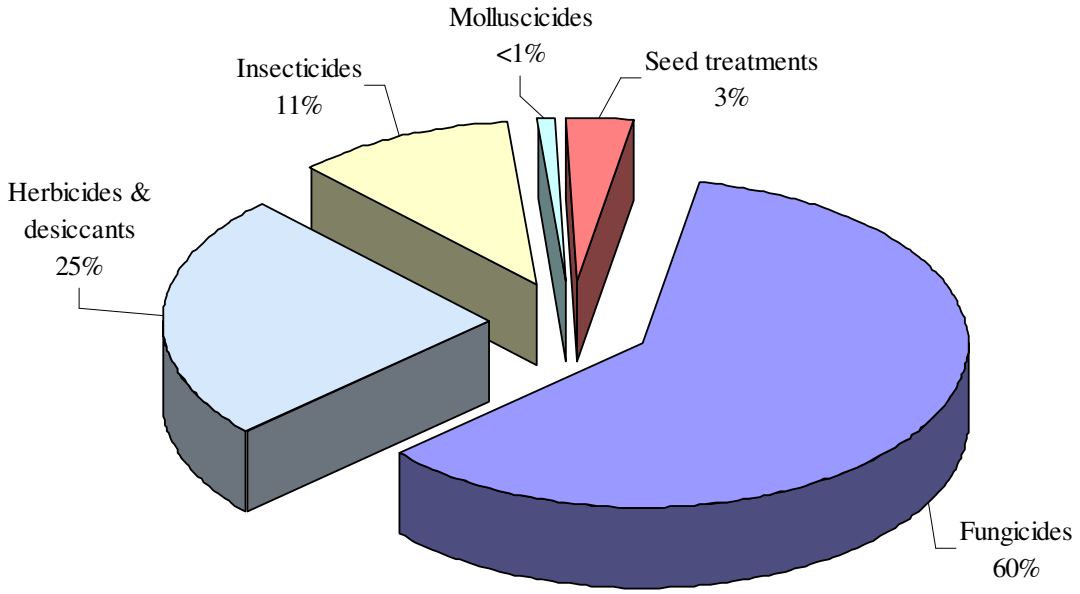

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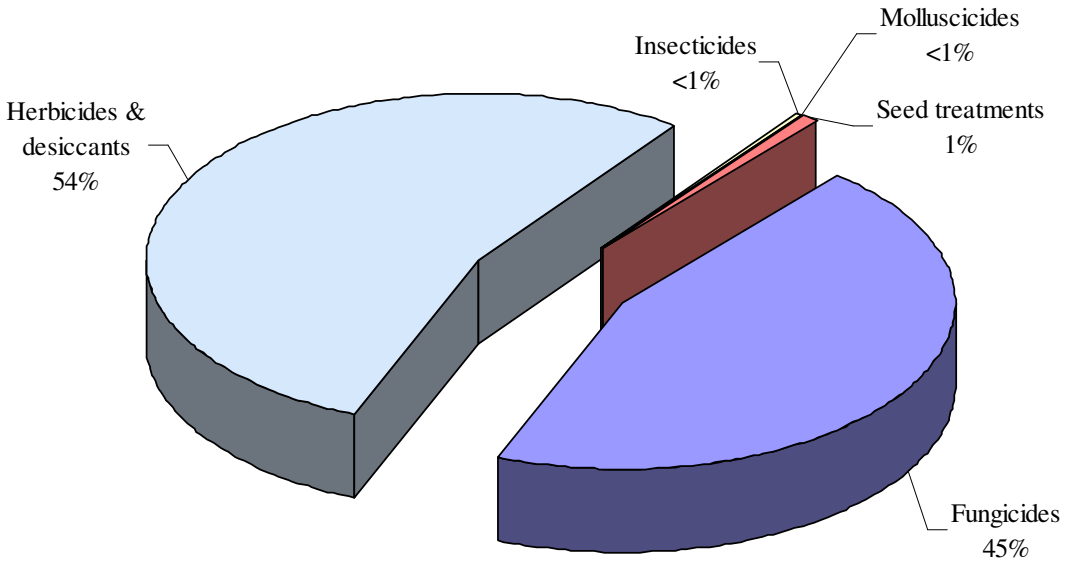

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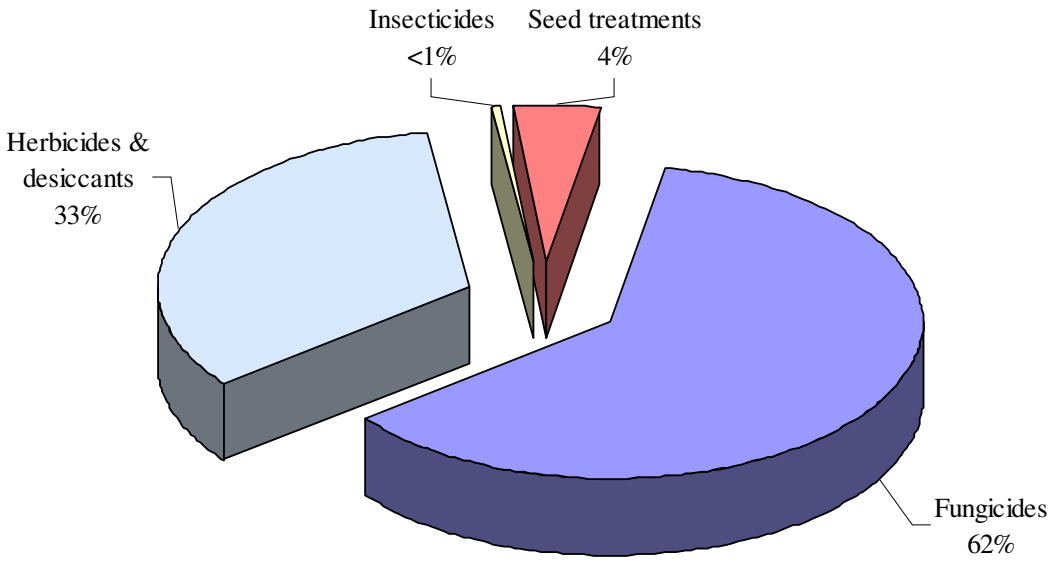

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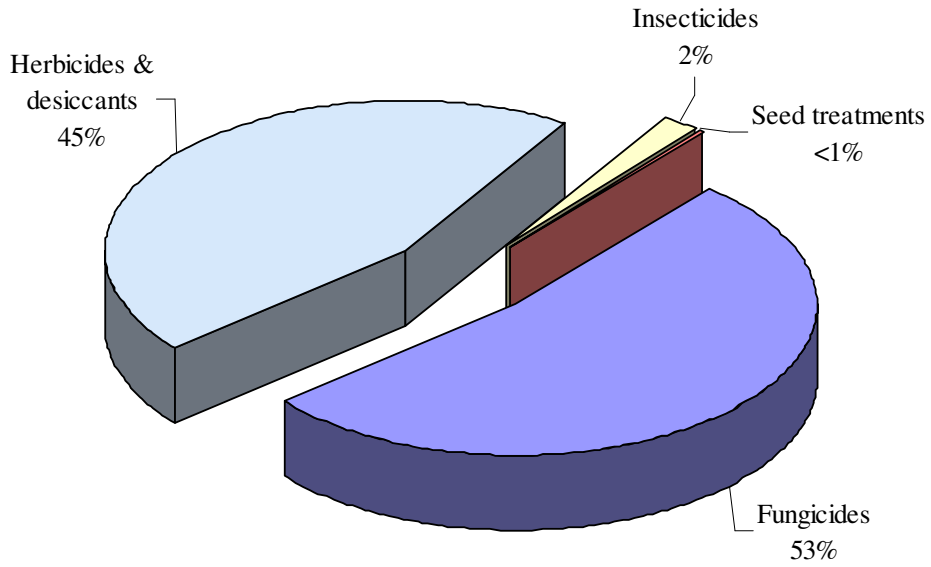

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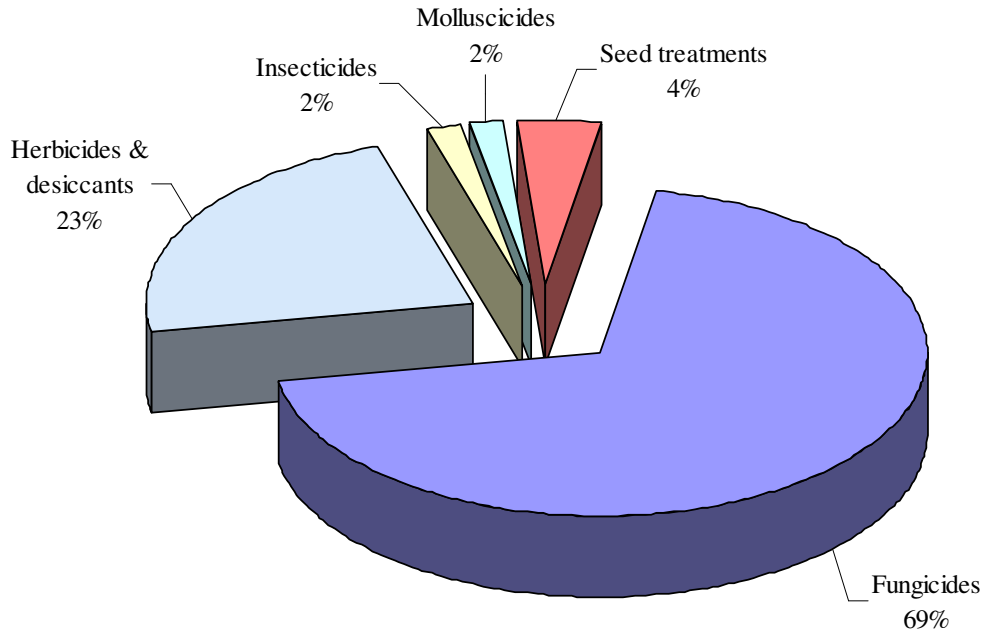
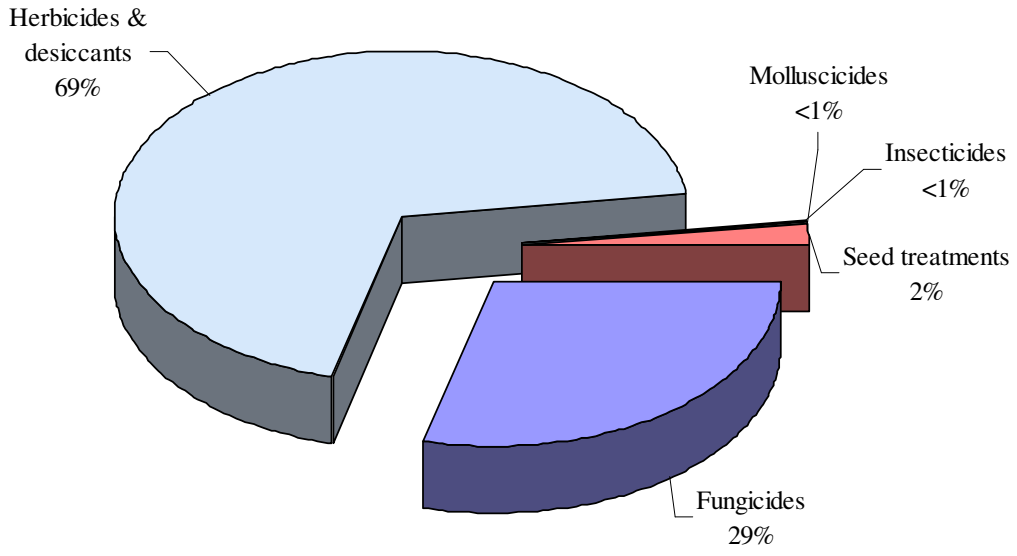


Figure 27: The proportional distribution of pesticides applied to maincrop potatoes in Northern Ireland in 2006, categorised by weight applied.



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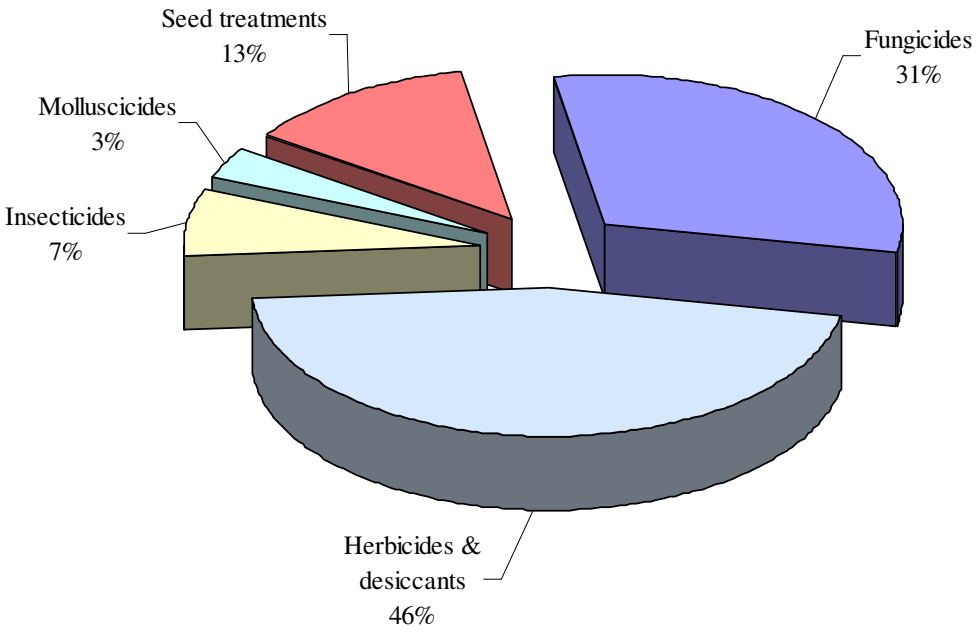

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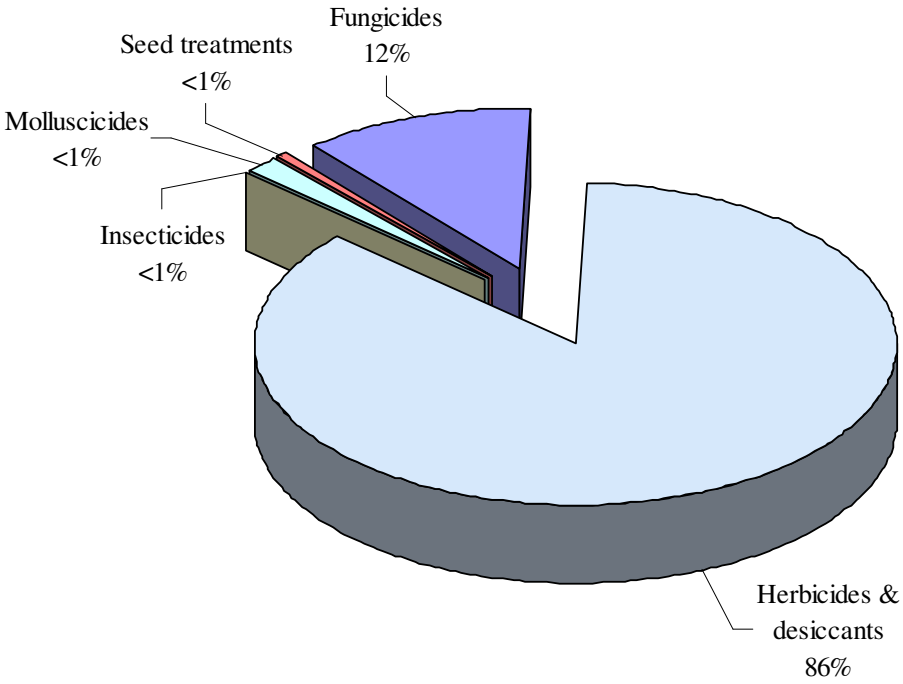

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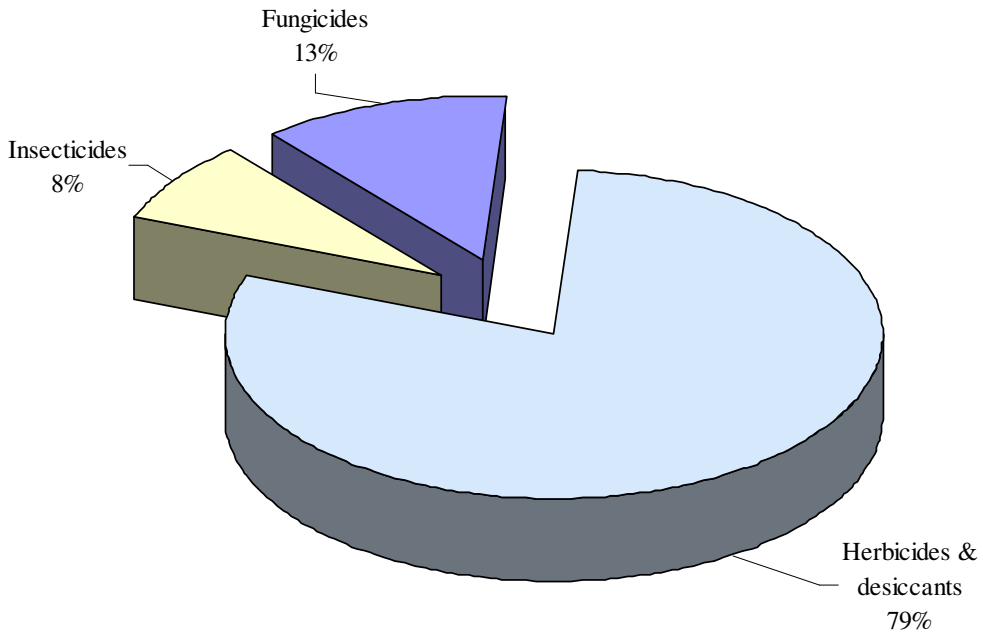
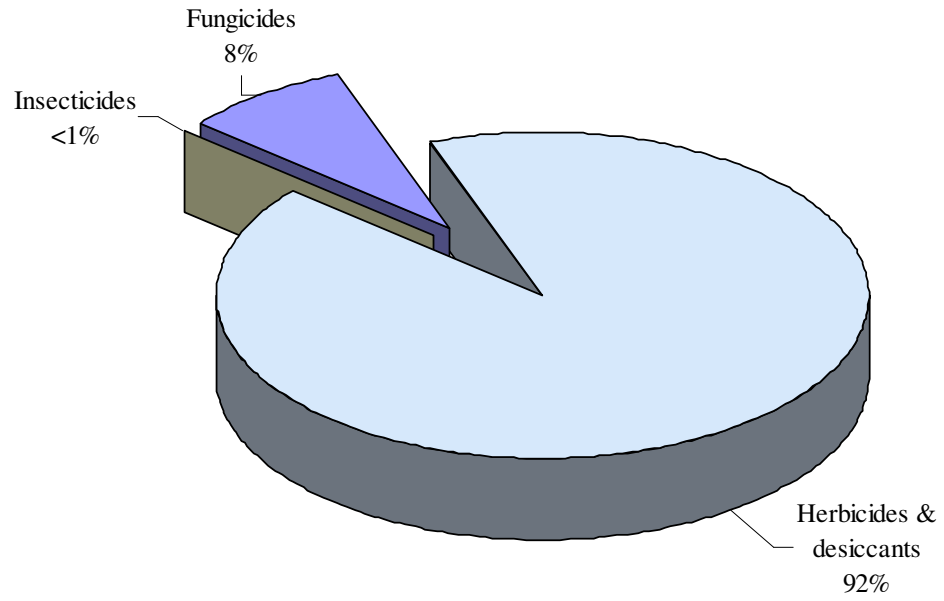


Figure 31: The proportional distribution of pesticides applied to pea and beans in Northern Ireland in 2006, categorised by weight applied.



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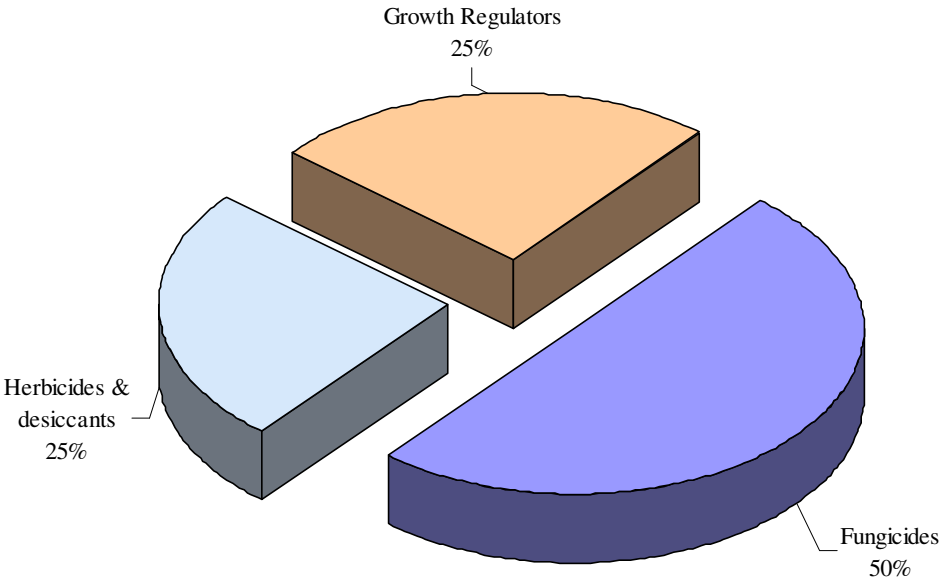

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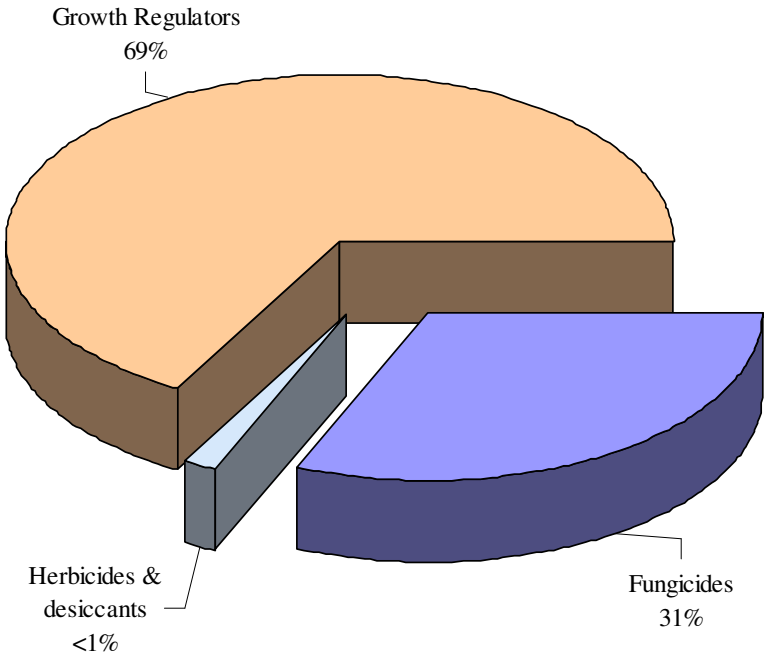
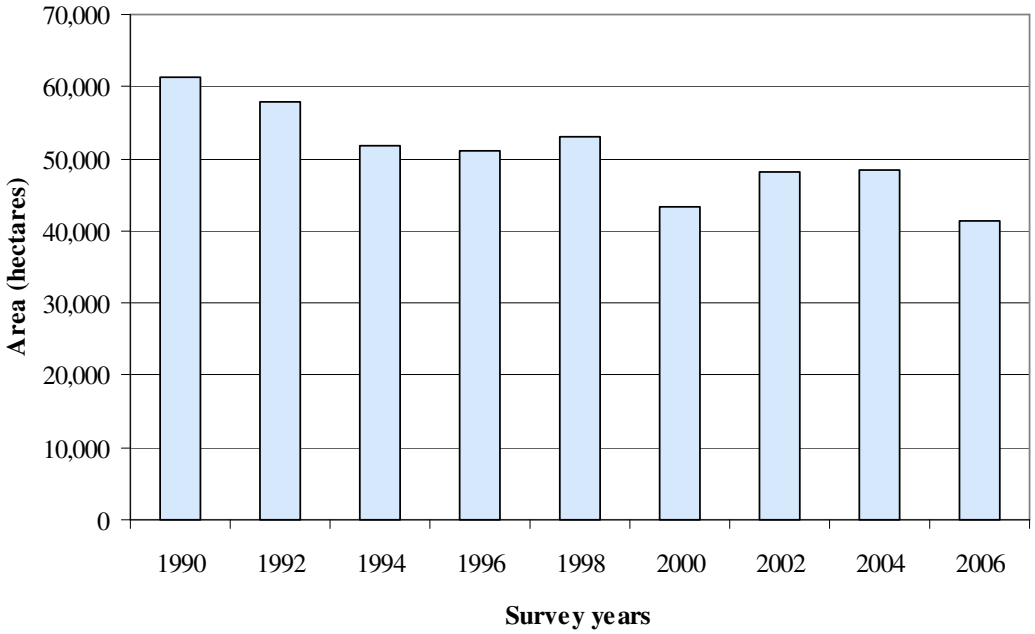


Figure 34: Comparison of the area of arable crops grown in Northern Ireland, 1990-2006.



