FAPRI-Ireland Partnership

The Luxembourg CAP Reform Agreement:

Analysis of the Impact on EU and Irish Agriculture

Teagasc Rural Economy Research Centre

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- Teagasc
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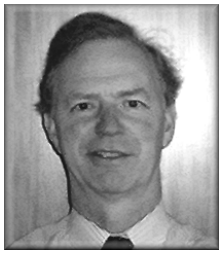

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Preface

This publication supplements a number of studies published by FAPRI-Ireland over the last 12 months relating to the reform of the Common Agricultural Policy. The report is produced in conjunction with our partners in the Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri in the USA.

The background to the report is the 2003 Baseline outlook produced by FAPRI-Ireland in May 2003. This is used to produce a ten-year 'Baseline' projection for the main agricultural producing countries or regions of the world. The EU GOLD (grains, oilseeds, livestock and dairy) model is used to examine the effects of agricultural policy change for various EU Member States including Ireland. It is linked to the FAPRI world modelling system and so takes account of and contributes to, the projections for prices obtained and quantities traded on world markets.

Although the 'Baseline' represents a projection of commodity prices, production and quantities traded, readers should note that these projections of the future are not the main aim of the FAPRI system. The main purpose of the FAPRI system and the FAPRI-Ireland Partnership is the analysis of policy measures, either proposed or actual, and the quantitative measurement of the effects of policy and market changes *relative to the Baseline*. The Baseline projections allow us to highlight key medium term market developments and draw some conclusions about future policy developments and their likely impact on Irish agriculture.

The Mid-Term Review (MTR) of the CAP, agreed in Luxembourg on June 26th 2003 and the Doha Round of the WTO form the basis of the scenario that is examined in this report by our team of economists.

A number of options existing within the Luxembourg Agreement are examined in the scenarios. These policy options principally affect the beef and sheep sectors with more minor consequences for other sectors.

The projections in this publication are not 'forecasts' or 'predictions'. They are projections made by applying a well defined set of assumptions to our commodity models. These models have been designed based on our knowledge of the economics of major commodity markets. For an indication of the world Baseline see the FAPRI-Ireland Outlook 2003 publication.[1]

Acknowledgements

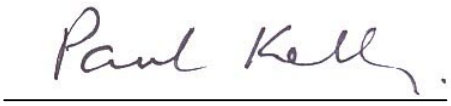
The FAPRI-Ireland Partnership has benefited financially from funds from the National Development Plan and the International Fund for Ireland.

The development of the Baseline and scenarios for the analyses contained in this publication has benefited from the input of a large number of civil servants and industry professionals. In particular we would like to thank staff at the Teagasc Rural Economy Research Centre and the Department of Agriculture and Food.

Thanks are also due to Teagasc staff at the Grange, Oakpark, Moorepark, Athenry and Johnstown Castle Research Centres; Teagasc advisory staff; the Irish Dairy Board, An Bord Bia, the Irish Cattle and Sheep Association, (ICSA), the Irish Creamery Milk Suppliers Association, (ICMSA), the Irish Co-operative Organisation Society, (ICOS), the Irish Farmers Association, (IFA) and the Irish Grain and Feed Association (IGFA). We also thank our colleagues at the University of Dublin (Trinity College, TCD) and the National University of Ireland at Cork (UCC), Dublin (UCD), Galway, (UCG) and Maynooth.

[1] Outlook 2003: Medium Term Analysis for the Agri-Food Sector. Teagasc, Dublin

The work on which this outlook publication is based would not have been possible without the substantial and sustained contributions of Julian Binfield and Patrick Westhoff of FAPRI-Missouri. Thanks also to Robert Young, formerly of FAPRI-Missouri and now with the US Farm Bureau. Without his efforts in developing the FAPRI-Ireland Partnership this research would not have been possible. This research has also benefited from co-operation with our partners at The Queen's University Belfast, who work on a similar project.



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Executive Summary

Baseline and Scenarios

This report provides analysis of the prospects for the agricultural and food sectors over the period to 2012. As its start point it uses the 'Baseline' (i.e. no policy change) projection for the major agricultural markets which was produced by FAPRI-Ireland in May 2003.[2] A number of policy reform scenarios are analysed against this Baseline.

The scenarios that are examined relative to the Baseline are based on:

- The Council of Ministers June 2003 Luxembourg Agreement on CAP reform (including a number of the decoupling options available to Member States)
- the European Union's Proposals for Modalities in the WTO Agriculture Negotiations

All values presented in this executive summary are presented in **nominal** terms. Inflation should be taken into account when measuring future income levels relative to existing income levels. However, a comparison of the outcome of different policy options relative to a Baseline at a point in the future (2012 for example) can be done in either nominal or real terms. Inflation will be the same under both the Baseline and the scenario. It follows that in comparing two policy outcomes, a higher level of income under one option in nominal terms will also represent a higher income level in real terms compared with the other policy option.