(No data was collected on potato crops in 2000 due to the "Foot and Mouth" restrictions)

Figure 35: Comparison of the area of cereal crops grown in Northern Ireland, 1990-2006.

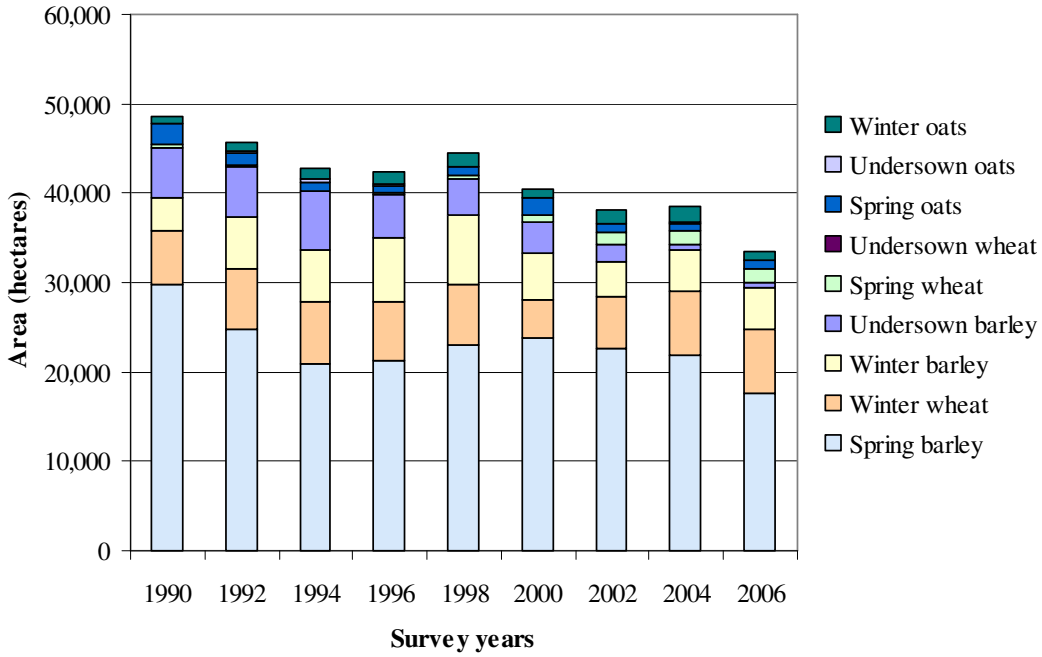
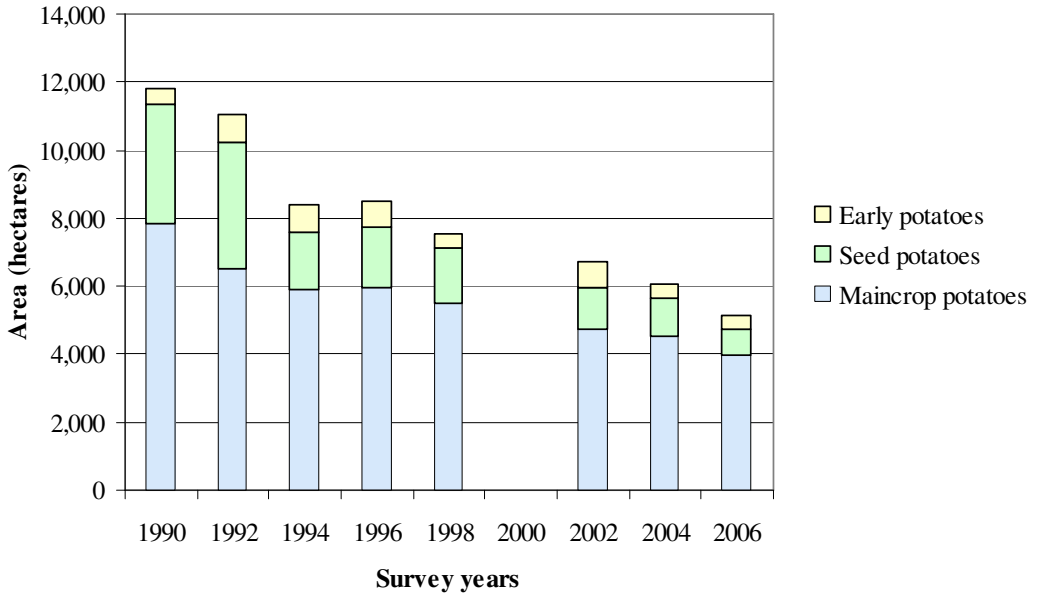
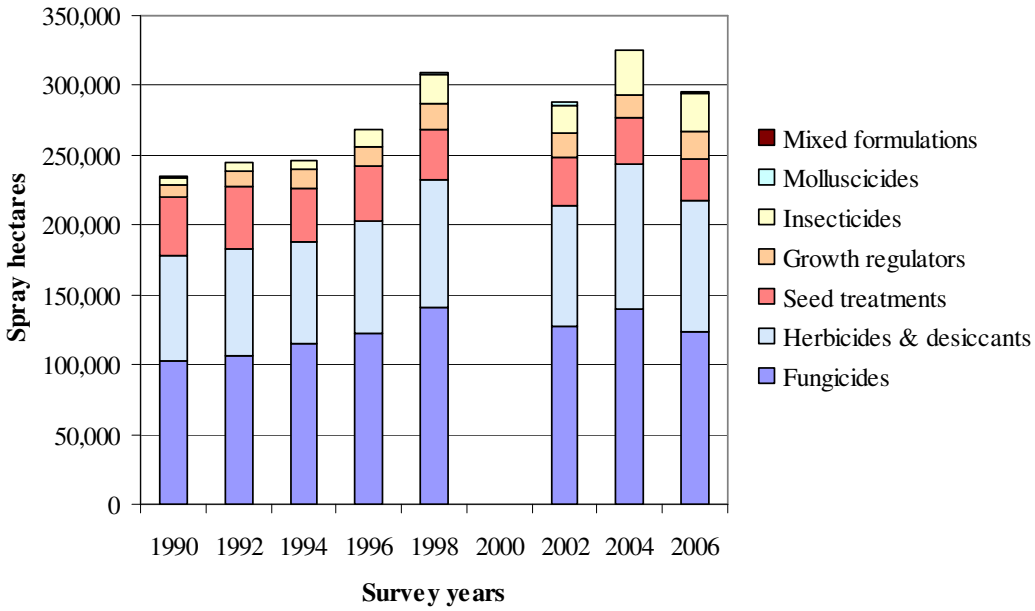


Figure 36: Comparison of the area of potato crops grown in Northern Ireland, 1990-2006.



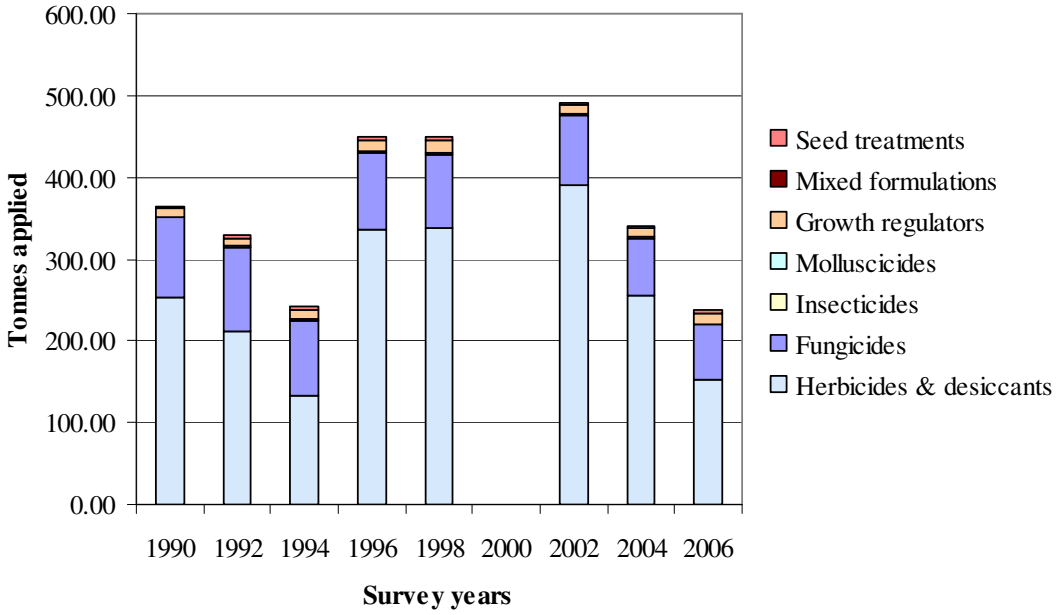
(No data was collected on potato crops in 2000 due to the "Foot and Mouth" restrictions)

Figure 37: Comparison of the area treated (spray hectares) of arable crops in Northern Ireland, 1990-2006.



(Comparative data not available for 2000 due to the "Foot and Mouth" restrictions)

Figure 38: Comparison of the weight of pesticides (tonnes) applied to arable crops in Northern Ireland, 1990-2006.



(Comparative data not available for 2000 due to the "Foot and Mouth" restrictions)

Figure 39: Comparison of the area treated (spray hectares) of cereal crops in Northern Ireland, 1990-2006.

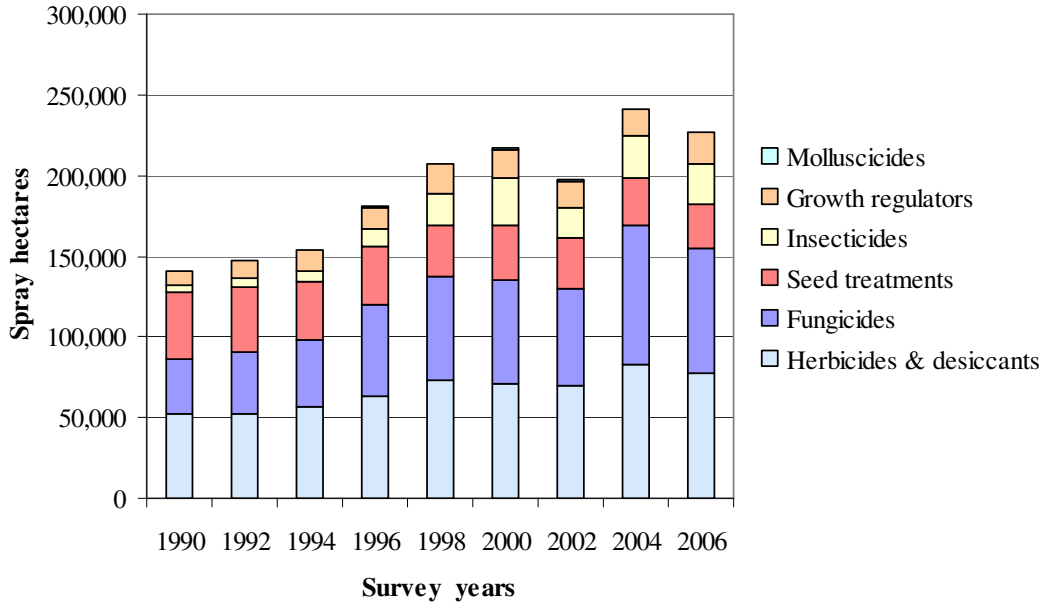


Figure 40: Comparison of the weight of pesticides (tonnes) applied to cereal crops in Northern Ireland, 1990-2006.

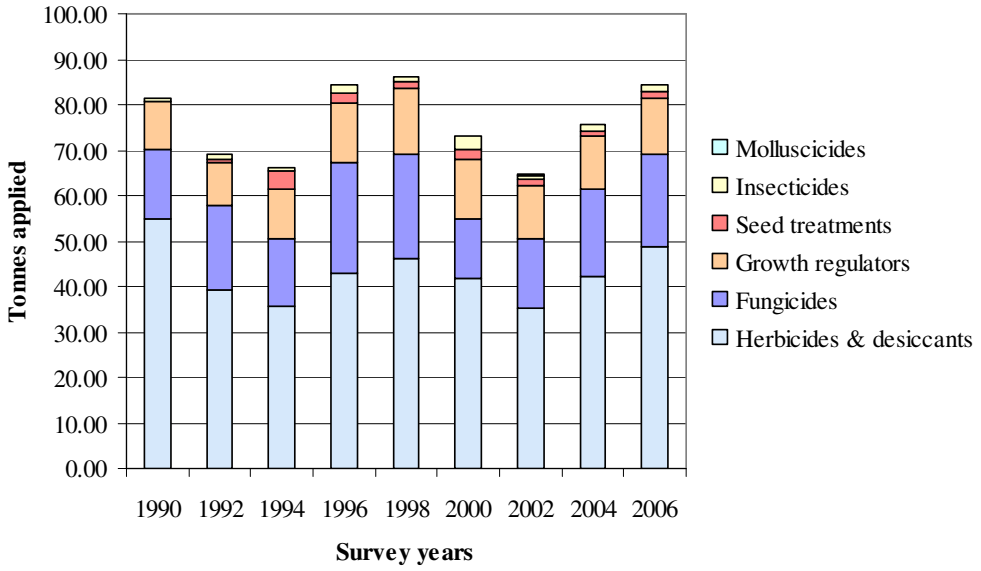


Figure 41: Comparison of the area treated (spray hectares) of potato crops in Northern Ireland, 1990-2006.

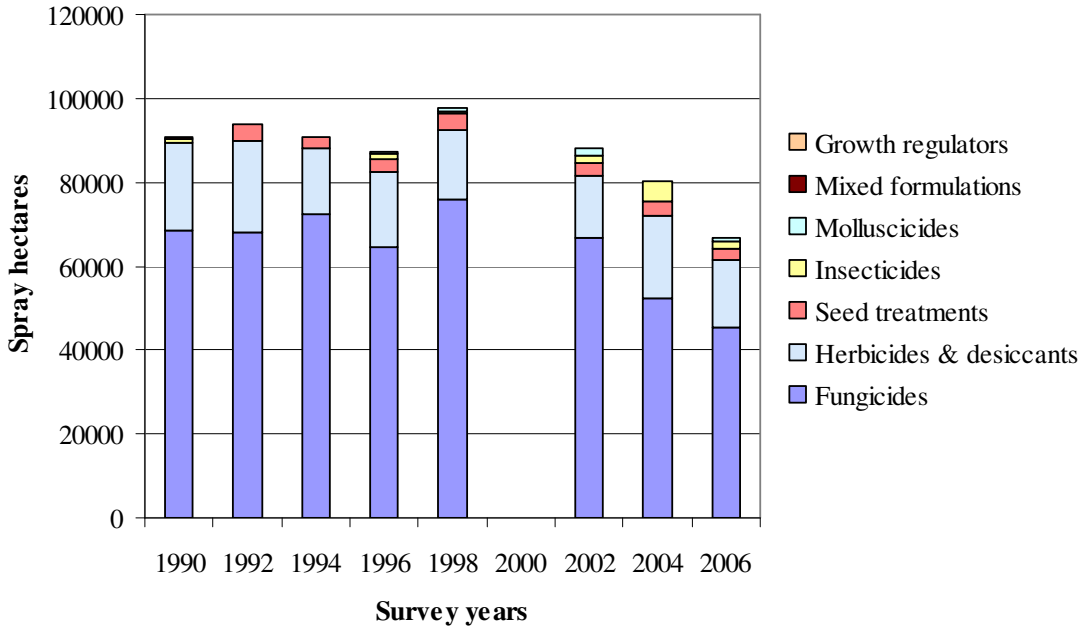
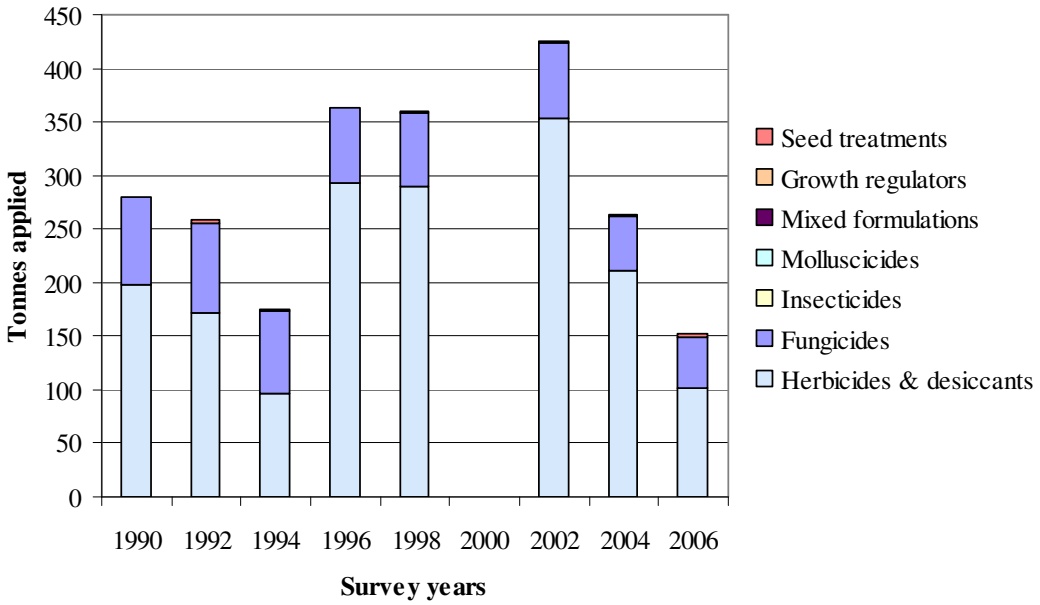


Figure 42: Comparison of the weight of pesticides (tonnes) applied to potato crops in Northern Ireland, 1990-2006.



(No data was collected on potato crops in 2000 due to the "Foot and Mouth" restrictions)

Figure 43: The proportional distribution of potato stores in Northern Ireland, 2006.

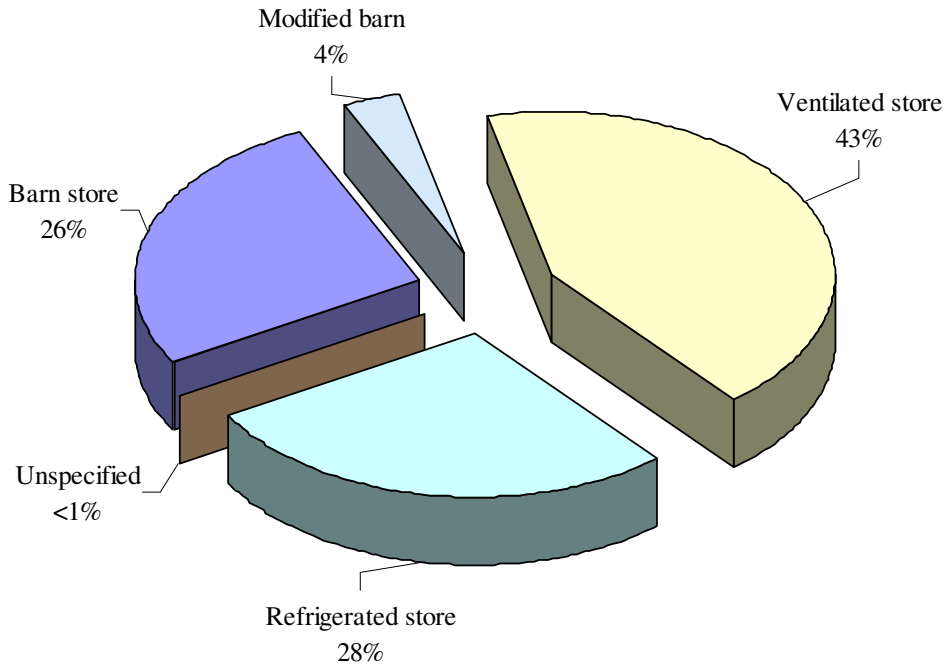


Figure 44: Comparison of the quantity (tonnes) of potatoes stored and the quantity treated in Northern Ireland, 1992-2006.

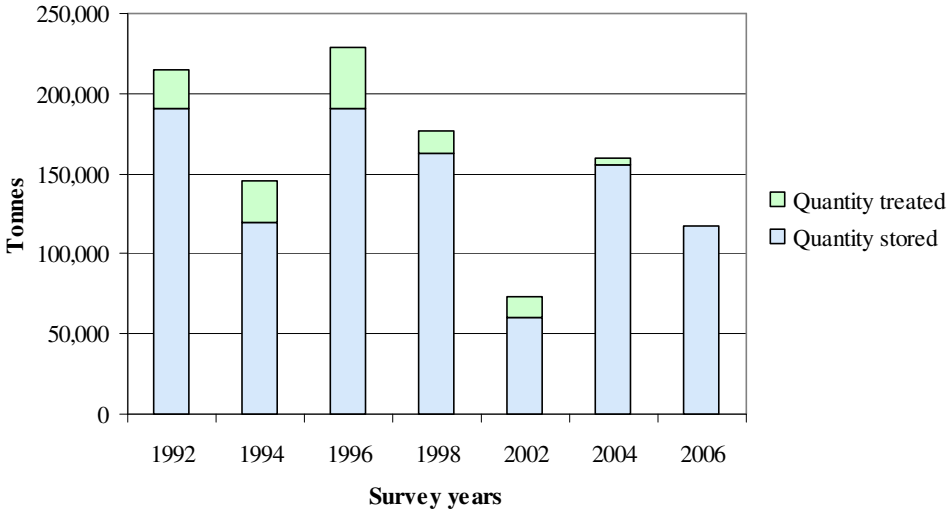


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Table 1: Number of farms in each size class with arable crops in the Northern Ireland June 2006 census and the number of samples from each class.

	Size group (hectares)													
	< 2		2 < 5		5 < 10		10 < 20		20 < 40		40 +		Total	
County	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled	Holdings in strata	Holdings sampled
Antrim	106	2	229	9	147	9	112	9	58	7	30	15	682	51
Armagh	41	1	58	2	62	3	52	3	7	6	13	4	233	19
Down	137	6	323	13	266	15	228	14	108	24	100	49	1,162	121
Fermanagh	12	.	6	.	6	.	.	.	2	.	.	.	26	.
Londonderry	70	3	258	6	157	5	118	9	61	16	53	24	717	63
Tyrone	76	1	122	2	84	3	57	4	28	4	11	5	378	19
Northern Ireland	***442***	***13***	***996***	***32***	***722***	***35***	***567***	***39***	***264***	***57***	***207***	***97***	***3,198***	***273***

Table 2: **The total number and area (hectares) of crops sampled, and the proportion (%) of the total area of arable crops surveyed in Northern Ireland, 2006.**

Crop	Number of crops surveyed	Survey area (ha)	Proportion of crops surveyed (%)
Spring barley	332	4,059	23
Undersown barley	15	72	11
Winter barley	139	2,304	50
Spring wheat	24	334	22
Winter wheat	123	2,033	28
Spring oats	31	218	22
Undersown oats	2	11	16
Winter oats	29	243	28
Oilseed rape	21	324	69
Peas & beans	6	18	22
Triticale	1	10	86
Seed potatoes	23	120	16
Early potatoes	34	104	28
Maincrop potatoes	134	1,024	26
Set aside land	98	498	22
Lupins	2	10	50
Total	***1,014***	***11,381***	***27***

Table 3: **Estimated area (hectares) of arable crops grown regionally in Northern Ireland 2006.**

Crop	County					Northern Ireland
	Antrim	Armagh	Down	Londonderry	Tyrone	
Spring barley	3,173	1,189	7,622	4,419	1,168	17,573
Undersown barley	218	.	142	190	104	654
Winter barley	353	89	1,938	1,459	759	4,599
Spring wheat	254	429	229	275	329	1,517
Winter wheat	611	414	4,074	1,509	594	7,203
Spring oats	76	252	385	215	63	991
Undersown oats	26	.	46	.	.	71
Winter oats	282	200	135	212	45	875
Oilseed rape	5	15	295	133	23	471
Peas & beans	8	.	35	40	.	83
Triticale	.	12	.	.	.	12
Seed potatoes	172	.	279	210	102	763
Early potatoes	164	.	129	45	33	370
Maincrop potatoes	1,176	83	1,457	1,018	251	3,984
Set aside land	300	101	1,184	553	147	2,284
Lupins	19	.	.	.	.	19
Total	***6,836***	***2,785***	***17,950***	***10,280***	***3,618***	***41,469***

Table 4: **Estimated area (spray-hectares) of arable crops treated regionally with each pesticide type in Northern Ireland 2006.**

Pesticide type	County					Northern Ireland
	Antrim	Armagh	Down	Londonderry	Tyrone	
Fungicides	17,401	4,704	54,225	34,629	12,167	123,125
Herbicides	14,799	6,142	39,939	25,055	8,213	94,148
Insecticides	3,700	1,550	12,748	7,022	2,235	27,255
Molluscicides	29	.	598	610	.	1,237
Growth Regulators	2,515	833	7,720	6,728	1,775	19,572
Seed treatments	4,583	2,056	12,965	8,255	2,439	30,298
Total	***43,027***	***15,284***	***128,195***	***82,298***	***26,830***	***295,635***

Table 5: **The total area (spray-hectares) and the basic area (hectares), (in parentheses), of arable crops treated, in Northern Ireland 2006, with each pesticide type.**

	Pesticide type													
	Fungicides		Herbicides & desiccants		Insecticides		Molluscicides		Growth Regulators		Seed treatments		All pesticides	
Crop	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)	Sp ha	(ha)
Spring barley	20,325	(11,023)	37,221	(14,694)	9,660	(7,612)	47	(47)	4,158	(3,239)	13,090	(13,090)	84,501	(14,715)
Undersown barley	170	(152)	929	(620)	61	(61)	.	.	.	.	179	(179)	1,338	(620)
Winter barley	16,751	(4,310)	13,302	(4,074)	4,581	(3,750)	112	(112)	5,866	(3,338)	3,967	(3,967)	44,578	(4,002)
Spring wheat	4,261	(1,487)	3,300	(1,395)	1,306	(1,138)	.	.	659	(554)	777	(777)	10,302	(1,395)
Winter wheat	32,337	(6,760)	18,304	(6,248)	8,818	(5,257)	80	(80)	7,829	(5,303)	7,610	(6,706)	74,980	(6,117)
Spring oats	1,158	(722)	1,602	(836)	494	(446)	.	.	329	(329)	703	(703)	4,286	(888)
Undersown oats	.	.	26	(26)	.	.	.	.	.	.	26	(26)	51	(26)
Winter oats	2,037	(665)	1,724	(715)	249	(213)	.	.	718	(441)	730	(730)	5,458	(859)
Oilseed rape	646	(293)	970	(461)	149	(149)	68	(50)	.	.	271	(254)	2,105	(448)
Peas & beans	19	(19)	120	(68)	12	(12)	.	.	.	.	.	.	151	(74)
Triticale	24	(12)	12	(12)	.	.	.	.	12	(12)	.	.	47	(12)
Seed potatoes	5,618	(763)	2,285	(756)	1,008	(368)	77	(39)	.	.	303	(303)	9,291	(756)
Early potatoes	2,080	(370)	1,124	(359)	25	(25)	.	.	.	.	147	(147)	3,376	(359)
Maincrop potatoes	37,699	(3,929)	12,562	(3,683)	867	(546)	853	(722)	.	.	2,306	(1,780)	54,287	(3,731)
Set aside land	.	.	650	(422)	24	(24)	.		.	.	189	(189)	864	(435)
Lupins	.	.	19	(19)	.	.	.	.	.	.	.	.	19	(19)
Total	***123,125***	***(30,505)***	***94,148***	***(34,389)***	***27,255***	***(19,602)***	***1,237***	***(1,049)***	***19,572***	***(13,216)***	***30,298***	***(28,851)***	***295,635***	***(34,457)***

Table 6: **Total quantity (kilograms) of each pesticide type used on arable crops in Northern Ireland 2006.**

Crop	Fungicides	Herbicides & desiccants	Insecticides	Molluscicides	Growth Regulators	Seed treatments	Total
Spring barley	5,019	16,238	783	2	2,271	643	24,957
Undersown barley	35	1,031	0	.	.	4	1,070
Winter barley	4,111	11,554	168	13	3,447	242	19,535
Spring wheat	954	1,441	158	.	455	42	3,050
Winter wheat	9,073	17,059	208	28	5,677	436	32,482
Spring oats	414	554	33	.	262	33	1,297
Undersown oats	.	13	.	.	.	3	16
Winter oats	600	884	4	.	506	14	2,008
Oilseed rape	103	759	1	14	.	5	883
Peas & beans	9	98	0	.	.	.	107
Triticale	5	0	.	.	11	.	16
Seed potatoes	6,157	7,375	14	17	.	105	13,668
Early potatoes	1,994	1,703	74	.	.	12	3,783
Maincrop potatoes	38,780	92,702	116	211	.	2,487	134,296
Set aside land	.	677	9	.	.	3	689
Lupins	.	39	.	.	.	.	39
Total	***67,256***	***152,127***	***1,569***	***284***	***12,629***	***4,028***	***237,894***

Table 7: **The proportional area (%) of each crop treated with pesticides and the number of spray applications (in parentheses) in Northern Ireland, 2006.**

Crop	Fungicides		Herbicides & desiccants		Insecticides		Molluscicides		Growth Regulators		Seed treatments	All pesticides	
	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	sp apps	%	%	sp apps
Spring barley	63	(1.5)	84	(1.8)	43	(1.2)	.	(1.0)	18	(1.1)	74	84	(1.6)
Undersown barley	23	(1.1)	95	(1.6)	9	(1.0)	.	.	0	.	27	95	(1.5)
Winter barley	94	(3.5)	89	(2.1)	82	(1.2)	2	(1.0)	73	(1.7)	86	87	(2.1)
Spring wheat	98	(3.0)	92	(1.6)	75	(1.0)	.	.	37	(1.2)	51	92	(1.8)
Winter wheat	94	(3.9)	87	(2.2)	73	(1.6)	1	(1.0)	74	(1.5)	93	85	(2.4)
Spring oats	73	(1.4)	84	(2.0)	45	(1.1)	.	.	33	(1.0)	71	90	(1.5)
Undersown oats	.	.	36	(1.0)	.	.	.	.	0	.	36	36	(1.0)
Winter oats	76	(3.0)	82	(2.3)	24	(1.2)	.	.	50	(1.4)	83	98	(2.1)
Oilseed rape	62	(2.4)	98	(1.8)	32	(1.0)	11	(1.4)	.	.	54	95	(1.8)
Peas & beans	22	(1.0)	82	(1.9)	15	(1.0)	.	.	.	.	.	90	(1.7)
Triticale	100	(2.0)	100	(1.0)	.	.	.	.	100	(1.0)	.	100	(1.3)
Seed potatoes	100	(5.9)	99	(3.7)	48	(4.7)	5	(2.0)	.	.	40	99	(4.7)
Early potatoes	100	(6.2)	97	(3.3)	7	(1.0)	.	.	.	.	40	97	(4.7)
Maincrop potatoes	99	(8.8)	92	(2.8)	14	(1.6)	18	(1.2)	.	.	45	94	(5.6)
Set aside land	.	.	18	(1.3)	1	(1.0)	.	.	.	.	8	19	(1.2)
Lupins	.	.	100	(1.0)	.	.	.	.	.	.	.	100	(1.0)
Total	***74***	***(4.1)***	***83***	***(2.1)***	***47***	***(1.6)***	***3***	***(1.3)***	***32***	***(1.4)***	***70***	***83***	***(2.5)***

Table 8: **Estimated area (spray-hectares) of arable crops treated with pesticide formulations in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Fungicides																	
Azoxystrobin	2,045	73	1,759	1,073	4,106	10	.	245	265	12	.	68	.	318	.	.	9,975
Azoxystrobin/chlorothalonil	550	.	378	.	1,668	.	.	20	.	.	.	.	.	.	.	.	2,617
Azoxystrobin/cyproconazole	81	.	8	168	.	.	.	.	.	.	.	.	.	.	.	.	257
Azoxystrobin/fenpropimorph	100	.	239	.	266	150	.	129	.	.	.	.	.	.	.	.	885
Boscalid/epoxiconazole	.	.	97	45	853	.	.	.	.	.	.	.	.	.	.	.	995
Carbendazim	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	24
Carbendazim/flusilazole	1,228	34	440	567	260	.	.	.	.	.	.	.	.	.	.	.	2,528
Chlorothalonil	1,888	.	2,316	649	5,371	4	.	325	.	6	.	.	.	.	.	.	10,560
Chlorothalonil/cyproconazole/propiconazole	130	.	53	.	135	.	.	.	.	.	.	.	.	.	.	.	318
Chlorothalonil/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	64	219	2,765	.	.	3,047
Copper oxychloride	.	.	.	.	.	.	.	.	.	.	.	.	.	33	.	.	33
Cyazofamid	.	.	.	.	.	.	.	.	.	.	.	.	24	672	.	.	696
Cymoxanil	.	.	.	.	.	.	.	.	.	.	.	.	.	548	.	.	548
Cymoxanil/mancozeb	.	.	.	.	.	.	.	.	.	.	.	1,074	372	7,445	.	.	8,891
Cyproconazole/propiconazole	2,108	.	359	22	87	21	.	.	.	.	.	.	.	.	.	.	2,597
Cyprodinil	45	.	298	.	.	.	.	.	.	.	.	.	.	.	.	.	344
Cyprodinil/picoxystrobin	106	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	106
Difenoconazole	.	.	.	.	842	.	.	.	117	.	.	.	.	.	.	.	959
Dimethomorph/mancozeb	.	.	.	.	.	.	.	.	.	.	.	837	434	2,761	.	.	4,032
Epoxiconazole	2,285	32	1,006	368	4,810	176	.	145	.	.	.	.	.	.	.	.	8,822
Epoxiconazole/fenpropimorph	260	.	.	100	.	.	.	.	.	.	.	.	.	.	.	.	360
Epoxiconazole/fenpropimorph/kresoxim-methyl	859	.	68	106	252	133	.	22	.	.	.	.	.	.	.	.	1,441
Epoxiconazole/kresoxim-methyl	232	.	33	.	60	.	.	.	.	.	.	.	.	.	.	.	325
Fenpropidin	36	.	416	.	71	.	.	47	.	.	12	.	.	.	.	.	583
Fenpropimorph	1,087	.	1,347	74	969	351	.	431	.	.	.	.	.	.	.	.	4,259
Fenpropimorph/flusilazole	1,109	.	7	13	.	.	.	.	.	.	.	.	.	.	.	.	1,128
Fenpropimorph/pyraclostrobin	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	15
Fenpropimorph/quinoxyfen	121	.	55	.	.	6	.	.	.	.	.	.	.	.	.	.	182
Fentin hydroxide	.	.	.	.	.	.	.	.	.	.	.	.	.	856	.	.	856

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Fungicides (contd.)																	
Fluazinam	.	.	.	.	.	.	.	.	.	.	.	1,629	749	10,804	.	.	13,181
Fluazinam/metalaxyl-m	.	.	.	.	.	.	.	.	.	.	.	.	36	677	.	.	713
Fluopicolide/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	149	.	759	.	.	908
Fluoxastrobin/prothioconazole	1,865	31	2,739	120	1,732	.	.	25	.	.	.	.	.	.	.	.	6,512
Fluquinconazole/prochloraz	.	.	37	.	492	.	.	.	.	.	.	.	.	.	.	.	529
Flusilazole	208	.	434	.	171	.	.	.	.	.	.	.	.	.	.	.	813
Mancozeb	.	.	.	.	.	.	.	.	.	.	.	1,230	72	7,127	.	.	8,429
Mancozeb/metalaxyl-m	.	.	.	.	.	.	.	.	.	.	.	453	169	1,794	.	.	2,416
Mancozeb/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	77	5	578	.	.	660
Mancozeb/zoxamide	.	.	.	.	.	.	.	.	.	.	.	39	.	564	.	.	602
Metconazole	.	.	.	.	.	.	.	.	60	.	.	.	.	.	.	.	60
Metrafenone	.	.	.	.	61	.	.	92	.	.	12	.	.	.	.	.	165
Picoxystrobin	265	.	572	.	53	.	.	.	.	.	.	.	.	.	.	.	890
Propiconazole/tebuconazole	1,659	.	1,586	764	2,449	.	.	60	34	.	.	.	.	.	.	.	6,553
Proquinazid	.	.	.	.	56	46	.	.	.	.	.	.	.	.	.	.	102
Prothioconazole	911	.	1,561	75	1,948	4	.	.	61	.	.	.	.	.	.	.	4,560
Prothioconazole/tebuconazole	.	.	.	.	1,129	.	.	122	.	.	.	.	.	.	.	.	1,251
Prothioconazole/trifloxystrobin	333	.	84	.	34	.	.	.	.	.	.	.	.	.	.	.	451
Pyraclostrobin	.	.	.	.	.	49	.	83	.	.	.	.	.	.	.	.	131
Quinoxyfen	129	.	129	.	.	171	.	117	.	.	.	.	.	.	.	.	544
Spiroxamine/tebuconazole	.	.	115	.	.	.	.	.	.	.	.	.	.	.	.	.	115
Sulphur	.	.	.	.	.	10	.	.	.	.	.	.	.	.	.	.	10
Tebuconazole	.	.	234	13	1,648	27	.	162	110	.	.	.	.	.	.	.	2,193
Tebuconazole/triadimenol	249	.	25	.	854	.	.	.	.	.	.	.	.	.	.	.	1,128
Trifloxystrobin	332	.	355	89	1,609	.	.	.	.	.	.	.	.	.	.	.	2,385
Unknown fungicide	79	.	.	.	351	.	.	13	.	.	.	.	.	.	.	.	443
All fungicides	***20,325***	***170***	***16,751***	***4,261***	***32,337***	***1,158***	***.***	***2,038***	***646***	***19***	***24***	***5,618***	***2,080***	***37,699***	***.***	***.***	***123,125***

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Herbicides & desiccants																	
Amidosulfuron	.	.	.	.	.	.	.	18	.	.	.	.	.	.	.	.	18
Benazolin/2,4-DB/MCPA	.	90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	90
Bentazone/MCPB	.	.	.	.	.	.	.	.	.	12	.	.	.	.	.	.	12
Bromoxynil/diflufenican/ioxynil	.	.	20	.	.	.	.	.	.	.	.	.	.	.	.	.	20
Bromoxynil/ioxynil	534	.	40	9	506	.	.	.	.	.	.	.	.	.	.	.	1,088
Carfentrazone-ethyl	.	.	.	.	.	.	.	.	.	.	.	.	.	311	.	.	311
Carfentrazone-ethyl/flypyrsulfuron-methyl	.	.	.	.	.	.	.	36	.	.	.	.	.	.	.	.	36
Chlorotoluron	.	.	169	.	665	.	.	.	.	.	.	.	.	.	.	.	833
Clopyralid/triclopyr	.	73	.	.	.	.	.	.	.	.	.	.	.	.	.	.	73
Cyanazine	.	.	.	.	.	.	.	.	.	12	.	.	.	.	.	.	12
Cycloxydim	.	.	.	.	.	.	.	.	7	.	.	.	.	.	.	.	7
2,4-DB/linuron/MCPA	113	417	.	.	.	.	.	.	.	.	.	.	.	.	.	.	530
2,4-DB/MCPA	85	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	85
Dicamba/MCPA/mecoprop-P	452	17	43	100	110	.	.	.	.	.	.	.	.	.	.	.	722
Dicamba/mecoprop	299	.	12	.	64	63	.	17	.	.	.	.	.	.	.	.	455
Dicamba/mecoprop-P	219	.	8	.	.	.	.	.	.	.	.	.	.	.	.	.	227
Dichlorprop/MCPA	.	.	.	.	.	6	.	.	.	.	.	.	.	.	.	.	6
Dichlorprop-P	170	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	170
Dichlorprop-P/ioxynil	36	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	36
Dichlorprop-P/MCPA/mecoprop-P	28	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	28
Diclofop-methyl/fenoxaprop-P-ethyl	161	.	34	.	79	.	.	.	.	.	.	.	.	.	.	.	274
Diflufenican	.	.	58	.	.	.	.	.	.	.	.	.	.	.	.	.	58
Diflufenican/flufenacet	.	.	148	.	12	.	.	.	.	.	.	.	.	.	.	.	159
Diflufenican/isoproturon	.	.	1,052	.	2,151	.	.	.	.	.	.	.	.	.	.	.	3,204
Diquat	156	.	.	.	.	.	.	.	114	.	.	1,066	432	4,521	154	.	6,442
Diquat/paraquat	.	.	.	.	.	.	.	.	.	.	.	68	108	934	.	.	1,110
Fenoxaprop-P-ethyl	.	.	.	.	51	.	.	.	.	.	.	.	.	.	.	.	51
Flamprop-M-isopropyl	113	.	.	.	152	.	.	.	.	.	.	.	.	.	.	.	264
Florasulam	.	.	120	.	365	.	.	.	.	.	.	.	.	.	.	.	485

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Herbicides & desiccants (cont.)																	
Florasulam/fluroxypyr	.	.	11	.	.	.	.	.	.	.	.	.	.	.	.	.	11
Fluazifop-P-butyl	.	.	.	.	.	.	.	.	32	.	.	.	.	.	.	.	32
Flufenacet/pendimethalin	.	.	86	.	.	.	.	.	.	.	.	.	.	.	.	.	86
Flufenacet/pendimethalin	.	.	190	75	202	.	.	.	.	.	.	.	.	.	.	.	467
Fluroxypyr	1,559	.	229	518	848	81	.	80	.	.	.	.	.	.	.	.	3,314
Glyphosate	8,830	265	4,130	896	4,483	231	26	284	424	95	.	233	161	1,592	422	.	22,073
Iodosulfron-methyl-sodium	1,242	.	22	28	248	.	.	.	.	.	.	.	.	.	.	.	1,540
Isoproturon	272	.	2,627	.	4,092	.	.	133	.	.	.	.	.	.	.	.	7,123
Isoproturon/pendimethalin	.	.	993	.	1,072	.	.	.	.	.	.	.	.	.	.	.	2,065
Isoproturon/trifluralin	.	.	106	.	182	.	.	.	.	.	.	.	.	.	.	.	288
Isoxaben	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12	.	12
Linuron	.	.	.	.	.	.	.	.	.	.	.	.	.	10	.	.	10
MCPA	529	.	6	106	9	70	.	.	.	.	.	.	.	.	17	.	736
MCPA/MCPB	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17	.	17
Mecoprop	56	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	56
Mecoprop-P	7,823	31	710	324	773	389	.	491	.	.	.	.	.	.	.	.	10,540
Metazachlor	.	.	.	.	.	.	.	.	5	.	.	.	.	.	.	.	5
Metazachlor/quinmerac	.	.	.	.	.	.	.	.	29	.	.	.	.	.	.	.	29
Metribuzin	.	.	.	.	.	.	.	.	.	.	.	88	157	1,688	.	.	1,932
Metsulfuron-methyl	5,320	22	211	503	495	367	.	260	.	.	.	.	.	.	.	.	7,179
Metsulfuron-methyl/thifensulfuron-methyl	1,624	13	255	40	181	23	.	59	.	.	12	.	.	.	.	.	2,207
Metsulfuron-methyl/tribenuron-methyl	6,673	.	137	615	414	342	.	188	.	.	.	.	.	.	.	.	8,370
Paraquat	.	.	.	.	.	.	.	.	9	.	.	695	226	2,877	.	.	3,808
Pendimethalin	.	.	499	.	742	.	.	.	.	.	.	.	.	.	12	19	1,272
Pendimethalin/picolinafen	.	.	598	.	98	.	.	13	.	.	.	.	.	.	.	.	709
pinoxaden	220	.	148	.	67	.	.	.	.	.	.	.	.	.	.	.	435
Propaquizafop	.	.	.	.	.	.	.	.	16	.	.	.	.	4	.	.	20
Propyzamide	.	.	.	.	.	.	.	.	317	.	.	.	.	.	.	.	317
Rimsulfuron	.	.	12	.	.	.	.	.	.	.	.	.	.	.	.	.	12

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Herbicides & desiccants (cont.)																	
Sulfosulfuron	.	.	.	.	32	.	.	.	.	.	.	.	.	.	.	.	32
Sulphuric acid	.	.	.	.	.	.	.	.	.	.	.	68	4	484	.	.	555
Tepraloxydim	.	.	.	.	.	.	.	.	18	.	.	.	.	.	.	.	18
Terbuthylazine/terbutryn	.	.	.	.	.	.	.	.	.	.	.	66	37	141	.	.	244
Thifensulfuron-methyl/tribenuron-methyl	646	.	15	86	.	30	.	10	.	.	.	.	.	.	.	.	787
Tralkoxydim	61	.	89	.	53	.	.	.	.	.	.	.	.	.	.	.	204
Trifluralin	.	.	491	.	68	.	.	122	.	.	.	.	.	.	.	.	681
Unknown herbicide	.	.	32	.	94	.	.	12	.	.	.	.	.	.	17	.	155
All herbicides & desiccants	***37,221***	***929***	***13,302***	***3,300***	***18,304***	***1,602***	***26***	***1,724***	***970***	***120***	***12***	***2,285***	***1,124***	***12,562***	***650***	***19***	***94,148***
Insecticides																	
Bifenthrin	173	.	114	367	997	53	.	85	.	.	.	.	.	.	.	.	1,788
Chlorpyrifos	1,086	.	199	206	216	44	.	.	.	.	.	.	.	.	12	.	1,763
Cypermethrin	601	.	416	15	306	109	.	76	21	.	.	.	.	.	.	.	1,545
Deltamethrin	381	.	158	.	163	.	.	.	.	.	.	.	.	.	.	.	702
Esfenvalerate	3,993	61	1,914	557	3,508	46	.	22	.	.	.	.	.	.	.	.	10,101
Fosthiazate	.	.	.	.	.	.	.	.	.	.	.	.	25	30	.	.	55
Lambda-cyhalothrin	3,294	.	1,780	162	3,628	242	.	65	128	12	.	931	.	622	13	.	10,877
Lambda-cyhalothrin/pirimicarb	.	.	.	.	.	.	.	.	.	.	.	39	.	57	.	.	96
Pirimicarb	.	.	.	.	.	.	.	.	.	.	.	.	.	30	.	.	30
Pymetrozine	.	.	.	.	.	.	.	.	.	.	.	.	.	71	.	.	71
Thiacloprid	.	.	.	.	.	.	.	.	.	.	.	39	.	57	.	.	96
Zeta-cypermethrin	42	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	42
Unknown insecticide	89	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	89
All insecticides	***9,660***	***61***	***4,581***	***1,306***	***8,818***	***494***	***.***	***249***	***149***	***12***	***.***	***1,008***	***25***	***867***	***25***	***.***	***27,255***

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Molluscicides																	
Metaldehyde	.	.	.	.	80	.	.	.	51	.	.	.	.	146	.	.	278
Methiocarb	47	.	81	.	.	.	.	.	17	.	.	77	.	647	.	.	869
Thiodicarb	.	.	31	.	.	.	.	.	.	.	.	.	.	60	.	.	91
All molluscicides	***47***	***.***	***112***	***.***	***80***	***.***	***.***	***.***	***68***	***.***	***.***	***77***	***.***	***853***	***.***	***.***	***1,237***
Growth regulators																	
Chlormequat	2,346	.	3,175	531	5,087	308	.	569	.	.	12	.	.	.	.	.	12,028
Chlormequat/2-chloroethylphosphonic acid	.	.	52	.	4	.	.	.	.	.	.	.	.	.	.	.	56
Chlormequat/choline chloride	.	.	.	.	84	.	.	.	.	.	.	.	.	.	.	.	84
2-chloroethylphosphonic acid	406	.	841	.	661	.	.	.	.	.	.	.	.	.	.	.	1,908
2-chloroethylphosphonic acid/mepiquat chloride	75	.	108	.	268	.	.	.	.	.	.	.	.	.	.	.	451
Trinexapac-ethyl	1,331	.	1,667	128	1,694	21	.	149	.	.	.	.	.	.	.	.	4,990
3-Indolebutyric acid/cytokinin*	.	.	23	.	32	.	.	.	.	.	.	.	.	.	.	.	55
All growth regulators	***4,158***	***.***	***5,866***	***659***	***7,829***	***329***	***.***	***718***	***.***	***.***	***12***	***.***	***.***	***.***	***.***	***.***	***19,572***
* Natural growth regulator																	
Seed treatments																	
Beta-cyfluthrin/imidacloprid	.	.	.	.	.	.	.	.	116	.	.	.	.	.	189	.	305
Bitertanol/fuberidazole	.	.	.	.	228	14	.	25	.	.	.	.	.	.	.	.	267
Bitertanol/fuberidazole/Imidacloprid	.	.	.	.	78	.	.	.	.	.	.	.	.	.	.	.	78
Carboxin/thiram	943	.	584	75	309	.	.	.	.	.	.	.	.	.	.	.	1,910
Clothianidin/prothioconazole	.	.	.	.	79	.	.	.	.	.	.	.	.	.	.	.	79
Fludioxonil	3,096	34	1,667	402	2,004	396	.	606	.	.	.	.	.	.	.	.	8,205
Fludioxonil/flutriafol	.	.	.	.	141	.	.	.	.	.	.	.	.	.	.	.	141
Fluquinconazole/prochloraz	.	.	.	.	465	.	.	.	.	.	.	.	.	.	.	.	465
Flutolanil	.	.	.	.	.	.	.	.	.	.	.	.	43	602	.	.	646

Table 8 (contd.) **Estimated area (spray-hectares) of arable crops treated with pesticide formulation in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Seed treatments (contd.)																	
Fuberidazole/imidacloprid/triadimenol	.	.	444	.	219	.	.	.	.	.	.	.	.	.	.	.	663
Fuberidazole/triadimenol	939	15	95	207	405	.	.	36	.	.	.	.	.	.	.	.	1,695
Guazatine	148	.	69	.	196	.	.	.	.	.	.	.	.	.	.	.	413
Guazatine/imazalil	2,001	.	204	50	1,028	199	26	38	.	.	.	.	.	.	.	.	3,546
Imazalil	.	.	.	.	.	.	.	.	.	.	.	199	104	725	.	.	1,028
Imazalil/pencycuron	.	.	.	.	.	.	.	.	.	.	.	104	.	760	.	.	864
Imazalil/triticonazole	4,103	130	284	43	932	94	.	25	.	.	.	.	.	.	.	.	5,610
Imidacloprid/tebuconazole/triazoxide	17	.	197	.	92	.	.	.	.	.	.	.	.	.	.	.	307
Iprodione	.	.	.	.	.	.	.	.	17	.	.	.	.	.	.	.	17
Mancozeb*	.	.	.	.	.	.	.	.	.	.	.	.	.	109	.	.	109
Prochloraz/thiram	.	.	.	.	.	.	.	.	122	.	.	.	.	.	.	.	122
Prochloraz/triticonazole	65	.	85	.	77	.	.	.	.	.	.	.	.	.	.	.	227
Prothioconazole/tebuconazole/triazoxide	716	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	716
Silthiofam	.	.	.	.	1,282	.	.	.	.	.	.	.	.	.	.	.	1,282
Tebuconazole/triazoxide	1,063	.	340	.	75	.	.	.	.	.	.	.	.	.	.	.	1,478
Thiram	.	.	.	.	.	.	.	.	17	.	.	.	.	.	.	.	17
Zinc oxide*	.	.	.	.	.	.	.	.	.	.	.	.	.	109	.	.	109
All seed treatments	***13,090***	***179***	***3,967***	***777***	***7,610***	***703***	***26***	***730***	***271***	***.***	***.***	***303***	***147***	***2,306***	***189***	***.***	***30,298***
All pesticides	***84,501***	***1,338***	***44,578***	***10,302***	***74,980***	***4,286***	***51***	***5,458***	***2,105***	***151***	***47***	***9,291***	***3,376***	***54,287***	***864***	***19***	***295,635***

*Mancozeb and Zinc oxide applied as a mix for seed treatmeant

Table 9: **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Fungicides																	
Azoxystrobin	292	11	288	142	559	2	.	34	51	3	.	51	.	238	.	.	1,671
Azoxystrobin/chlorothalonil	414	.	235	.	1,278	.	.	11	.	.	.	.	.	.	.	.	1,937
Azoxystrobin/cyproconazole	18	.	1	28	.	.	.	.	.	.	.	.	.	.	.	.	47
Azoxystrobin/fenpropimorph	41	.	113	.	191	84	.	71	.	.	.	.	.	.	.	.	500
Boscalid/epoxiconazole	.	.	77	20	255	.	.	.	.	.	.	.	.	.	.	.	352
Carbendazim	6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6
Carbendazim/flusilazole	256	13	108	85	65	.	.	.	.	.	.	.	.	.	.	.	526
Chlorothalonil	949	.	1,163	337	2,805	2	.	101	.	6	.	.	.	.	.	.	5,363
Chlorothalonil/cyproconazole/propiconazole	66	.	39	.	88	.	.	.	.	.	.	.	.	.	.	.	194
Chlorothalonil/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	120	332	4,769	.	.	5,220
Copper oxychloride	.	.	.	.	.	.	.	.	.	.	.	.	.	58	.	.	58
Cyazofamid	.	.	.	.	.	.	.	.	.	.	.	.	2	52	.	.	54
Cymoxanil	.	.	.	.	.	.	.	.	.	.	.	.	.	41	.	.	41
Cymoxanil/mancozeb	.	.	.	.	.	.	.	.	.	.	.	1,545	543	10,301	.	.	12,388
Cyproconazole/propiconazole	521	.	54	3	18	3	.	.	.	.	.	.	.	.	.	.	599
Cyprodinil	17	.	78	.	.	.	.	.	.	.	.	.	.	.	.	.	95
Cyprodinil/picoxystrobin	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	24
Difenoconazole	.	.	.	.	50	.	.	.	12	.	.	.	.	.	.	.	61
Dimethomorph/mancozeb	.	.	.	.	.	.	.	.	.	.	.	1,255	652	3,920	.	.	5,827
Epoxiconazole	193	4	89	22	431	12	.	7	.	.	.	.	.	.	.	.	757
Epoxiconazole/fenpropimorph	83	.	.	42	.	.	.	.	.	.	.	.	.	.	.	.	125
Epoxiconazole/fenpropimorph/kresoxim-methyl	344	.	21	32	59	32	.	9	.	.	.	.	.	.	.	.	496
Epoxiconazole/kresoxim-methyl	43	.	8	.	13	.	.	.	.	.	.	.	.	.	.	.	64
Fenpropidin	7	.	92	.	13	.	.	46	.	.	4	.	.	.	.	.	163
Fenpropimorph	258	.	238	14	307	151	.	231	.	.	.	.	.	.	.	.	1,199
Fenpropimorph/flusilazole	444	.	2	5	.	.	.	.	.	.	.	.	.	.	.	.	451
Fenpropimorph/pyraclostrobin	.	.	.	7	.	.	.	.	.	.	.	.	.	.	.	.	7
Fenpropimorph/quinoxyfen	43	.	14	.	.	3	.	.	.	.	.	.	.	.	.	.	60

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Fungicides (cont)																	
Fentin hydroxide	.	.	.	.	.	.	.	.	.	.	.	.	.	775	.	.	775
Fluazinam	.	.	.	.	.	.	.	.	.			248	121	1,604	.	.	1,973
Fluazinam/metalaxyl-m	.	.	.	.	.	.	.	.	.	.	.	.	8	149	.	.	157
Fluopicolide/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	164	.	687	.	.	851
Fluoxastrobin/prothioconazole	299	8	538	26	375	.	.	2	.	.	.	.	.	.	.	.	1,247
Fluquinconazole/prochloraz	.	.	11	.	139	.	.	.	.	.	.	.	.	.	.	.	150
Flusilazole	48	.	105	.	66	.	.	.	.	.	.	.	.	.	.	.	219
Mancozeb	.	.	.	.	.	.	.	.	.	.	.	1,968	108	11,836	.	.	13,912
Mancozeb/metalaxyl-m	.	.	.	.	.	.	.	.	.	.	.	586	218	2,317	.	.	3,122
Mancozeb/propamocarb hydrochloride	.	.	.	.	.	.	.	.	.	.	.	169	11	1,271	.	.	1,451
Mancozeb/zoxamide	.	.	.	.	.	.	.	.	.	.	.	52	.	761	.	.	813
Metconazole	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	2
Metrafenone	.	.	.	.	5	.	.	6	.	.	1	.	.	.	.	.	11
Picoxystrobin	20	.	48	.	13	.	.	.	.	.	.	.	.	.	.	.	81
Propiconazole/tebuconazole	359	.	482	173	570	.	.	15	11	.	.	.	.	.	.	.	1,610
Proquinazid	.	.	.	.	2	2	.	.	.	.	.	.	.	.	.	.	4
Prothioconazole	99	.	167	7	212	<1	.	.	8	.	.	.	.	.	.	.	494
Prothioconazole/tebuconazole	.	.	.	.	285	.	.	10	.	.	.	.	.	.	.	.	295
Prothioconazole/trifloxystrobin	62	.	15	.	11	.	.	.	.	.	.	.	.	.	.	.	88
Pyraclostrobin	.	.	.	.	.	11	.	11	.	.	.	.	.	.	.	.	21
Quinoxyfen	12	.	6	.	.	29	.	14	.	.	.	.	.	.	.	.	62
Spiroxamine/tebuconazole	.	.	55	.	.	.	.	.	.	.	.	.	.	.	.	.	55
Sulphur	.	.	.	.	.	80	.	.	.	.	.	.	.	.	.	.	80
Tebuconazole	.	.	33	2	258	3	.	22	19	.	.	.	.	.	.	.	337
Tebuconazole/triadimenol	57	.	5	.	166	.	.	.	.	.	.	.	.	.	.	.	228

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Fungicides (cont)																	
Trifloxystrobin	44	.	27	8	137	.	.	.	.	.	.	.	.	.	.	.	217
Unknown fungicide	.	.	.	.	702	.	.	13	.	.	.	.	.	.	.	.	715
All fungicides	***5,019***	***35***	***4,111***	***954***	***9,073***	***414***	***.***	***600***	***103***	***9***	***5***	***6,157***	***1,994***	***38,780***	***.***	***.***	***67,256***
Herbicides & desiccants																	
Amidosulfuron	.	.	.	.	.	.	.	<1	.	.	.	.	.	.	.	.	<1
Benazolin/2,4-DB/MCPA	.	194	.	.	.	.	.	.	.	.	.	.	.	.	.	.	194
Bentazone/MCPB	.	.	.	.	.	.	.	.	.	10	.	.	.	.	.	.	10
Bromoxynil/diflufenican/ioxynil	.	.	8	.	.	.	.	.	.	.	.	.	.	.	.	.	8
Bromoxynil/ioxynil	284	.	27	4	239	.	.	.	.	.	.	.	.	.	.	.	554
Carfentrazone-ethyl	.	.	.	.	.	.	.	.	.	.	.	.	.	18	.	.	18
Carfentrazone-ethyl/flypyrsulfuron-methyl	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	1
Chlorotoluron	.	.	392	.	1,564	.	.	.	.	.	.	.	.	.	.	.	1,956
Clopyralid/triclopyr	.	87	.	.	.	.	.	.	.	.	.	.	.	.	.	.	87
Cyanazine	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	3
Cycloxydim	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	3
2,4-DB/linuron/MCPA	80	398	.	.	.	.	.	.	.	.	.	.	.	.	.	.	478
2,4-DB/MCPA	117	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	117
Dicamba/MCPA/mecoprop-P	527	27	67	124	171	.	.	.	.	.	.	.	.	.	.	.	918
Dicamba/mecoprop	129	.	12	.	61	26	.	17	.	.	.	.	.	.	.	.	246
Dicamba/mecoprop-P	191	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.	197
Dichlorprop/MCPA	.	.	.	.	.	7	.	.	.	.	.	.	.	.	.	.	7
Dichlorprop-P	102	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	102
Dichlorprop-P/ioxynil	17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	17
Dichlorprop-P/MCPA/mecoprop-P	25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	25
Diclofop-methyl/fenoxaprop-P-ethyl	63	.	13	.	33	.	.	.	.	.	.	.	.	.	.	.	109
Diflufenican	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	5

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Herbicides & desiccants (cont)																	
Diflufenican/flufenacet	.	.	26	.	2	.	.	.	.	.	.	.	.	.	.	.	29
Diflufenican/isoproturon	.	.	937	.	1,799	.	.	.	.	.	.	.	.	.	.	.	2,736
Diquat	39	.	.	.	.	.	.	.	105	.	.	484	194	2,049	152	.	3,022
Diquat/paraquat	.	.	.	.	.	.	.	.	.	.	.	41	55	464	.	.	560
Fenoxaprop-P-ethyl	.	.	.	.	5	.	.	.	.	.	.	.	.	.	.	.	5
Flamprop-M-isopropyl	50	.	.	.	106	.	.	.	.	.	.	.	.	.	.	.	156
Florasulam	.	.	<1	.	2	.	.	.	.	.	.	.	.	.	.	.	2
Florasulam/fluroxypyr	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Fluazifop-P-butyl	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	3
Flufenacet/pendimethalin	.	.	107	.	.	.	.	.	.	.	.	.	.	.	.	.	107
Flufenacet/pendimethalin	.	.	183	67	182	.	.	.	.	.	.	.	.	.	.	.	432
Fluroxypyr	172	.	58	50	171	8	.	10	.	.	.	.	.	.	.	.	468
Glyphosate	7,118	281	3,100	943	3,741	229	13	232	431	85	.	297	185	1,557	446	.	18,657
Iodosulfron-methyl-sodium	9	.	<1	<1	2	.	.	.	.	.	.	.	.	.	.	.	11
Isoproturon	226	.	3,041	.	5,295	.	.	104	.	.	.	.	.	.	.	.	8,667
Isoproturon/pendimethalin	.	.	1,249	.	1,601	.	.	.	.	.	.	.	.	.	.	.	2,850
Isoproturon/trifluralin	.	.	146	.	287	.	.	.	.	.	.	.	.	.	.	.	433
Isoxaben	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	2
Linuron	.	.	.	.	.	.	.	.	.	.	.	.	.	17	.	.	17
MCPA	597	.	4	30	6	20	.	.	.	.	.	.	.	.	23	.	680
MCPA/MCPB	.	.	.	.	.	.	.	.	.	.	.	.	.	.	35	.	35
Mecoprop	35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	35
Mecoprop-P	6,265	43	777	209	792	258	.	373	.	.	.	.	.	.	.	.	8,717
Metazachlor	.	.	.	.	.	.	.	.	6	.	.	.	.	.	.	.	6
Metazachlor/quinmerac	.	.	.	.	.	.	.	.	25	.	.	.	.	.	.	.	25
Metribuzin	.	.	.	.	.	.	.	.	.	.	.	73	141	1,412	.	.	1,625
Metsulfuron-methyl	29	<1	1	3	3	2	.	1	.	.	.	.	.	.	.	.	38
Metsulfuron-methyl/thifensulfuron-methyl	58	1	8	1	9	1	.	2	.	.	<1	.	.	.	.	.	81
Metsulfuron-methyl/tribenuron-methyl	63	.	2	6	3	3	.	2	.	.	.	.	.	.	.	.	78

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Herbicides & desiccants (cont)																	
Paraquat	.	.	.	.	.	.	.	.	3	.	.	455	135	1,894	.	.	2,486
Pendimethalin	.	.	533	.	848	.	.	.	.	.	.	.	.	.	20	39	1,439
Pendimethalin/picolinafen	.	.	308	.	74	.	.	3	.	.	.	.	.	.	.	.	385
pinoxaden	13	.	8	.	3	.	.	.	.	.	.	.	.	.	.	.	24
Propaquizafop	.	.	.	.	.	.	.	.	<1	.	.	.	.	1	.	.	1
Propyzamide	.	.	.	.	.	.	.	.	185	.	.	.	.	.	.	.	185
Rimsulfuron	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	5
Sulfosulfuron	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1
Sulphuric acid	.	.	.	.	.	.	.	.	.	.	.	5,955	936	85,135	.	.	92,026
Tepraloxydim	.	.	.	.	.	.	.	.	<1	.	.	.	.	.	.	.	<1
Terbuthylazine/terbutryn	.	.	.	.	.	.	.	.	.	.	.	69	58	157	.	.	284
Thifensulfuron-methyl/tribenuron-methyl	17	.	<1	3	.	1	.	<1	.	.	.	.	.	.	.	.	21
Tralkoxydim	11	.	26	.	6	.	.	.	.	.	.	.	.	.	.	.	44
Trifluralin	.	.	501	.	53	.	.	88	.	.	.	.	.	.	.	.	643
Unknown herbicide	.	.	.	.	.	.	.	51	.	.	.	.	.	.	.	.	51
All herbicides & desiccants	***16,238***	***1,031***	***11,554***	***1,441***	***17,059***	***554***	***13***	***884***	***759***	***98***	***<0.5***	***7,375***	***1,703***	***92,702***	***677***	***39***	***152,127***
Insecticides																	
Bifenthrin	1	.	1	21	6	<1	.	<0.5	.	.	.	.	.	.	.	.	30
Chlorpyrifos	735	.	143	134	159	29	.	.	.	.	.	.	.	.	9	.	1,209
Cypermethrin	13	.	8	<1	6	3	.	2	1	.	.	.	.	.	.	.	32
Deltamethrin	2	.	1	.	1	.	.	.	.	.	.	.	.	.	.	.	4
Esfenvalerate	17	<1	9	2	25	<1	.	1	.	.	.	.	.	.	.	.	56
Fosthiazate	.	.	.	.	.	.	.	.	.	.	.	.	74	90	.	.	164
Lambda-cyhalothrin	14	.	6	1	11	1	.	<0.5	<0.5	<0.5	.	4	.	2	<1	.	40
Lambda-cyhalothrin/pirimicarb	.	.	.	.	.	.	.	.	.	.	.	6	.	9	.	.	16
Pirimicarb	.	.	.	.	.	.	.	.	.	.	.	.	.	4	.	.	4

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Insecticides (cont)																	
Pymetrozine	.	.	.	.	.	.	.	.	.	.	.	.	.	5	.	.	5
Thiacloprid	.	.	.	.	.	.	.	.	.	.	.	4	.	6	.	.	9
Zeta-cypermethrin	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
All insecticides	***783***	***<1***	***168***	***158***	***208***	***33***	***.***	***4***	***1***	***<0.5***	***.***	***14***	***74***	***116***	***9***	***.***	***1,569***
Molluscicides																	
Metaldehyde	.	.	.	.	28	.	.	.	11	.	.	.	.	64	.	.	103
Methiocarb	2	.	7	.	.	.	.	.	3	.	.	17	.	135	.	.	164
Thiodicarb	.	.	6	.	.	.	.	.	.	.	.	.	.	12	.	.	18
All molluscicides	***2***	***.***	***13***	***.***	***28***	***.***	***.***	***.***	***14***	***.***	***.***	***17***	***.***	***211***	***.***	***.***	***284***
Growth Regulators																	
Chlormequat	2,006	.	3,010	446	5,201	261	.	498	.	.	11	.	.	.	.	.	11,434
Chlormequat/2-chloroethylphosphonic acid	.	.	42	.	3	.	.	.	.	.	.	.	.	.	.	.	46
Chlormequat/choline chloride	.	.	.	.	70	.	.	.	.	.	.	.	.	.	.	.	70
2-chloroethylphosphonic acid	104	.	231	.	133	.	.	.	.	.	.	.	.	.	.	.	468
2-chloroethylphosphonic acid/mepiquat chloride	38	.	47	.	191	.	.	.	.	.	.	.	.	.	.	.	276
Trinexapac-ethyl	123	.	116	9	79	1	.	7	.	.	.	.	.	.	.	.	336
3-Indolebutyric acid/cytokinin*	.	.	<1	.	<1	.	.	.	.	.	.	.	.	.	.	.	<1
All growth regulators	***2,271***	***.***	***3,447***	***455***	***5,677***	***262***	***.***	***506***	***.***	***.***	***11***	***.***	***.***	***.***	***.***	***.***	***12,629***
Seed treatments																	
Beta-cyfluthrin/imidacloprid	.	.	.	.	.	.	.	.	2	.	.	.	.	.	3	.	5
Bitertanol/fuberidazole	.	.	.	.	22	2	.	2	.	.	.	.	.	.	.	.	26
Bitertanol/fuberidazole/imidacloprid	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	3

* Natural growth regulator

Table 9 (cont.): **Estimated quantities (kilograms) of pesticide formulations used on arable crops in Northern Ireland in 2006.**

Pesticide type & formulation	Spring barley	Undersown barley	Winter barley	Spring wheat	Winter wheat	Spring oats	Undersown oats	Winter oats	Oilseed rape	Peas & beans	Triticale	Seed potatoes	Early potatoes	Maincrop potatoes	Set aside	Lupins	All crops
Seed treatments (cont)																	
Carboxin/thiram	187	.	108	15	62	.	.	.	.	.	.	.	.	.	.	.	372
Clothianidin/prothioconazole	.	.	.	.	7	.	.	.	.	.	.	.	.	.	.	.	7
Fludioxonil	28	<1	13	4	18	3	.	5	.	.	.	.	.	.	.	.	70
Fludioxonil/flutriafol	.	.	.	.	<1	.	.	.	.	.	.	.	.	.	.	.	<1
Fluquinconazole/prochloraz	.	.	.	.	66	.	.	.	.	.	.	.	.	.	.	.	66
Flutolanil	.	.	.	.	.	.	.	.	.	.	.	.	9	140	.	.	149
Fuberidazole/imidacloprid/triadimenol	.	.	62	.	29	.	.	.	.	.	.	.	.	.	.	.	91
Fuberidazole/triadimenol	69	1	7	16	23	.	.	2	.	.	.	.	.	.	.	.	118
Guazatine	18	.	9	.	24	.	.	.	.	.	.	.	.	.	.	.	51
Guazatine/imazalil	243	.	23	6	111	26	3	4	.	.	.	.	.	.	.	.	417
Imazalil	.	.	.	.	.	.	.	.	.	.	.	8	3	22	.	.	32
Imazalil/pencycuron	.	.	.	.	.	.	.	.	.	.	.	97	.	507	.	.	604
Imazalil/triticonazole	72	2	5	1	13	2	.	<1	.	.	.	.	.	.	.	.	96
Imidacloprid/tebuconazole/triazoxide	1	.	11	.	5	.	.	.	.	.	.	.	.	.	.	.	17
Iprodione	.	.	.	.	.	.	.	.	<1	.	.	.	.	.	.	.	<1
Mancozeb*	.	.	.	.	.	.	.	.	.	.	.	.	.	808	.	.	808
Prochloraz/thiram	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	3
Prochloraz/triticonazole	2	.	2	.	2	.	.	.	.	.	.	.	.	.	.	.	7
Prothioconazole/tebuconazole/triazoxide	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12
Silthiofam	.	.	.	.	48	.	.	.	.	.	.	.	.	.	.	.	48
Tebuconazole/triazoxide	11	.	3	.	<1	.	.	.	.	.	.	.	.	.	.	.	15
Thiram	.	.	.	.	.	.	.	.	<1	.	.	.	.	.	.	.	<1
Zinc oxide*	.	.	.	.	.	.	.	.	.	.	.	.	.	1,010	.	.	1,010
All seed treatments	***643***	***4***	***242***	***42***	***436***	***33***	***3***	***14***	***5***	***.***	***.***	***105***	***12***	***2,487***	***3***	***.***	***4,028***
All pesticides	***24,957***	***1,070***	***19,535***	***3,050***	***32,482***	***1,297***	***16***	***2,008***	***883***	***107***	***16***	***13,668***	***3,783***	***134,296***	***689***	***39***	***237,894***

*Mancozeb and Zinc oxide applied as a mix for seed treatmeant

Table 10: **The fifty active ingredients most extensively used on arable crops in Northern Ireland in 2006, prioritised by area treated (spray-hectares).**

	Active ingredient	Treated area (sp ha)
1	Mancozeb	25,030
2	Glyphosate	22,073
3	Metsulfuron-methyl	17,756
4	Chlorothalonil	16,542
5	Fluazinam	13,894
6	Azoxystrobin	13,733
7	Prothioconazole	12,775
8	Isoproturon	12,679
9	Chlormequat	12,168
10	Epoxiconazole	11,943
11	Mecoprop-P	11,517
12	Tebuconazole	11,240
13	Lambda-cyhalothrin	10,973
14	Esfenvalerate	10,101
15	Propiconazole	9,468
16	Cymoxanil	9,438
17	Tribenuron-methyl	9,157
18	Fenpropimorph	8,269
19	Diquat	7,552
20	Fluoxastrobin	6,512
21	Trinexapac-ethyl	4,990
22	Paraquat	4,918
23	Propamocarb hydrochloride	4,616
24	Pendimethalin	4,598
25	Flusilazole	4,469
26	Dimethomorph	4,032
27	Diflufenican	3,441
28	Fluroxypyr	3,325
29	Cyproconazole	3,172
30	Metalaxyl-m	3,129
31	Thifensulfuron-methyl	2,993
32	Trifloxystrobin	2,836
33	Carbendazim	2,552
34	2-chloroethylphosphonic acid	2,415
35	MCPA	2,214
36	Metribuzin	1,932
37	Bifenthrin	1,788
38	Kresoxim-methyl	1,767
39	Chlorpyrifos	1,763
40	Cypermethrin	1,545
41	Iodosulfron-methyl-Sodium	1,540
42	Dicamba	1,404
43	Ioxynil	1,144
44	Triadimenol	1,128
45	Bromoxynil	1,108
46	Picoxystrobin	996
47	Boscalid	995
48	Trifluralin	969
49	Difenoconazole	959
50	Fluopicolide	908

Table 11: **The fifty active ingredients most extensively used on arable crops in Northern Ireland in 2006, prioritised by weight (kilograms).**

	Active ingredient	Quantity (kg)
1	Sulphuric acid	92,026
2	Mancozeb	35,110
3	Glyphosate	18,657
4	Isoproturon	12,446
5	Chlormequat	11,531
6	Chlorothalonil	9,737
7	Mecoprop-P	9,018
8	Propamocarb hydrochloride	4,043
9	Pendimethalin	4,023
10	Diquat	3,246
11	Paraquat	2,822
12	Fenpropimorph	2,217
13	Azoxystrobin	2,159
14	Fluazinam	2,078
15	Chlorotoluron	1,956
16	Metribuzin	1,625
17	MCPA	1,530
18	Tebuconazole	1,458
19	Prothioconazole	1,313
20	Chlorpyrifos	1,209
21	Propiconazole	1,195
22	Epoxiconazole	1,054
23	Cymoxanil	889
24	Trifluralin	816
25	Fentin hydroxide	775
26	Flusilazole	703
27	2,4-DB	626
28	Fluoxastrobin	624
29	Dimethomorph	622
30	2-chloroethylphosphonic acid	576
31	Fluroxypyr	470
32	Trinexapac-ethyl	336
33	Diflufenican	314
34	Bromoxynil	295
35	Boscalid	273
36	Ioxynil	269
37	Cyproconazole	267
38	Mecoprop	266
39	Trifloxystrobin	257
40	Metalaxyl-m	236
41	Terbutryn	199
42	Kresoxim-methyl	187
43	Propyzamide	185
44	Mepiquat chloride	183
45	Carbendazim	182
46	Fosthiazate	164
47	Methiocarb	164
48	Fenpropidin	163
49	Flamprop-M-isopropyl	156
50	Dichlorprop-P	129

Table 12: **Spring barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	Mildew	General disease control	Rhynchosporium	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides						
Azoxystrobin	61	1,985	.	2,045	1,482	292
Azoxystrobin/Chlorothalonil	.	550	.	550	505	414
Azoxystrobin/Cyproconazole	.	81	.	81	81	18
Azoxystrobin/fenpropimorph	.	100	.	100	93	41
Carbendazim	.	24	.	24	24	6
Carbendazim/flusilazole	.	1,228	.	1,228	1,168	256
Chlorothalonil	.	1,888	.	1,888	1,514	949
Chlorothalonil/Cyproconazole/Propiconazole	.	130	.	130	130	66
Cyproconazole/propiconazole	.	2,108	.	2,108	1,838	521
Cyprodinil	.	45	.	45	45	17
Cyprodinil/Picoxystrobin	.	106	.	106	106	24
Epoxiconazole	.	2,285	.	2,285	2,164	193
Epoxiconazole/fenpropimorph	.	260	.	260	260	83
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	859	.	859	714	344
Epoxiconazole/kresoxim-methyl	.	232	.	232	232	43
Fenpropidin	.	36	.	36	36	7
Fenpropimorph	85	1,002	.	1,087	795	258
Fenpropimorph/flusilazole	.	1,109	.	1,109	875	444
Fenpropimorph/quinoxyfen	.	121	.	121	121	43
Fluoxastrobin/Prothioconazole	.	1,840	25	1,865	1,555	299
Flusilazole	.	208	.	208	208	48
Picoxystrobin	.	265	.	265	206	20
Propiconazole/tebuconazole	.	1,659	.	1,659	1,020	359
Prothioconazole	.	865	47	911	750	99
Prothioconazole/Trifloxystrobin	.	333	.	333	272	62
Quinoxyfen	.	129	.	129	129	12
Tebuconazole/triadimenol	.	249	.	249	187	57
Trifloxystrobin	.	332	.	332	270	44
Unknown fungicide	.	79	.	79	79	.
All fungicides	***146***	***20,108***	***72***	***20,325***	***16,860***	***5,019***

Table 12 (contd.): **Spring barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Fat hen	Ground preparation	Chickweed	Thistles	Redshank + chickweed	Wild oat	Fumatory	Red dead nettle	Meadow grass	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants															
Bromoxynil/ioxynil	526	.	.	.	.	.	.	.	.	.	8	.	534	518	284
2,4-DB/linuron/MCPA	113	.	.	.	.	.	.	.	.	.	.	.	113	113	80
2,4-DB/MCPA	85	.	.	.	.	.	.	.	.	.	.	.	85	85	117
Dicamba/MCPA/mecoprop-P	293	.	.	.	.	.	159	.	.	.	.	.	452	452	527
Dicamba/mecoprop	278	.	.	.	.	21	.	.	.	.	.	.	299	299	129
Dicamba/mecoprop-P	219	.	.	.	.	.	.	.	.	.	.	.	219	219	191
Dichlorprop-P	170	.	.	.	.	.	.	.	.	.	.	.	170	170	102
Dichlorprop-P/ioxynil	36	.	.	.	.	.	.	.	.	.	.	.	36	36	17
Dichlorprop-P/MCPA/Mecoprop-P	28	.	.	.	.	.	.	.	.	.	.	.	28	28	25
Diclofop-methyl/fenoxaprop-P-ethyl	.	.	.	.	.	.	.	.	161	.	.	.	161	161	63
Diquat	.	.	156	.	.	.	.	.	.	.	.	.	156	156	39
Flamprop-M-isopropyl	.	.	.	.	.	.	.	.	113	.	.	.	113	99	50
Fluroxypyr	1,174	237	.	.	.	111	.	.	.	.	.	.	1,559	1,559	172
Glyphosate	.	.	2,288	.	6,542	.	.	.	.	.	.	.	8,830	7,745	7,118
Iodosulfron-methyl-sodium	1,060	.	.	.	.	.	.	.	145	.	.	37.8	1,242	1,242	9
Isoproturon	272	.	.	.	.	.	.	.	.	.	.	.	272	272	226
MCPA	408	.	.	.	.	.	.	.	.	.	.	.	529	529	597
Mecoprop	56	.	.	.	.	.	.	.	.	.	.	.	56	56	35
Mecoprop-P	6,774	84	.	85	.	194	.	156	175	117	.	.	7,823	7,402	6,265
Metsulfuron-methyl	5,164	.	.	.	.	.	.	156	.	.	.	.	5,320	5,234	29
Metsulfuron-methyl/thifensulfuron-methyl	1,624	.	.	.	.	.	.	.	.	.	.	.	1,624	1,563	58
Metsulfuron-methyl/tribenuron-methyl	6,673	.	.	.	.	.	.	.	.	.	.	.	6,673	6,654	63
Pinoxaden	.	.	.	.	.	.	.	.	220	.	.	.	220	220	13
Thifensulfuron-methyl/tribenuron-methyl	646	.	.	.	.	.	.	.	.	.	.	.	646	646	17
Tralkoxydim	.	.	.	.	.	.	.	.	61	.	.	.	61	61	11
All Herbicides & desiccants	**25,598**	**321**	**2,444**	**85**	**6,542**	**326**	**159**	**312**	**875**	**117**	**8**	**37.8**	***37,221***	***35,519***	***16,238***

Table 12 (contd.): Spring barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Aphids	Leather-jackets	Cutworm	General insect control	Barley yellow dwarf virus	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides								
Bifenthrin	145	.	.	28	.	173	173	1
Chlorpyrifos	141	699	92	153	.	1,086	1,067	736
Cypermethrin	447	.	.	155	.	602	545	13
Deltamethrin	345	.	.	36	.	381	348	2
Esfenvalerate	3,497	.	.	496	.	3,993	3,861	18
Lambda-cyhalothrin	2,518	.	.	561	214	3,294	2,975	14
Zeta-cypermethrin	42	.	.	.	.	42	42	1
Unknown insecticide	79	11	.	.	.	89	89	.
All insecticides	***7,214***	***710***	***92***	***1,430***	***214***	***9,660***	***9,100***	***783***

Pesticide type & formulation	Slugs	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Molluscicides				
Methiocarb	47	47	47	2
All molluscicides	***47***	***47***	***47***	***2***

Pesticide type & formulation	Growth regulation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Growth regulators				
Chlormequat	2,346	2,346	2,311	2,006
2-chloroethylphosphonic acid	406	406	406	104
2-chloroethylphosphonic acid/mepiquat chloride	75	75	75	38
Trinexapac-ethyl	1,331	1,331	1,192	123
All growth regulators	***4,158***	***4,158***	***3,985***	***2,271***

Table 13: **Undersown barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Aphids	General disease control	Ground preparation	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides								
Azoxystrobin	.	.	73	.	.	73	73	11
Carbendazim/flusilazole	.	.	34	.	.	34	34	13
Epoxiconazole	.	.	32	.	.	32	32	4
Fluoxastrobin/prothioconazole	.	.	31	.	.	31	31	8
All fungicides	***.***	***.***	***170***	***.***	***.***	***170***	***170***	***35***
Herbicides & desiccants								
Benazolin/2,4-DB/MCPA	90	.	.	.	.	90	90	194
Clopyralid/triclopyr	73	.	.	.	.	73	73	87
2,4-DB/linuron/MCPA	417	.	.	.	.	417	417	398
Dicamba/MCPA/mecoprop-P	18	.	.	.	.	18	18	27
Glyphosate	.	.	.	265	.	265	265	281
Mecoprop-P	31	.	.	.	.	31	31	43
Metsulfuron-methyl	22	.	.	.	.	22	22	<0.5
Metsulfuron-methyl/thifensulfuron-methyl	13	.	.	.	.	13	13	1
All herbicides & desiccants	***664***	***.***	***.***	***265***	***.***	***929***	***929***	***1,031***
Insecticides								
Esfenvalerate	.	28	.	.	34	61	61	<0.5
All insecticides	***.***	***28***	***.***	***.***	***34***	***61***	***61***	***<0.5***

Table 14: **Winter barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General disease control	Ear wash	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides					
Azoxystrobin	1,759	.	1,759	1,097	288
Azoxystrobin/chlorothalonil	379	.	379	273	235
Azoxystrobin/cyproconazole	8	.	8	8	1
Azoxystrobin/fenpropimorph	239	.	239	164	113
Boscalid/epoxiconazole	97	.	97	97	77
Carbendazim/flusilazole	440	.	440	411	108
Chlorothalonil	2,316	.	2,316	1,888	1,163
Chlorothalonil/cyproconazole/propiconazole	53	.	53	53	39
Cyproconazole/propiconazole	359	.	359	257	54
Cyprodinil	298	.	298	298	78
Epoxiconazole	1,006	.	1,006	860	89
Epoxiconazole/fenpropimorph/kresoxim-methyl	69	.	69	69	21
Epoxiconazole/kresoxim-methyl	33	.	33	33	8
Fenpropidin	416	.	416	416	92
Fenpropimorph	1,348	.	1,348	1,105	238
Fenpropimorph/flusilazole	7	.	7	7	2
Fenpropimorph/quinoxyfen	55	.	55	55	14
Fluoxastrobin/prothioconazole	2,739	.	2,739	1,575	538
Fluquinconazole/prochloraz	37	.	37	37	11
Flusilazole	434	.	434	264	105
Picoxystrobin	572	.	572	418	48
Propiconazole/tebuconazole	1,586	.	1,586	894	482
Prothioconazole	1,561	.	1,561	1,099	167
Prothioconazole/trifloxystrobin	55	30	84	84	15
Quinoxyfen	129	.	129	129	6
Spiroxamine/tebuconazole	115	.	115	115	55
Tebuconazole	234	.	234	234	33
Tebuconazole/triadimenol	25	.	25	12	5
Trifloxystrobin	355	.	355	290	27
All fungicides	***16,721***	***30***	***16,751***	***12,241***	***4,111***

Table 14 (contd.): **Winter barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Ground preparation	Chick weed	Sealer	Wild oat	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants										
Bromoxynil/diflufenican/ioxynil	20	.	.	.	.	.	.	20	20	8
Bromoxynil/ioxynil	40	.	.	.	.	.	.	40	40	27
Chlorotoluron	169	.	.	.	.	.	.	169	169	392
Dicamba/MCPA/mecoprop-P	43	.	.	.	.	.	.	43	43	67
Dicamba/mecoprop	12	.	.	.	.	.	.	12	12	12
Dicamba/mecoprop-P	8	.	.	.	.	.	.	8	8	6
Diclofop-methyl/fenoxaprop-P-ethyl	.	.	.	.	.	.	34	34	34	13
Diflufenican	59	.	.	.	.	.	.	59	59	6
Diflufenican/flufenacet	148	.	.	.	.	.	.	148	148	27
Diflufenican/isoproturon	1,052	.	.	.	.	.	.	1,052	1,052	937
Florasulam	.	121	.	.	.	.	.	121	121	<0.5
Florasulam/fluroxypyr	11	.	.	.	.	.	.	11	11	1
Flufenacet/pendimethalin	86	.	.	.	.	.	.	86	86	107
Flufenacet/pendimethalin	190	.	.	.	.	.	.	190	190	183
Fluroxypyr	87	142	.	.	.	.	.	229	229	58
Glyphosate	.	.	1,972	2,158	.	.	.	4,130	3,168	3,100
Iodosulfron-methyl-sodium	22	.	.	.	.	.	.	22	22	<0.5
Isoproturon	2,627	.	.	.	.	.	.	2,627	2,619	3,041
Isoproturon/pendimethalin	993	.	.	.	.	.	.	993	993	1,249
Isoproturon/trifluralin	106	.	.	.	.	.	.	106	106	146
MCPA	6	.	.	.	.	.	.	6	6	4
Mecoprop-P	498	97	.	.	115	.	.	710	691	777
Metsulfuron-methyl	211	.	.	.	.	.	.	211	211	1
Metsulfuron-methyl/thifensulfuron-methyl	255	.	.	.	.	.	.	255	251	8
Metsulfuron-methyl/tribenuron-methyl	137	.	.	.	.	.	.	137	137	2

Table 14 (contd.): Winter barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Ground preparation	Chick weed	Sealer	Wild oat	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants (contd.)										
Pendimethalin	499	.	.	.	.	.	.	499	456	533
Pendimethalin/picolinafen	598	.	.	.	.	.	.	598	598	308
pinoxaden	.	.	.	.	.	.	148	148	148	8
Rimsulfuron	.	.	.	.	.	.	12	12	12	5
Thifensulfuron-methyl/tribenuron-methyl	15	.	.	.	.	.	.	15	15	<0.5
Tralkoxydim	.	.	.	.	.	.	89	89	89	26
Trifluralin	491	.	.	.	.	.	.	491	491	502
Unknown herbicide	.	.	.	.	.	32	.	32	32	.
All herbicides & desiccants	***8,381***	***359***	***1,972***	***2,158***	***115***	***32***	***284***	***13,302***	***12,267***	***11,554***
Insecticides										
Bifenthrin	99	.	.	.	.	15	.	114	114	1
Chlorpyrifos	94	.	.	106	.	.	.	199	199	143
Cypermethrin	353	.	.	.	.	63	.	416	385	8
Deltamethrin	136	.	.	.	.	22	.	158	144	1
Esfenvalerate	1,631	.	.	.	.	282	.	1,914	1,703	9
Lambda-cyhalothrin	1,350	.	.	.	.	367	63	1,780	1,507	6
All insecticides	***3,663***	***.***	***.***	***106***	***.***	***749***	***63***	***4,581***	***4,052***	***168***
Molluscicides										
Methiocarb	.	.	.	.	81	.	.	81	81	7
Thiodicarb	.	.	.	.	31	.	.	31	31	6
All molluscicides	***.***	***.***	***.***	***.***	***112***	***.***	***.***	***112***	***112***	***13***

Table 14 (contd.): **Winter barley: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Ground preparation	Chick weed	Sealer	Wild oat	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Growth regulators										
Chlormequat	.	3,175	.	.	.	.	.	3,175	2,668	3,010
Chlormequat/2-chloroethylphosphonic acid	.	52	.	.	.	.	.	52	52	42
2-chloroethylphosphonic acid	.	841	.	.	.	.	.	841	841	231
2-chloroethylphosphonic acid/mepiquat chloride	.	108	.	.	.	.	.	108	108	47
Trinexapac-ethyl	.	1,667	.	.	.	.	.	1,667	1,415	116
3-Indolebutyric acid/cytokinin	.	.	23	.	.	.	.	23	23	<1
All growth regulators	**.**	***5,843***	***23***	**.**	**.**	**.**	**.**	***5,866***	***5,108***	***3,447***

Table 15: Spring wheat: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	General disease control	Cleavers	Desiccation	Ground preparation	Volunteer potatoes	Fumatory	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides										
Azoxystrobin	.	1,073	.	.	.	.	.	1,073	595	142
Azoxystrobin/cyproconazole	.	168	.	.	.	.	.	168	168	28
Boscalid/epoxiconazole	.	45	.	.	.	.	.	45	45	20
Carbendazim/flusilazole	.	567	.	.	.	.	.	567	189	85
Chlorothalonil	.	649	.	.	.	.	.	649	560	337
Cyproconazole/propiconazole	.	22	.	.	.	.	.	22	15	3
Epoxiconazole	.	368	.	.	.	.	.	368	285	22
Epoxiconazole/fenpropimorph	.	100	.	.	.	.	.	100	100	42
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	106	.	.	.	.	.	106	106	32
Fenpropimorph	.	74	.	.	.	.	.	74	74	14
Fenpropimorph/flusilazole	.	13	.	.	.	.	.	13	13	5
Fenpropimorph/pyraclostrobin	.	15	.	.	.	.	.	15	15	7
Fluoxastrobin/prothioconazole	.	120	.	.	.	.	.	120	120	26
Propiconazole/tebuconazole	.	764	.	.	.	.	.	764	558	174
Prothioconazole	.	75	.	.	.	.	.	75	75	8
Tebuconazole	.	13	.	.	.	.	.	13	13	2
Trifloxystrobin	.	89	.	.	.	.	.	89	89	8
All fungicides	.	***4,261***	.	.	.	.	.	***4,261***	***3,019***	***954***
Herbicides & desiccants										
Bromoxynil/ioxynil	9	.	.	.	.	.	.	9	9	4
Dicamba/MCPA/mecoprop-P	100	.	.	.	.	.	.	100	100	124
Flufenacet/pendimethalin	75	.	.	.	.	.	.	75	75	67
Fluroxypyr	411	.	86	.	.	21	.	518	518	50
Glyphosate	.	.	.	55	842	.	.	896	896	943
Iodosulfron-methyl-sodium	28	.	.	.	.	.	.	28	28	<0.5
MCPA	106	.	.	.	.	.	.	106	106	30
Mecoprop-P	311	.	.	.	.	.	13	324	324	209

Table 15 (contd): Spring wheat: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	General disease control	Cleavers	Desiccation	Ground preparation	Volunteer potatoes	Fumatory	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants (contd.)										
Metsulfuron-methyl	503	.	.	.	.	.	.	503	503	3
Metsulfuron-methyl/thifensulfuron-methyl	40	.	.	.	.	.	.	40	40	1
Metsulfuron-methyl/tribenuron-methyl	615	.	.	.	.	.	.	615	615	6
Thifensulfuron-methyl/tribenuron-methyl	86	.	.	.	.	.	.	86	86	3
All herbicides & desiccants	***2,283***	***.***	***86***	***55***	***842***	***21***	***13***	***3,300***	***3,300***	***1,441***

Pesticide type & formulation	Aphids	Growth regulation	Leather-jackets	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides							
Bifenthrin	351	.	.	16	367	367	21
Chlorpyrifos	.	.	206	.	206	206	134
Cypermethrin	.	.	.	15	15	15	<0.5
Esfenvalerate	557	.	.	.	557	557	2
Lambda-cyhalothrin	162	.	.	.	162	162	1
All insecticides	***1,069***	***.***	***206***	***31***	***1,306***	***1,306***	***158***
Growth regulators							
Chlormequat	.	531	.	.	531	531	446
Trinexapac-ethyl	.	128	.	.	128	128	9
All growth regulators	***.***	***659***	***.***	***.***	***659***	***659***	***455***

Table 16: Winter wheat: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General disease control	Septoria	Headwash	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides						
Azoxystrobin	4,106	.	.	4,106	2,502	559
Azoxystrobin/chlorothalonil	1,589	.	79	1,668	986	1,278
Azoxystrobin/fenpropimorph	266	.	.	266	155	191
Boscalid/epoxiconazole	853	.	.	853	853	255
Carbendazim/flusilazole	260	.	.	260	260	65
Chlorothalonil	5,371	.	.	5,371	2,817	2,805
Chlorothalonil/cyproconazole/propiconazole	135	.	.	135	135	89
Cyproconazole/propiconazole	87	.	.	87	87	18
Difenoconazole	842	.	.	842	690	50
Epoxiconazole	4,746	64	.	4,810	2,841	431
Epoxiconazole/fenpropimorph/kresoxim-methyl	94	39	119	252	252	59
Epoxiconazole/kresoxim-methyl	60	.	.	60	60	13
Fenpropidin	71	.	.	71	71	13
Fenpropimorph	969	.	.	969	840	307
Fluoxastrobin/prothioconazole	1,732	.	.	1,732	1,293	375
Fluquinconazole/prochloraz	492	.	.	492	473	139
Flusilazole	171	.	.	171	116	66
Metrafenone	61	.	.	61	61	5
Picoxystrobin	53	.	.	53	53	13
Propiconazole/tebuconazole	2,449	.	.	2,449	1,518	571
Proquinazid	56	.	.	56	56	2
Prothioconazole	1,948	.	.	1,948	1,521	213
Prothioconazole/tebuconazole	1,129	.	.	1,129	885	285
Prothioconazole/trifloxystrobin	34	.	.	34	34	11
Tebuconazole	1,618	29	.	1,648	1,648	258
Tebuconazole/triadimenol	854	.	.	854	835	166
Trifloxystrobin	1,609	.	.	1,609	1,523	137
Unknown fungicide	351	.	.	351	351	703
All fungicides	***32,007***	***132***	***198***	***32,337***	***22,914***	***9,074***

Table 16 (contd.): **Winter wheat: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Ground preparation	Wild oat	Grass/ broomgrass	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants									
Bromoxynil/ioxynil	506	.	.	.	.	.	506	506	239
Chlorotoluron	665	.	.	.	.	.	665	665	1,564
Dicamba/MCPA/mecoprop-P	110	.	.	.	.	.	110	110	171
Dicamba/mecoprop	64	.	.	.	.	.	64	64	61
Diclofop-methyl/fenoxaprop-P-ethyl	.	.	.	.	79	.	79	79	33
Diflufenican/flufenacet	12	.	.	.	.	.	12	12	2
Diflufenican/isoproturon	2,151	.	.	.	.	.	2,151	2,151	1,799
Fenoxaprop-P-ethyl	.	.	.	.	51	.	51	51	5
Flamprop-M-isopropyl	152	.	.	.	.	.	152	152	106
Florasulam	365	.	.	.	.	.	365	365	2
Flufenacet/pendimethalin	202	.	.	.	.	.	202	202	182
Fluroxypyr	264	584	.	.	.	.	848	848	171
Glyphosate	.	.	1,817	2,665	.	.	4,483	3,865	3,741
Iodosulfron-methyl-sodium	248	.	.	.	.	.	248	248	2
Isoproturon	4,092	.	.	.	.	.	4,092	3,897	5,296
Isoproturon/pendimethalin	1,072	.	.	.	.	.	1,072	1,072	1,601
Isoproturon/trifluralin	182	.	.	.	.	.	182	182	287
MCPA	9	.	.	.	.	.	9	9	6
Mecoprop-P	773	.	.	.	.	.	773	731	792
Metsulfuron-methyl	495	.	.	.	.	.	495	495	3
Metsulfuron-methyl/thifensulfuron-methyl	181	.	.	.	.	.	181	181	9
Metsulfuron-methyl/tribenuron-methyl	414	.	.	.	.	.	414	414	3
Pendimethalin	713	.	.	.	29	.	742	716	848
Pendimethalin/picolinafen	98	.	.	.	.	.	98	98	74
Pinoxaden	.	.	.	.	67	.	67	67	3
Sulfosulfuron	.	.	.	.	.	32	32	32	1
Tralkoxydim	.	.	.	.	53	.	53	53	6
Trifluralin	68	.	.	.	.	.	68	68	53
Unknown herbicide	94	.	.	.	.	.	94	94	.
All herbicides & desiccants	***12,927***	***584***	***1,817***	***2,665***	***278***	***32***	***18,304***	***17,425***	***17,059***

Table 16 (contd.): Winter wheat: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Aphids	Growth regulation	Natural growth regulation	Leatherjackets	Slugs	General insect control	Barley yellow dwarf virus	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides										
Bifenthrin	933	.	.	.	.	64	.	997	899	6
Chlorpyrifos	12	.	.	90	.	115	.	216	216	159
Cypermethrin	59	.	.	.	.	247	.	306	208	6
Deltamethrin	14	.	.	.	.	149	.	163	163	1
Esfenvalerate	2,773	.	.	.	.	736	.	3,508	2,543	25
Lambda-cyhalothrin	2,855	.	.	.	.	744	29	3,628	2,042	11
All insecticides	***6,646***	***.***	***.***	***90***	***.***	***2,053***	***29***	***8,818***	***6,070***	***208***
Molluscicides										
Metaldehyde	.	.	.	.	80	.	.	80	80	28
All molluscicides	***.***	***.***	***.***	***.***	***80***	***.***	***.***	***80***	***80***	***28***
Growth regulators										
Chlormequat	.	5,087	.	.	.	.	.	5,087	4,772	5,201
Chlormequat/2-chloroethylphosphonic acid	.	4	.	.	.	.	.	4	4	3
Chlormequat/choline chloride	.	84	.	.	.	.	.	84	76	70
2-chloroethylphosphonic acid	.	661	.	.	.	.	.	661	661	133
2-chloroethylphosphonic acid/mepiquat chloride	.	268	.	.	.	.	.	268	268	191
Trinexapac-ethyl	.	1,694	.	.	.	.	.	1,694	1,567	79
3-Indolebutyric acid/cytokinin	.	.	32	.	.	.	.	32	32	<0.1
All growth regulators	***.***	***7,797***	***32***	***.***	***.***	***.***	***.***	***7,829***	***7,379***	***5,677***

Table 17: **Spring oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	General disease control	Cleavers	Desiccation	Ground preparation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides								
Azoxystrobin	.	10	.	.	.	10	10	2
Azoxystrobin/fenpropimorph	.	150	.	.	.	150	75	84
Chlorothalonil	.	4	.	.	.	4	4	2
Cyproconazole/propiconazole	.	21	.	.	.	21	21	3
Epoxiconazole	.	176	.	.	.	176	176	12
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	133	.	.	.	133	133	32
Fenpropimorph	.	351	.	.	.	351	305	151
Fenpropimorph/quinoxyfen	.	6	.	.	.	6	6	3
Proquinazid	.	46	.	.	.	46	46	2
Prothioconazole	.	4	.	.	.	4	4	<0.5
Pyraclostrobin	.	49	.	.	.	49	49	11
Quinoxyfen	.	171	.	.	.	171	171	29
Sulphur	.	10	.	.	.	10	10	80
Tebuconazole	.	27	.	.	.	27	27	3
All fungicides	***.***	***1,158***	***.***	***.***	***.***	***1,158***	***1,037***	***414***
Herbicides & desiccants								
Dicamba/mecoprop	63	.	.	.	.	63	63	27
Dichlorprop/MCPA	6	.	.	.	.	6	6	7
Fluroxypyr	51	.	30	.	.	81	81	8
Glyphosate	.	.	.	61	170	231	231	229
MCPA	70	.	.	.	.	70	70	20
Mecoprop-P	389	.	.	.	.	389	389	258
Metsulfuron-methyl	367	.	.	.	.	367	367	2
Metsulfuron-methyl/thifensulfuron-methyl	23	.	.	.	.	23	23	1
Metsulfuron-methyl/tribenuron-methyl	342	.	.	.	.	342	342	3
Thifensulfuron-methyl/tribenuron-methyl	30	.	.	.	.	30	30	1
All herbicides & desiccants	***1,341***	***.***	***30***	***61***	***170***	***1,602***	***1,602***	***554***

Table 17 (contd.): Spring oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Formulation	Aphids	Growth regulation	Leatherjackets	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides							
Bifenthrin	53	.	.	.	53	27	<0.5
Chlorpyrifos	14	.	30	.	44	44	29
Cypermethrin	.	.	.	109	109	109	3
Esfenvalerate	46	.	.	.	46	46	<0.5
Lambda-cyhalothrin	196	.	.	46	242	220	1
All insecticides	***309***	***.***	***30***	***155***	***494***	***446***	***33***
Growth regulators							
Chlormequat	.	308	.	.	308	308	261
Trinexapac-ethyl	.	21	.	.	21	21	1
All growth regulators	***.***	***329***	***.***	***.***	***329***	***329***	***262***

Table 18 Winter oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Mildew	General disease control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides					
Azoxystrobin	.	245	245	220	34
Azoxystrobin/Chlorothalonil	.	20	20	10	11
Azoxystrobin/fenpropimorph	.	129	129	65	71
Chlorothalonil	.	325	325	202	101
Epoxiconazole	.	145	145	145	7
Epoxiconazole/fenpropimorph/kresoxim-methyl	.	22	22	22	9
Fenpropidin	.	48	48	48	46
Fenpropimorph	163	268	431	379	231
Fluoxastrobin/Prothioconazole	.	25	25	25	3

Table 18 (contd.) Winter oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Mildew	General disease control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides (contd.)					
Metrafenone	.	92	92	92	6
Propiconazole/tebuconazole	.	60	60	60	15
Prothioconazole/Tebuconazole	.	123	123	123	10
Pyraclostrobin	.	83	83	83	11
Quinoxyfen	.	117	117	71	14
Tebuconazole	.	162	162	126	22
Unknown fungicide	.	13	13	13	13
All fungicides	***163***	***1,875***	***2,038***	***1,682***	***601***

Pesticide type & formulation	General weed control	Cleavers	Desiccation	Ground preparation	Fumatory	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants								
Amidosulfuron	.	18	.	.	.	18	18	<0.5
Carfentrazone-ethyl/flypyrsulfuron-methyl	36	.	.	.	.	36	36	1
Dicamba/mecoprop	17	.	.	.	.	17	17	17
Fluroxypyr	55	25	.	.	.	80	80	10
Glyphosate	75	.	110	99	.	285	210	232
Isoproturon	133	.	.	.	.	133	133	104
Mecoprop-P	446	.	.	.	45	491	458	373
Metsulfuron-methyl	260	.	.	.	.	260	260	1
Metsulfuron-methyl/thifensulfuron-methyl	60	.	.	.	.	60	60	2
Metsulfuron-methyl/tribenuron-methyl	188	.	.	.	.	188	188	2
Pendimethalin/picolinafen	13	.	.	.	.	13	13	3
Thifensulfuron-methyl/tribenuron-methyl	10	.	.	.	.	10	10	<0.5
Trifluralin	123	.	.	.	.	123	123	88
Unknown herbicide	12	.	.	.	.	12	12	51
All herbicides & desiccants	***1,426***	***43***	***110***	***99***	***45***	***1,724***	***1,616***	***884***

Table 18 (contd.) **Winter oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	Aphids	Growth regulation	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides						
Bifenthrin	20	.	65	85	85	1
Cypermethrin	76	.	.	76	51	2
Esfenvalerate	10	.	12	22	22	1
Lambda-cyhalothrin	32	.	33	65	65	<0.5
All insecticides	***139***	***.***	***110***	***249***	***223***	***4***
Growth regulators						
Chlormequat	.	569	.	569	401	498
Trinexapac-ethyl	.	149	.	149	149	7
All growth regulators	***.***	***718***	***.***	***718***	***551***	***506***

Table 19: **Undersown Oats: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	Ground preparation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants				
Glyphosate	26	26	26	13
All herbicides & desiccants	***26***	***26***	***26***	***13***

Table 20: **Seed potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	General disease control	Blight	Desiccation	Ground preparation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides								
Azoxystrobin*	.	68	.	.	.	68	68	51
Chlorothalonil/propamocarb hydrochloride	.	.	64	.	.	64	50	120
Cymoxanil/mancozeb	.	.	1,074	.	.	1,074	356	1,545
Dimethomorph/mancozeb	.	.	837	.	.	837	417	1,255
Fluazinam	.	.	1,629	.	.	1,629	316	248
Fluopicolide/propamocarb hydrochloride	.	.	149	.	.	149	75	164
Mancozeb	.	.	1,230	.	.	1,230	240	1,968
Mancozeb/metalaxyl-m	.	.	453	.	.	453	174	586
Mancozeb/propamocarb hydrochloride	.	.	77	.	.	77	39	169
Mancozeb/zoxamide	.	.	39	.	.	39	39	52
All fungicides	**.**	**68**	**5,550**	**.**	**.**	**5,618**	**1,772**	**6,157**
*Applied at sowing								
Herbicides & desiccants								
Diquat	.	.	.	1,066	.	1,066	716	484
Diquat/paraquat	68	.	.	.	.	68	68	41
Glyphosate	.	.	.	.	233	233	233	297
Metribuzin	88	.	.	.	.	88	88	73
Paraquat	695	.	.	.	.	695	695	455
Sulphuric acid	.	.	.	68	.	68	68	5,955
Terbuthylazine/terbutryn	66	.	.	.	.	66	66	69
All herbicides & desiccants	**918**	**.**	**.**	**1,134**	**233**	**2,285**	**1,935**	**7,375**

Table 20 (contd.): Seed potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Aphids	Slugs	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides					
Lambda-cyhalothrin	931	.	931	330	4
Lambda-cyhalothrin/pirimicarb	39	.	39	39	6
Thiacloprid	39	.	39	39	4
All insecticides	***1,008***	***.***	***1,008***	***407***	***14***
Molluscicides					
Methiocarb	.	77	77	39	17
All molluscicides	***.***	***77***	***77***	***39***	***17***

Table 21: Early potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type formulation	General weed control	Blight	Desiccation	Ground preparation	Wireworm	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides								
Chlorothalonil/propamocarb hydrochloride	.	219	.	.	.	219	97	332
Cyazofamid	.	24	.	.	.	24	24	2
Cymoxanil/mancozeb	.	372	.	.	.	372	151	543
Dimethomorph/mancozeb	.	434	.	.	.	434	135	652
Fluazinam	.	749	.	.	.	749	237	121
Fluazinam/metalaxyl-m	.	36	.	.	.	36	36	8
Mancozeb	.	72	.	.	.	72	32	108
Mancozeb/metalaxyl-m	.	169	.	.	.	169	69	219
Mancozeb/propamocarb hydrochloride	.	5	.	.	.	5	5	11
All fungicides	***.***	***2,080***	***.***	***.***	***.***	***2,080***	***786***	***1,994***

Table 21 (contd.): Early potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type formulation	General weed control	Blight	Desiccation	Ground preparation	Wireworm	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants								
Diquat	.	.	432	.	.	432	255	194
Diquat/paraquat	108	.	.	.	.	108	108	55
Glyphosate	.	.	.	161	.	161	161	185
Metribuzin	157	.	.	.	.	157	157	141
Paraquat	226	.	.	.	.	226	226	135
Sulphuric acid	.	.	4	.	.	4	4	936
Terbuthylazine/terbutryn	37	.	.	.	.	37	37	58
All herbicides & desiccants	***528***	***.***	***435***	***161***	***.***	***1,124***	***947***	***1,703***
Insecticides								
Fosthiazate	.	.	.	.	25	25	25	74
All insecticides	***.***	***.***	***.***	***.***	***25***	***25***	***25***	***74***

Table 22: Maincrop potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General disease control	Blight	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides					
Azoxystrobin*	318	.	318	318	238
Chlorothalonil/propamocarb hydrochloride	.	2,765	2,765	1,391	4,769
Copper oxychloride	.	33	33	33	58
Cyazofamid	.	672	672	416	52
Cymoxanil	.	548	548	328	41
Cymoxanil/mancozeb	.	7,445	7,445	2,049	10,301
Dimethomorph/mancozeb	.	2,761	2,761	1,370	3,920
Fentin hydroxide	.	856	856	143	775
Fluazinam	.	10,804	10,804	2,672	1,604
Fluazinam/metalaxyl-m	.	677	677	528	149

Table 22 (contd.): **Maincrop potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General disease control	Blight	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides (contd.)					
Fluopicolide/propamocarb hydrochloride	.	759	759	366	687
Mancozeb	.	7,127	7,127	1,541	11,836
Mancozeb/metalaxyl-m	.	1,794	1,794	1,029	2,317
Mancozeb/propamocarb hydrochloride	.	578	578	286	1,271
Mancozeb/zoxamide	.	564	564	446	761
All fungicides	***318***	***37,381***	***37,699***	***12,915***	***38,780***

* Applied at sowing

Pesticide type & formulation	General weed control	Desiccation	Ground preparation	Scutch	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants							
Carfentrazone-ethyl	.	312	.	.	312	312	18
Diquat	.	4,521	.	.	4,521	3,289	2,049
Diquat/paraquat	934	.	.	.	934	934	464
Glyphosate	.	.	1,592	.	1,592	1,592	1,557
Linuron	10	.	.	.	10	10	17
Metribuzin	1,688	.	.	.	1,688	1,688	1,412
Paraquat	2,877	.	.	.	2,877	2,795	1,894
Propaquizafop	.	.	.	4	4	4	1
Sulphuric acid	.	484	.	.	484	484	85,135
Terbuthylazine/terbutryn	141	.	.	.	141	141	157
All herbicides & desiccants	***5,650***	***5,316***	***1,592***	***4***	***12,562***	***11,248***	***92,702***

Table 22 (contd.): Maincrop potatoes: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	Aphids	Slugs	Wireworm	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides							
Fosthiazate	.	.	30	.	30	30	90
Lambda-cyhalothrin	622	.	.	.	622	384	2
Lambda-cyhalothrin/pirimicarb	57	.	.	.	57	57	10
Pirimicarb	.	.	.	30	30	30	4
Pymetrozine	71	.	.	.	71	71	5
Thiacloprid	57	.	.	.	57	57	6
All insecticides	***807***	***.***	***30***	***30***	***867***	***629***	***116***
Molluscicides							
Metaldehyde	.	146	.	.	146	133	64
Methiocarb	.	647	.	.	647	529	135
Thiodicarb	.	60	.	.	60	60	12
All molluscicides	***.***	***853***	***.***	***.***	***853***	***722***	***211***

Table 23: Oilseed rape: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & Formulation	General weed control	General disease control	Cleavers	Desiccation	Ground preparation	Meadow grass	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides									
Azoxystrobin	.	265	.	.	.	.	265	248	51
Difenoconazole	.	117	.	.	.	.	117	117	12
Metconazole	.	60	.	.	.	.	60	55	3
Propiconazole/tebuconazole	.	34	.	.	.	.	34	17	11
Prothioconazole	.	61	.	.	.	.	61	43	8
Tebuconazole	.	110	.	.	.	.	110	65	19
All fungicides	***.***	***646***	***.***	***.***	***.***	***.***	***646***	***545***	***103***

Table 23 (contd.): Oilseed rape: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & Formulation	General weed control	General disease control	Cleavers	Desiccation	Ground preparation	Meadow grass	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants									
Cycloxydim	7	.	.	.	.	.	7	7	3
Diquat	.	.	.	114	.	.	114	114	105
Fluazifop-P-butyl	32	.	.	.	.	.	32	32	3
Glyphosate	.	.	.	163	261	.	424	373	431
Metazachlor	5	.	.	.	.	.	5	5	6
Metazachlor/quinmerac	.	.	29	.	.	.	29	29	25
Paraquat	.	.	.	.	9	.	9	9	3
Propaquizafop	16	.	.	.	.	.	16	16	<0.5
Propyzamide	317	.	.	.	.	.	317	317	185
Tepraloxydim	.	.	.	.	.	18	18	18	<0.5
All herbicides & desiccants	***376***	***.***	***29***	***276***	***270***	***18***	***970***	***919***	***759***

Pesticide type & Formulation	Aphids	Slugs	General insect control	Pollen beatle	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Insecticides							
Cypermethrin	.	.	21	.	21	21	1
Lambda-cyhalothrin	74	.	36	18	128	128	<0.5
All insecticides	***74***	***.***	***58***	***18***	***149***	***149***	***1***
Molluscicides							
Metaldehyde	.	51	.	.	51	33	11
Methiocarb	.	17	.	.	17	17	3
All molluscicides	***.***	***68***	***.***	***.***	***68***	***50***	***14***

Table 24: Peas & beans: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	Aphids	General disease control	Desiccation	Ground preparation	Chocolate spot	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides									
Azoxystrobin	.	.	12	.	.	.	12	12	3
Chlorothalonil	.	.	.	.	.	6	6	6	6
All fungicides	.	.	***12***	.	.	***6***	***19***	***19***	***9***
Herbicides & desiccants									
Bentazone/MCPB	12	.	.	.	.	.	12	12	10
Cyanazine	12	.	.	.	.	.	12	12	3
Glyphosate	.	.	.	56	40	.	96	56	85
All herbicides & desiccants	***25***	.	.	***56***	***40***	.	***120***	***80***	***98***
Insecticides									
Lambda-cyhalothrin	.	12	.	.	.	.	12	12	<1
All insecticides	.	***12***	.	.	.	.	***12***	***12***	***<1***

Table 25: Triticale: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	General disease control	Growth regulation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Fungicides						
Fenpropidin	.	12	.	12	12	4
Metrafenone	.	12	.	12	12	1
All fungicides	.	***24***	.	***24***	***24***	***5***

Table 25 (contd.): Triticale: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	General disease control	Growth regulation	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants						
Metsulfuron-methyl/thifensulfuron-methyl	12	.	.	12	12	<0.5
All herbicides & desiccants	***12***	***.***	***.***	***12***	***12***	***<0.5***
Growth regulators						
Chlormequat	.	.	12	12	12	11
All growth regulators	***.***	***.***	***12***	***12***	***12***	***11***

Table 26: Lupins: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.

Pesticide type & formulation	General weed control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants				
Pendimethalin	19	19	19	39
All herbicides & desiccants	***19***	***19***	***19***	***39***

Table 27: **Set aside: pesticide-treated area (spray-hectares), weights of pesticides applied (kilograms) and reason for use.**

Pesticide type & formulation	General weed control	Desiccation	Leatherjackets	Ground preparation	General insect control	All reasons	Basic area (ha) of treatment	Quantity (kgs)
Herbicides & desiccants								
Diquat	.	154	.	.	.	154	154	152
Glyphosate	.	246	.	177	.	422	394	446
Isoxaben	12	.	.	.	.	12	12	2
Herbicides & desiccants (contd.)								
MCPA	17	.	.	.	.	17	17	23
MCPA/MCPB	17	.	.	.	.	17	17	35
Pendimethalin	12	.	.	.	.	12	12	20
Unknown herbicide	17	.	.	.	.	17	17	.
All herbicides & desiccants	***74***	***399***	***.***	***177***	***.***	***650***	***621***	***677***
Insecticides								
Chlorpyrifos	.	.	12	.	.	12	12	9
Lambda-cyhalothrin	.	.	.	.	13	13	13	<1
All insecticides	***.***	***.***	***12***	***.***	***13***	***25***	***25***	***9***

Note: Includes Willow and Oilseed rape grown on set aside

Table 28: **Comparison of the area of arable crops grown (hectares) in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
Crop	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Cereals																	
Spring barley	29,893	24,729	20,890	21,256	23,066	23,901	22,658	21,959	17,573	-41%	-29%	-16%	-17%	-24%	-26%	-22%	-20%
Undersown barley	5,800	5,759	6,542	4,875	4,035	3,532	1,876	599	654	-89%	-89%	-90%	-87%	-84%	-81%	-65%	9%
Winter barley	3,670	5,721	5,832	7,166	7,720	5,194	3,922	4,535	4,599	25%	-20%	-21%	-36%	-40%	-11%	17%	1%
Spring wheat	348	136	32	129	400	863	1,428	1,523	1,517	336%	1015%	4641%	1074%	279%	76%	6%	0%
Undersown wheat	27	.	42	.	.	.	.	.	.	.	.	.	.	.	.	.	
Winter wheat	5,827	6,839	6,952	6,543	6,745	4,125	5,807	7,111	7,203	24%	5%	4%	10%	7%	75%	24%	1%
Spring oats	2,220	1,257	953	858	978	1,920	804	903	991	-55%	-21%	4%	15%	1%	-48%	23%	10%
Undersown oats	117	221	337	130	102	25	20	234	71	-39%	-68%	-79%	-45%	-30%	180%	256%	-70%
Winter oats	673	1,008	1,125	1,481	1,523	967	1,547	1,556	875	30%	-13%	-22%	-41%	-43%	-10%	-43%	-44%
All cereals	***48,575***	***45,670***	***42,704***	***42,438***	***44,569***	***40,528***	***38,062***	***38,420***	***33,482***	***-31%***	***-27%***	***-22%***	***-21%***	***-25%***	***-17%***	***-12%***	***-13%***
Spring oilseed rape	15	31	287	66	237	.	111	.	.	.	.	.	.	.	.	.	.
Winter oilseed rape	891	1,032	323	127	502	.	.	.	.	.	.	.	.	.	.	.	.
All oilseed rape *	906	1,063	610	193	739	131	111	255	471	-48%	-56%	-23%	144%	-36%	259%	324%	84%
Linseed	.	158	.	.	.	.	14	.	.	.	.	.	.	.	.	.	.
Maize	.	45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Peas & beans	.	.	.	.	199	273	197	212	83	.	.	.	.	-58%	-70%	-58%	-61%
Triticale	37	.	.	.	17	64	49	182	12	-68%	.	.	.	-29%	-82%	-76%	-94%
Lupins	.	.	.	.	.	.	67	10	19	.	.	.	.	.	.	-71%	93%
Set-aside	.	.	.	.	.	2,451	3,013	3,394	2,284	.	.	.	.	.	-7%	-24%	-33%
Potatoes																	
Seed potatoes	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	-78%	-79%	-55%	-58%	-52%	.	-38%	-34%
Early potatoes	463	836	813	729	391	.	728	403	370	-20%	-56%	-54%	-49%	-5%	.	-49%	-8%
Maincrop potatoes	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	-49%	-39%	-33%	-33%	-28%	.	-16%	-12%
All potatoes	***11,835***	***11,064***	***8,404***	***8,488***	***7,513***	***.***	***6,708***	***6,068***	***5,118***	***-57%***	***-54%***	***-39%***	***-40%***	***-32%***	***.***	***-24%***	***-16%***
All crops	***61,355***	***57,999***	***51,718***	***51,119***	***53,036***	*****43,447***	***48,222***	***48,541***	***41,469***	***-32%***	***-29%***	***-20%***	***-19%***	***-22%***	***-5%***	***-14%***	***-15%***

*** both winter & spring oilseed rape** ****excluding potatoes**

Table 29: **The area (spray-hectares) of arable crops treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	102,594	106,290	114,972	121,833	141,099	.	127,435	139,474	123,125	20%	16%	7%	1%	-13%	.	-3%	-12%
Herbicides & desiccants	75,130	76,444	72,725	81,027	91,193	.	86,597	104,539	94,148	25%	23%	29%	16%	3%	.	9%	-10%
Insecticides																	
Carbamates	.	*111*	*167*	*520*	*297*	.	*594*	*592*	*30*	.	-73%	-82%	-94%	-90%	.	-95%	-95%
Organochlorines	.	*79*	*255*	*222*	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*1,472*	*2,454*	*2,124*	*3,085*	*1,587*	.	*1,265*	*2,423*	*1,818*	24%	-26%	-14%	-41%	15%	.	44%	-25%
Pyrethroids	*2,895*	*2,800*	*3,267*	*7,706*	*17,084*	.	*18,164*	*26,973*	*25,055*	765%	795%	667%	225%	47%	.	38%	-7%
Azomethine	.	.	.	.	.	.	.	*673*	*71*	.	.	.	.	.	.	.	-89%
Neonicotinoid	.	.	.	.	.	.	.	.	*96*	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	*581*	*96*	.	.	.	.	.	.	.	-83%
Unknown insecticides	*465*	*694*	*207*	*815*	*1,238*	.	.	*180*	*89*	-81%	-87%	-57%	-89%	-93%	.	.	-51%
All insecticides	4,831	6,138	6,020	12,348	20,206	.	20,023	31,421	27,255	464%	344%	353%	121%	35%	.	36%	-13%
Molluscicides	834	871	243	434	1,123	.	1,926	337	1,237	48%	42%	409%	185%	10%	.	-36%	267%
Growth regulators	8,681	10,594	12,836	13,953	19,049	.	17,445	16,559	19,572	125%	85%	52%	40%	3%	.	12%	18%
Mixed formulations	233	186	134	137	128	.	86	.	.	.	.	.	.	.	.	.	.
Seed treatments	42,683	44,961	39,026	38,979	36,083	.	34,636	32,968	30,298	-29%	-33%	-22%	-22%	-16%	.	-13%	-8%
All pesticides	***234,985***	***245,485***	***245,971***	***268,710***	***308,881***	.	***288,348***	***325,299***	***295,635***	***26%***	***20%***	***20%***	***10%***	***-4%***	.	***3%***	***-9%***
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	.	48,222	48,541	41,469	-32%	-29%	-20%	-19%	-22%	.	-14%	-15%

Table 30: **The quantity (tonnes) of pesticides applied to arable crops in Northern Ireland, 1990-2006.**

	Survey Year									Differences between							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	97.57	101.76	90.99	94.22	91.06	.	85.20	71.13	67.26	-31%	-34%	-26%	-29%	-26%	.	-21%	-5%
Herbicides & desiccants	253.62	212.36	133.57	336.33	337.65	.	390.98	254.62	152.13	-40%	-28%	14%	-55%	-55%	.	-61%	-40%
Insecticides																	
Carbamates	.	*0.02*	*0.02*	*0.07*	*0.04*	.	*0.08*	*0.08*	*0.004*	.	-80%	-81%	-94%	-89%	.	-95%	-95%
Organochlorines	.	*0.09*	*0.29*	*0.23*	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.68*	*0.80*	*0.85*	*1.51*	*0.87*	.	*0.57*	*1.07*	*1.373*	102%	72%	62%	-9%	58%	.	140%	28%
Pyrethroids	*0.05*	*0.05*	*0.07*	*0.15*	*0.19*	.	*0.20*	*0.20*	*0.163*	226%	226%	136%	9%	-14%	.	-20%	-18%
Azomethine	.	.	.	.	.	.	.	*0.10*	*0.005*	.	.	.	.	.	.	.	-95%
Neonicotinoid	.	.	.	.	.	.	.	.	*0.009*	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	*0.05*	*0.016*	.	.	.	.	.	.	.	-69%
Unknown Insecticide	.	.	.	.	.	.	.	*0.01*	.	.	.	.	.	.	.	.	.
All insecticides	0.72	0.96	1.23	1.95	1.10	.	0.85	1.51	1.57	118%	64%	28%	-20%	43%	.	84%	4%
Molluscicides	0.33	0.27	0.12	0.09	0.17	.	0.34	0.06	0.28	-14%	5%	140%	217%	64%	.	-16%	373%
Growth regulators	10.60	9.35	10.86	12.84	14.43	.	11.61	11.70	12.63	19%	35%	16%	-2%	-12%	.	9%	8%
Mixed formulations	0.51	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.	.	.	.	.	.
Seed treatments	0.38*	3.77	5.06	3.03	3.71	.	2.82	2.28	4.03	960%	7%	-20%	33%	9%	.	43%	77%
All pesticides	***363.74***	***328.89***	***242.12***	***448.78***	***448.40***	***.***	***491.93***	***341.30***	***237.89***	***-6%***	***4%***	***41%***	***-24%***	***-24%***	***.***	***-31%***	***-30%***
Area grown (ha)	61,355	57,999	51,718	51,119	53,036	.	48,222	48,541	41,469	-21%	-16%	-6%	-5%	-8%	.	1%	-15%

* Seed treatments on potatoes not recorded

Table 31: **The area (spray-hectares) of cereal crops treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	33,741	37,584	42,517	56,880	64,171	63,739	60,230	86,173	77,686	130%	107%	83%	37%	21%	22%	29%	-10%
Herbicides & desiccants	52,342	52,872	56,201	63,072	72,911	71,281	69,752	82,884	77,378	48%	46%	38%	23%	6%	9%	11%	-7%
Insecticides																	
Carbamates	.	*88*	*167*	*493*	*249*	.	*182*	*120*	.	.	.	.	.	.	.	.	.
Organochlorines	.	*79*	*255*	*222*	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*1,164*	*2,359*	*1,857*	*2,447*	*1,440*	*3,773*	*1,140*	*2,058*	*1,751*	50%	-26%	-6%	-28%	22%	-54%	54%	-15%
Pyrethroids	*2,381*	*2,670*	*3,267*	*7,047*	*16,481*	*23,617*	*16,709*	*24,258*	*23,328*	880%	774%	614%	231%	42%	-1%	40%	-4%
Unknown insecticides	*465*	*694*	*207*	*816*	*1,207*	*2,290*	.	*114*	*89*	-81%	-87%	-57%	-89%	-93%	-96%	.	-22%
All insecticides	4,010	5,890	5,754	11,028	19,377	29,681	18,031	26,550	25,168	528%	327%	337%	128%	30%	-15%	40%	-5%
Molluscicides	24	.	27	168	129	833	305	223	307	1179%	.	1037%	83%	138%	-63%	1%	38%
Growth regulators	8,607	10,509	12,836	13,953	18,998	17,237	17,330	16,476	19,559	127%	86%	52%	40%	3%	13%	13%	19%
Seed treatments	41,739	39,958	35,995	35,525	31,728	34,260	31,494	29,069	27,353	-34%	-32%	-24%	-23%	-14%	-20%	-13%	-6%
All pesticides	***140,465***	***146,819***	***153,330***	***180,624***	***207,314***	***217,031***	***197,144***	***241,374***	***227,451***	***62%***	***55%***	***48%***	***26%***	***10%***	***5%***	***15%***	***-6%***
Area grown (ha)	48,575	45,670	42,703	42,438	44,570	40,528	38,062	38,420	33,482	-31%	-27%	-22%	-21%	-25%	-17%	-12%	-13%

Table 32: **The quantity (tonnes) of pesticides applied to cereal crops in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	14.97	18.43	14.96	24.52	22.82	13.32	15.18	19.15	20.21	35%	10%	35%	-18%	-11%	52%	33%	6%
Herbicides & desiccants	55.07	39.43	35.67	42.87	46.26	41.68	35.35	42.21	48.77	-11%	24%	37%	14%	5%	17%	38%	16%
Insecticides																	
Carbamates	.	*0.01*	*0.02*	*0.07*	0.03	.	0.03	*0.012*	.	.	.	.	.	.	.	.	.
Organochlorines	.	*0.09*	*0.29*	*0.23*	.	.	.	.	.	.	.	.	.	.	.	.	
Organophosphates	*0.51*	*0.68*	*0.49*	1.24	0.74	2.51	0.56	*0.948*	*1.200*	135%	76%	145%	-3%	63%	-52%	116%	27%
Pyrethroids	*0.04*	*0.04*	*0.07*	*0.13*	*0.19*	*0.26*	*0.19*	*0.178*	*0.157*	292%	292%	127%	20%	-19%	-40%	-19%	-12%
Azomethine	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	0.55	0.83	0.88	1.66	0.96	2.75	0.78	1.14	1.36	147%	63%	55%	-18%	41%	-51%	75%	19%
Molluscicides	0.01	.	0.01	0.04	0.02	0.14	0.06	0.04	0.04	330%	.	572%	8%	158%	-69%	-34%	8%
Growth regulators	10.51	9.32	10.86	12.84	14.41	12.87	11.61	11.64	12.62	20%	35%	16%	-2%	-12%	-2%	9%	8%
Seed treatments	0.33	0.94	3.80	2.41	1.72	2.34	1.57	1.35	1.42	329%	51%	-63%	-41%	-17%	-39%	-10%	5%
All pesticides	***81.44***	***68.94***	***66.17***	***84.35***	***86.19***	***73.11***	***64.35***	***75.55***	***84.41***	***4%***	***22%***	***28%***	***0%***	***-2%***	***15%***	***31%***	***12%***
Area grown (ha)	48,575	45,670	42,703	42,438	44,570	40,528	38,062	38,420	33,482	-31%	-27%	-22%	-21%	-25%	-17%	-12%	-13%

Table 33: **The area (spray-hectares) of oilseed rape treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	467	525	86	226	664	244	70	238	646	38%	23%	656%	186%	-3%	165%	818%	172%
Herbicides & desiccants	1,603	1,343	597	292	1,171	366	194	448	970	-39%	-28%	63%	232%	-17%	165%	401%	116%
Insecticides																	
Carbamates	.	.	.	.	*28.6*	.	.	.	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	*67*	*180*	*25*	*5.4*	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	.	*131*	.	.	*190*	.	*49*	*55*	*149*	.	14%	.	.	-21%	.	205%	171%
Unknown insecticides	.	.	.	.	*10*	.	.	.	.	.	.	.	.	.	.	.	.
All insecticides	.	198	180	25	234	.	49	55	149	.	-25%	-17%	496%	-36%	.	205%	172%
Molluscicides	810	871	216	72	522	.	39	.	68	-92%	-92%	-69%	-6%	-87%	.	74%	.
Growth regulators	.	84	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	906	1,063	610	140	339	123	98	106	271	-70%	-75%	-56%	94%	-20%	120%	177%	156%
All pesticides	***3,786***	***4,084***	***1,689***	***755***	***2,931***	***732***	***450***	***846***	***2,104***	***-44%***	***-48%***	***25%***	***179%***	***-28%***	***187%***	***368%***	***149%***
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	-48%	-56%	-23%	144%	-36%	259%	324%	84%

Table 34: **The quantity (tonnes) of pesticides applied to oilseed rape in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	0.53	0.06	0.03	0.30	0.60	0.64	0.01	0.03	0.10	-81%	72%	211%	-66%	-83%	-84%	766%	243%
Herbicides & desiccants	1.31	0.98	0.62	0.20	0.74	0.16	0.10	0.25	0.76	-42%	-23%	23%	280%	3%	374%	675%	204%
Insecticides																	
Carbamates	.	.	.	.	*0.004*	.	.	.	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	*<0.001*	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	*0.02*	*0.08*	*0.01*	*0.004*	.	.	.	.	.	.	.	.	.	.	.	.
Pyrethroids	.	*0.01*	.	.	*0.001*	.	*0.0001*	*0.0003*	*0.001*	.	-88%	.	.	9%	.	1100%	300%
All insecticides	.	0.03	0.08	0.01	0.009	.	0.0001	0.0003	0.001	.	-96%	-98%	-88%	-87%	.	1100%	344%
Molluscicides	0.32	0.27	0.11	0.01	0.06	.	0.01	.	0.01	-96%	-95%	-87%	40%	-77%	.	35%	.
Growth regulators	.	0.04	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	0.05	0.11	0.06	0.02	0.005	.	0.01	0.002	0.005	-90%	-95%	-92%	-75%	11%	.	-64%	143%
All pesticides	***2.21***	***1.49***	***0.90***	***0.54***	***1.41***	***0.81***	***0.13***	***0.28***	***0.88***	***-60%***	***-41%***	***-1%***	***63%***	***-38%***	***9%***	***558%***	***215%***
Area grown (ha)	906	1,062	610	193	739	131	111	255	471	-48%	-56%	-23%	144%	-36%	259%	324%	84%

Table 35: **The area (spray-hectares) of peas and beans treated with pesticides in Northern Ireland, 1998-2006.**

	Survey Year					Differences between:			
	1998	2000	2002	2004	2006	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	314	138	302.7	676.7	19.0	-94%	-86%	-94%	-97%
Herbicides & desiccants	444	199	241.1	321.5	120.0	-73%	-40%	-50%	-63%
Insecticides									
Carbamates	*19*	*18.3*	*54.2*	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.
Organophosphates	*22*	.	.	.	.	.	.	.	.
Pyrethroids	*64*	.	*66.1*	*197.20*	*12.00*	-81%	.	-82%	-94%
Unknown insecticides	.	.	.	.	.	.	.	.	.
All insecticides	105	18.3	120.3	197.2	12.00	-89%	-34%	-90%	-94%
Molluscicides	.	.	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	.	.	.
Seed treatments	.	105	137.9	15.1	.	.	.	.	.
All pesticides	***863***	***459.9***	***802***	***1,210.5***	***151.0***	***-83%***	***-67%***	***-81%***	***-88%***
Area grown (ha)	199	273	197	212	83	-58%	-70%	-58%	-61%

Table 36: The quantity (tonnes) of pesticides applied to peas and beans in Northern Ireland, 1998-2006.

	Survey Year					Differences between:			
	1998	2000	2002	2004	2006	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	0.20	0.05	0.1055	0.540	0.009	-95%	-83%	-91%	-98%
Herbicides & desiccants	0.41	0.20	0.2545	0.197	0.098	-76%	-50.13%	-61%	-50%
Insecticides									
Carbamates	*0.003*	*0.005*	*0.003*	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.
Organophosphates	*0.002*	.	.	.	.	.	.	.	.
Pyrethroids	*0.001*	.	*0.0002*	*0.001*	*0.0001*	-89%	.	-50%	-90%
All insecticides	0.006	0.005	0.0032	0.001	0.0001	-98%	-98%	-97%	-90%
Molluscicides	.	.	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	.	.	.
Seed treatments	.	0.112	0.015	0.002	.	.	.	.	.
All pesticides	***0.614***	***0.367***	***0.3782***	***0.740***	***0.107***	***-83%***	***-71%***	***-72%***	***-86%***
Area grown (ha)	199	273	197	212	83	-58%	-70%	-58%	-61%

Table 37: **The area (spray-hectares) of set-aside treated with pesticides in Northern Ireland, 2000-2006.**

	Survey Year				Differences between		
	2000	2002	2004	2006	2006-00	2006-02	2006-04
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	.	.	.	.	.	.	
Herbicides & desiccants	912	1,395	657	650	-29%	-53%	-1%
Insecticides							
Carbamates	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.
Organophosphates	.	.	.	*12*	.	.	.
Pyrethroids	.	.	.	*13*	.	.	.
All insecticides	.	.	.	25	.	.	.
Molluscicides	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	.
Seed treatments	.	.	.	189	.	.	.
All pesticides	***912***	***1,395***	***657***	***864***	***-5%***	***-38%***	***31%***
Area grown (ha)	2,451	3,013	3,394	2,284	-7%	-24%	-33%

Table 38: **The quantity (tonnes) of pesticides applied to set-aside in Northern Ireland, 2000-2006.**

	Survey Year				Differences between		
	2000	2002	2004	2006	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	.	.	.	.	.	.	
Herbicides & desiccants	0.866	1.037	0.551	0.677	-22%	-35%	23%
Insecticides							
Carbamates	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.
Organophosphates	.	.	.	*0.009*	.	.	.
Pyrethroids	.	.	.	*0.0004*	.	.	.
All insecticides	.	.	.	0.0094	.	.	.
Molluscicides	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	.
Seed treatments	.	.	.	0.003	.	.	.
All pesticides	***0.866***	***1.037***	***0.551***	***0.6894***	***-20%***	***-34%***	***25%***
Area grown (ha)	2,451	3,013	3,394	2,284	-7%	-24%	-33%

Table 39: **The area (spray-hectares) of potato crops treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	68,384	68,178	72,369	64,727	75,933	.	66,810	52,149	45,397	-34%	-33%	-37%	-30%	-40%	.	-32%	-13%
Herbicides & desiccants	21,146	21,819	15,927	17,663	16,616	.	14,852	19,839	15,971	-24%	-27%	0%	-10%	-4%	.	8%	-19%
Insecticides																	
Carbamates	.	*23*	.	*28*	.	.	*357*	*473*	*30*	.	30%	.	7%	.	.	-92%	-94%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*308*	*28*	*88*	*612*	*123*	.	*125*	*365*	*55*	-82%	96%	-38%	-91%	-55%	.	-56%	-85%
Pyrethroids	*512*	.	.	*656*	*353*	.	*1,340*	*2,408*	*1,553*	203%	.	.	137%	340%	.	16%	-36%
Azomethine	.	.	.	.	.	.	.	*673*	*71*	.	.	.	.	.	.	.	.
Neonicotinoid	.	.	.	.	.	.	.	.	*96*	.	.	.	.	.	.	.	.
Mixed Formulation	.	.	.	.	.	.	.	*581*	*96*	.	.	.	.	.	.	.	.
Unknown insecticides	.	.	*14*	.	*20*	.	.	*66*	.	.	.	.	.		.	.	.
All insecticides	820	51	102	1,295	492	.	1,823	4,565	1,900	132%	3625%	1772%	47%	286%	.	4%	-58%
Molluscicides	.	.	.	195	472	.	1,581	114	930	.	.	.	377%	97%	.	-41%	716%
Mixed formulations	233	186	134	137	128	.	86	.	.	.	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	72	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	3,738	2,420	3,314	4,017	.	3,071	3,679	2,756	.	-26%	14%	-17%	-31%	.	-10%	-25%
All pesticides	***90,583***	***93,972***	***90,952***	***87,330***	***97,658***	***.***	***88,295***	***80,347***	***66,954***	***-26%***	***-29%***	***-26%***	***-23%***	***-31%***	***.***	***-24%***	***-17%***
Area grown (ha)	11,835	11,064	8,404	8,488	7,513	.	6,708	6,068	5,118	-57%	-54%	-39%	-40%	-32%	.	-24%	-16%

Table 40: **The quantity (tonnes) of pesticides applied to potato crops in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	82.07	83.28	76.00	69.41	67.43	.	69.90	51.33	46.93	-43%	-44%	-38%	-32%	-30%	.	-33%	-9%
Herbicides & desiccants	197.20	171.75	97.28	293.26	290.23	.	354.01	211.18	101.78	-48%	-41%	5%	-65%	-65%	.	-71%	-52%
Insecticides																	
Carbamates	.	*<0.01*	.	*<0.01*	.	.	0.05	*0.07*	*0.004*	.	.	.	.	.	.	-92%	-94%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.17*	*0.10*	*0.28*	*0.26*	0.12	.	0.02	*0.12*	*0.164*	-4%	64%	-41%	-37%	33%	.	931%	32%
Pyrethroids	*0.01*	.	.	*0.02*	*<0.01*	.	*0.01*	*0.01*	*0.006*	-40%	.	.	-70%	.	.	-28%	-40%
Azomethine	.	.	.	.	.	.	.	*0.102*	*0.005*	.	.	.	.	.	.	.	-95%
Neonicotinoid	.	.	.	.	.	.	.	.	*0.010*	.	.	.	.	.	.	.	.
Mixed Formulation	.	.	.	.	.	.	.	*0.051*	*0.015*	.	.	.	.	.	.	.	-71%
Unknown insecticides	.	.	.	.	.	.	.	*0.003*	.	.	.	.	.	.	.	.	.
All insecticides	0.17	0.10	0.28	0.28	0.13	.	0.08	0.36	0.20	20%	104%	-27%	-27%	57%	.	171%	-44%
Molluscicides	.	.	.	0.04	0.10	.	0.26	0.02	0.23	.	.	.	470%	133%	.	-13%	1325%
Mixed formulations	0.51	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.	.	.	.	.	.
Growth regulators	.	.	.	.	.	.	*0.17*	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	2.71	1.20	0.61	*1.99*	.	*1.22*	0.90	2.60	.	-4%	116%	327%	31%	.	114%	190%
All pesticides	***279.95***	***258.25***	***175.06***	***363.89***	***360.16***	***.***	***425.84***	***263.78***	***151.75***	***-46%***	***-41%***	***-13%***	***-58%***	***-58%***	***.***	***-64%***	***-42%***
Area grown (ha)	11,835	11,064	8,404	8,488	7,513	.	6,708	6,068	5,118	-57%	-54%	-39%	-40%	-32%	.	-24%	-16%

* Seed treatments not recorded

Table 41: **The area (spray-hectares) of seed potatoes treated with pesticides in Northern Ireland, 1990-2006.**

	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**	**sp ha**
Fungicides	18,326	18,603	16,465	13,462	14,242	.	9,219	10,226	5,618	-69%	-70%	-66%	-58%	-61%	.	-39%	-45%
Herbicides & desiccants	6,535	8,118	3,784	4,035	3,363	.	2,650	4,917	2,285	-65%	-72%	-40%	-43%	-32%	.	-14%	-54%
Insecticides																	
Carbamates	.	*23*	.	.	.	.	.	*365*	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	*18*	.	.	*26*	.	.	*365*	.	.	.	.	.	.	.	.	.
Pyrethroids	*501*	.	.	*586*	*205*	.	*16*	*406*	*931*	86%	.	.	59%	355%	.	5612%	129%
Neonicotinoid	.	.	.	.	.	.	.	.	*39*	.	.	.	.	.	.	.	
Mixed Formulations	.	.	.	.	.	.	.	*453*	*39*	.	.	.	.	.	.	.	-91%
All insecticides	501	41	8	586	230	.	*16*	1,589	1,008	101%	2359%	12823%	72%	338%	.	6084%	-37%
Molluscicides	.	.	.	.	66	.	*267*	.	77	.	.	.	.	.	.	.	.
Mixed formulations	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	2,039	744	1,065	882	.	512	1,224	303	.	-85%	-59%	-72%	-66%	.	-41%	-75%
All pesticides	***25,370***	***28,801***	***21,000***	***19,148***	***18,783***	***.***	***12,665***	***17,956***	***9,291***	***-63%***	***-68%***	***-56%***	***-51%***	***-51%***	***.***	***-27%***	***-48%***
Area grown (ha)	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	-78%	-79%	-55%	-58%	-52%	.	-38%	-34%

* Seed treatments not recorded

Table 42: **The quantity (tonnes) of pesticides applied to seed potatoes in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	22.92	24.82	15.24	13.45	14.29	.	9.08	8.79	6.16	-73%	-75%	-60%	-54%	-57%	.	-32%	-30%
Herbicides & desiccants	127.42	100.45	41.73	146.03	148.63	.	129.71	31.62	7.38	-94%	-93%	-82%	-95%	-95%	.	-94%	-77%
Insecticides																	
Carbamates	.	*<0.01*	.	.	.	.	.	*0.051*	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	*0.06*	.	.	*<0.01*	.	.	*0.124*	.	.	.	.	.	.	.	.	.
Pyrethroids	*0.01*	.	.	*0.02*	*<0.01*	.	*<0.01*	*0.002*	*0.004*	-60%	.	.	-80%	.	.	3900%	100%
Neonicotinoid	.	.	.	.	.	.	.	.	*0.004*	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	*0.04*	*0.006*	.	.	.	.	.	.	.	.
All insecticides	0.01	0.06	0.03	0.02	0.01	.	<0.01	0.22	0.014	40%	-77%	-47%	-30%	39%	.	13900%	-93%
Molluscicides	.	.	.	.	0.01	.	0.04	.	0.02	.	.	.	.	17%	.	-61%	.
Mixed formulations	0.02	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	1.97	0.30	0.21	0.74	.	0.08	0.41	0.11	.	-95%	-65%	-50%	-86%	.	37%	-74%
All pesticides	***150.37***	***127.30***	***57.30***	***159.70***	***163.68***	***.***	***138.91***	***41.04***	***13.67***	***-91%***	***-89%***	***-76%***	***-91%***	***-92%***	***.***	***-90%***	***-67%***
Area grown (ha)	3,509	3,688	1,678	1,798	1,607	.	1,239	1,148	763	-78%	-79%	-55%	-58%	-52%	.	-38%	-34%

* Seed treatments not recorded

Table 43: **The area (spray-hectares) of early potatoes treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	2,037	3,250	3,706	3,089	1,693	.	5,561	2,116	2,080	2%	-36%	-44%	-33%	23%	.	-63%	-2%
Herbicides & desiccants	849	1,304	835	1,312	618	.	1,520	841	1,124	32%	-14%	35%	-14%	82%	.	-26%	34%
Insecticides																	
Carbamates	.	.	.	*28*	.	.	.	*87*	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	.	.	.	*63*	*66*	.	*24*	.	*25*	.	.	.	-60%	-62%	.	2%	.
Pyrethroids	.	.	.	.	*39*	.	*173*	*150*	.	.	.	.	.	.	.	.	.
Unknown insecticide	.	.	.	.	*2.2*	.	.	.	.	.	.	.	.	.	.	.	.
Azomethine	.	.	.	.	.	.	.	*30*	.	.	.	.	.	.	.	.	.
All insecticides	.	.	.	90	107	.	197	267	25	.	.	.	-72%	-77%	.	-87%	-91%
Molluscicides	.	.	.	.	10	.	206	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	360	130	303	154	.	481	212	147	.	-59%	13%	-51%	-5%	.	-69%	-31%
All pesticides	***2,886***	***4,914***	***4,672***	***4,794***	***2,582***	.	***7,966***	***3,436***	***3,376***	***17%***	***-31%***	***-28%***	***-30%***	***31%***	.	***-58%***	***-2%***
Area grown (ha)	463	836	813	729	391	.	728	403	370	-20%	-56%	-54%	-49%	-5%	.	-49%	-8%

* Seed treatments not recorded

Table 44: **The quantity (tonnes) of pesticides applied to early potatoes in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	2.54	4.11	4.46	3.85	2.07	.	5.48	2.43	1.99	-21%	-51%	-55%	-48%	-4%	.	-64%	-18%
Herbicides & desiccants	0.51	3.09	0.55	4.05	1.73	.	32.56	24.26	1.70	234%	-45%	211%	-58%	-2%	.	-95%	-93%
Insecticides																	
Carbamates	.	.	.	*< 0.1*	.	.	*<.01*	*0.012*	.	.	.	.	.	.	.	.	.
Organochlorines	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
Organophosphates	.	.	.	*0.02*	*0.08*	.	*0.01*	.	*0.074*	.	.	.	270%	-11%	.	802%	.
Pyrethroids	.	.	.	.	.	.	.	*0.001*	.	.	.	.	.	.	.	.	.
Azomethine	.	.	.	.	.	.	.	*0.005*	.	.	.	.	.	.	.	.	.
All insecticides	.	.	.	0.02	0.08	.	0.01	0.02	0.074	.	.	.	270%	-11%	.	713%	335%
Molluscicides	.	.	.	.	0.002	.	0.038	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	0.20	0.04	0.05	0.03	.	0.11	0.02	0.01	.	-94%	-71%	-76%	-60%	.	-89%	-20%
All pesticides	***3.05***	***7.40***	***5.05***	***7.96***	***3.92***	***.***	***38.21***	***26.72***	***3.78***	***24%***	***-49%***	***-25%***	***-52%***	***-3%***	***.***	***-90%***	***-86%***
Area grown (ha)	463	836	813	729	391	.	728	403	*370*	-20%	-56%	-54%	-49%	-5%	.	-49%	-8%

Table 45: **The area (spray-hectares) of maincrop potatoes treated with pesticides in Northern Ireland, 1990-2006.**

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha	sp ha
Fungicides	48,021	46,325	52,198	48,176	59,998	.	52,030	39,807	37,699	-21%	-19%	-28%	-22%	-37%	.	-28%	-5%
Herbicides & desiccants	13,762	12,397	11,309	12,316	12,635	.	10,682	14,081	12,562	-9%	1%	11%	2%	-1%	.	18%	-11%
Insecticides																	
Carbamates	.	.	.	.	.	.	*357.4*	*20*	*30*	.	.	.	.	.	.	-92%	50%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*308*	*10*	.	*549*	*32*	.	*101*	.	*30*	-90%	200%	.	-95%	-5%	.	-70%	.
Pyrethroids	*11*	.	.	*70*	*110*	.	*1151*	*1852*	*622*	5555%	.	.	789%	466%	.	-46%	-66%
Azomethine	.	.	.	.	.	.	.	*642*	*71*	.	.	.	.	.	.	.	-89%
Neonicotinoid	.	.	.	.	.	.	.	.	*57*	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	*128*	*57*	.	.	.	.	.	.	.	-55%
Unkown insecticide	.	.	.	.	.	.	.	*66*	.	.	.	.	.	.	.	.	.
All insecticides	319	10	94	619	155	.	1609	2,709	867	172%	8570%	825%	40%	459%	.	-46%	-68%
Molluscicides	.	.	.	195	396	.	1,108	114	853	.	.	.	337%	116%	.	-23%	648%
Growth regulators	.	.	.	.	.	.	72	.	.	.	.	.	.	.	.	.	.
Mixed formulations	225	186	134	137	128	.	86	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	1,339	1,546	1,945	2,980	.	2,078	2,243	2,306	.	72%	49%	19%	-23%	.	11%	3%
All pesticides	***62,328***	***60,257***	***65,280***	***63,388***	***76,292***	**.**	***67,664***	***58,955***	***54,287***	***-13%***	***-10%***	***-17%***	***-14%***	***-29%***	**.**	***-20%***	***-8%***
Area grown (ha)	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	-49%	-39%	-33%	-33%	-28%	.	-16%	-12%

Table 46:The quantity (tonnes) of pesticides applied to maincrop potatoes in Northern Ireland, 1990-2006..

	Survey Year									Differences between:							
	1990	1992	1994	1996	1998	2000	2002	2004	2006	2006-90	2006-92	2006-94	2006-96	2006-98	2006-00	2006-02	2006-04
Pesticide type	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
Fungicides	56.61	54.36	56.29	52.11	51.07	.	55.34	40.10	38.78	-31%	-29%	-31%	-26%	-24%	.	-30%	-3%
Herbicides & desiccants	69.27	68.21	55.01	143.18	139.86	.	191.80	155.30	92.70	34%	36%	69%	-35%	-34%	.	-52%	-40%
Insecticides																	
Carbamates	.	.	.	.	.	.	*0.05*	*0.003*	*0.004*	.	.	.	.		.	-92%	33%
Organochlorines	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Organophosphates	*0.17*	*0.03*	.	*0.24*	*0.03*	.	*0.01*	.	*0.09*	-47%	200%	.	-63%	165%	.	1069%	.
Pyrethroids	*< 0.01*	.	.	*< 0.01*	*<0.01*	.	*<0.01*	*0.01*	*0.002*	-78%	.	.	-78%	-78%	.	-78%	-83%
Azomethines	.	.	.	.	.	.	.	*0.097*	*0.005*	.	.	.	.	.	.	.	-95%
Neonicotinoid	.	.	.	.	.	.	.	.	*0.006*	.	.	.	.	.	.	.	.
Mixed Formulations	.	.	.	.	.	.	.	*0.014*	*0.009*	.	.	.	.	.	.	.	-36%
Unknown Insecticide	.	.	.	.	.	.	.	*0.003*	.	.	.	.	.	.	.	.	.
All insecticides	0.17	0.03	0.25	0.24	0.04	.	0.07	0.13	0.116	-32%	287%	-54%	-52%	218%	.	76%	-11%
Molluscicides	.	.	.	0.04	0.08	.	0.18	0.02	0.21	.	.	.	428%	159%	.	17%	1219%
Growth regulators	.	.	.	.	.	.	0.1721	.	.	.	.	.	.	.	.	.	.
Mixed formulations	0.50	0.41	0.29	0.30	0.28	.	0.13	.	.	.	.	.	.	.	.	.	.
Seed treatments	*	0.54	0.86	0.36	1.22	.	.	0.48	2.49	.	361%	188%	591%	103%	.	.	424%
All pesticides	***126.55***	***123.55***	***112.71***	***196.23***	***192.56***	.	***248.72***	***196.03***	***134.30***	***6%***	***9%***	***19%***	***-32%***	***-30%***	.	***-46%***	***-31%***
Area grown (ha)	7,863	6,540	5,913	5,961	5,515	.	4,741	4,517	3,984	-49%	-39%	-33%	-33%	-28%	.	-16%	-12%

Table 47: Estimated quantity (tonnes) of potato crops stored regionally in Northern Ireland, 2006.

Location of holding	Ware potatoes	Seed potatoes	All potatoes
Antrim	32,415	6,495	38,910
Armagh	4,115	71	4,186
Down	19,793	8,502	28,296
Londonderry	32,978	7,349	40,326
Tyrone	3,612	2,224	5,836
Northern Ireland	***92,914***	***24,640***	***117,554***

Table 48: Estimated quantity (treated tonnes) of potatoes stored regionally in Northern Ireland, 2006.

Location of holding	Seed potatoes	Total quantity treated (tt)
Down	76	76
Northern Ireland	***76***	***76***

Table 49: The weight of pesticides (kilograms) applied regionally to potatoes stored in Northern Ireland, 2006.

Location of holding	Seed potatoes	Total quantity (kg)
Down	0.76	0.76
Northern Ireland	***0.76***	***0.76***

Table 50: Estimated quantity (treated tonnes) of potatoes in storage receiving pesticide treatment in Northern Ireland, 2006.

Active ingredients	Seed potatoes	Total quantity treated (tt)
Imazalil	76	76
All pesticides	***76***	***76***

Table 51: **Weight (kg) of active ingredients applied to stored potatoes in Northern Ireland, 2006 (weighted).**

Active ingredients	Seed potatoes	Total
Imazalil	0.76	0.76
All pesticides	***0.76***	***0.76***

Table 52: **The active ingredients applied to stored potatoes in Northern Ireland in 2006, prioritized by weight (kilograms).**

	Active ingredients	Quantity used (kg)
1	Imazalil	0.76

Table 53: **Type of storage building, storage method, potato type and quantity (tonnes) of potatoes stored in Northern Ireland, 2006.**

Type of storage building	Ware potatoes	Seed potatoes	Total
Barn store			
Boxed	14,112	2,716	16,829
Bulk	11,353	1,208	12,561
Unknown	1,472	.	1,472
All barn stores	***26,937***	***3,924***	***30,861***
Modified Barn			
Boxed	3,283	.	3,283
Bulk	915	.	915
All modified barns	***4,198***	***.***	***4,198***
Purpose built ventilated store			
Boxed	29,958	7,883	37,842
Bulk	7,057	4,099	11,156
Unknown	.	967	967
All purpose built ventilated stores	***37,015***	***12,949***	***49,964***
Refrigerated store			
Boxed	24,764	7,630	32,393
All refrigerated stores	***24,764***	***7,630***	***32,393***
Unspecified			
Unknown	.	137	137
All unspecified stores	***.***	***137***	***137***
Total	**92,914**	**24,640**	**117,554**

Table 54: **Type of storage method, potato type and total quantity (tonnes) of potatoes stored in Northern Ireland, 2006.**

Type of storage method	Ware potatoes	Seed potatoes	Total
Boxed	72,117	18,229	90,346
Bulk	19,325	5,306	24,631
Unknown	1,472	1,104	2,576
Total	***92,914***	***24,640***	***117,554***

Table 55: Comparison of ware potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2006.

	Ware potatoes							Difference between:					
	1992	1994	1996	1998	2002	2004	2006	2006-92	2006-94	2006-96	2006-98	2006-02	2006-04
Quantity stored (t)	139,570	84,868	135,933	112,675	44,322	122,348	92,914	-33%	9%	-32%	-18%	110%	-24%
Quantity treated (tt)	16,289	11,630	19,022	5,899	9,024	3,099	.	.	.	.	.	.	.
Quantity of pesticides (kg)	1,998	1,001	750	227	439	148	.	.	.	.	.	.	.
Quantity untreated (t)	123,281	73,238	116,910	106,777	35,298	119,249	92,914	-25%	27%	-21%	-13%	163%	-22%

Table 56: Comparison of seed potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2006.

	Seed potatoes							Difference between:					
	1992	1994	1996	1998	2002	2004	2006	2006-92	2006-94	2006-96	2006-98	2006-02	2006-04
Quantity stored (t)	33,420	24,238	39,290	39,809	16,032	33,321	24,640	-26%	2%	-37%	-38%	54%	-26%
Quantity treated (tt)	7,536	14,950	12,915	5,628	4,029	673	76	-99%	-99%	-99%	-99%	-98%	-89%
Quantity of pesticides (kg)	1,052	851	480	896	48	5	0.76	-100%	-100%	-100%	-100%	-98%	-86%
Quantity untreated (t)	27,033	9,288	26,652	34,181	12,003	32,648	24,564	-9%	164%	-8%	-28%	105%	-25%

Table 57: Comparison of reserved potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2006.

	Reserved potatoes							Difference between:					
	1992	1994	1996	1998	2002	2004	2006	2006-92	2006-94	2006-96	2006-98	2006-02	2006-04
Quantity stored (t)	.	.	15,169	10,123	.	.	.	.	.	.	.	.	.
Quantity treated (tt)	.	.	6,705	2,524	.	.	.	.	.	.	.	.	.
Quantity of pesticides (kg)	.	.	375	121	.	.	.	.	.	.	.	.	.
Quantity untreated (t)	.	.	8,464	7,599	.	.	.	.	.	.	.	.	.

Table 58: Comparison of all potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2006.

	All potatoes							Difference between:					
	1992	1994	1996	1998	2002	2004	2006	2006-92	2006-94	2006-96	2006-98	2006-02	2006-04
Quantity stored (t)	191,019	119,447	190,392	162,608	60,353	155,669	117,554	-38%	-2%	-38%	-28%	95%	-24%
Quantity treated (tt)	23,825	26,580	38,624	14,051	13,053	3,772	76	-100%	-100%	-100%	-99%	-99%	-98%
Quantity of pesticides (kg)	3,050	1,852	1,605	1,245	488	154	0.76	-100%	-100%	-100%	-100%	-100%	-100%
Quantity untreated (t)	168,344	92,868	152,027	148,557	47,300	151,897	117,478	-30%	26%	-23%	-21%	148%	-23%

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