The Baseline and Luxembourg CAP Agreement: Details of the Policies Analysed

- The agricultural policy assumptions in the Baseline are:
  - That Agenda 2000 remains in place to 2012, i.e. the Mid-Term Review does not happen
  - The Uruguay Agreement on Agriculture (URAA) remains in place, i.e. no Doha round
  - Milk Quotas remain in place, and continue to operate beyond 2008
  - The Over Thirty Months Scheme for cattle slaughter and destruction in the UK is phased out between 2004 and 2006

- As well as examining policy changes made in the Luxembourg Agreement with respect to dairy reform, the report's main focus is on the Member State decoupling options that exist in the case of other sectors such as beef, sheep, and cereals. Freedom to implement policies at Member State level multiplies greatly the total number of policy choices that may be made.

  Member States have until August 2004 to inform the EU Commission of their choice, so we do not yet know what the preferred policy options will be. It is important to remember that for Ireland the outcome of the policy choice made is dependent to a degree on the options selected elsewhere in the EU. To make the analysis and its interpretation feasible, three policy scenarios are examined in this report. The options are designed to place a band around the outcomes within which other policy scenarios would lie. The scenarios examined are:

[2] For a detailed discussion of the World Baseline outlook see Westhoff, Young and Binfield (2003)

- Full decoupling of all beef payments, ewe premiums and arable aid payments across all Member States in the EU15. In this report this scenario is referred to as MAX Decoupling.

- Partial decoupling of the slaughter premium, suckler cow premium, ewe premiums and arable aid payments across all Member States in the EU15. In this report this scenario is referred to as MIN Decoupling.

- Full decoupling of beef payments in **14** EU Member States. Full coupling of the slaughter premium in Ireland with all other beef payments decoupled in Ireland. Sheep policy and crops and oilseeds payments in all 15 EU Member States as per the MAX scenario. In this report this scenario is referred to as MAX* decoupling.

- In all three scenarios the EU Proposal for Modalities in the WTO Agriculture Negotiations is implemented.

- The proposal on WTO reform which the EU has made consists of a

  - 36 percent reduction in import tariffs
  - 45 percent reduction in export subsidy expenditures
  - 55 percent reduction in the 'Aggregate Measure of Support' to agriculture
  - All to take place between 2006 and 2012.

- The UK Over Thirty Months Scheme is phased out as in the Baseline.

- Relative to the Baseline, the scenarios are assumed to be neutral in their effect on total Rural Environmental Protection Scheme (REPS) payments to the farm sector. In other words, the Baseline and Scenarios are designed such that none of the difference between Baseline and Scenario agricultural income levels reported here is attributable to REPS.

The Luxembourg CAP Agreement: Implications for EU and Irish Agriculture

Baseline results are the same as those contained in the FAPRI-Ireland analysis of May 2003. These are summarised on a sector by sector basis along with the results of the scenarios. The sector level summaries are followed by a summary of the farm level effects

Milk Sector

- Under the Baseline, by 2012, dairy product prices are projected to decline by 7 percent for cheese, by 22 percent for butter, and by 18 percent for skimmed milk powder (SMP) relative to the average of 2000 to 2002. Cheese production in Ireland is projected to approach 130,000 tonnes per year by 2012. These developments lead to a reduction in the Irish farm milk price of 15 percent by 2012 from the average of 2000 to 2002. A farm level Irish milk price of € 23.10 per 100kg (89p per gallon) by 2012 is projected under the Baseline.
- Under the scenario, the reduction in support prices brought about by the MTR Luxembourg Agreement will lead to reductions in the EU prices for cheese, butter and SMP of 4 percent, 8 percent and 1 percent respectively relative to their respective Baseline levels in 2012.
- Reductions in export subsidy expenditure limits under the EU WTO proposals would constrain EU subsidised exports for cheese and 'other' dairy products by 2012 and this would lead to slight further downward pressure on EU dairy product prices and farm milk prices.
- By 2012 under each of the reform scenarios, the Irish farm level milk price is projected to decline by 5.5 percent relative the level projected to arise with continuation of current (Agenda 2000) policy. Under the Luxembourg Agreement the Irish farm level milk price is projected to reach a level of approximately €22 per 100kg (84p per gallon VAT inclusive) by 2012.
- Decoupled compensation, rising to 16 cent per litre is available for the reduction in milk price.

Beef Sector

- The results for the beef sector at both EU and Irish levels are strongly influenced by the degree to which direct payments are decoupled from production.
- Even with a 36 per cent reduction of EU import tariffs (as proposed in the EU WTO modalities proposal) EU tariffs remain sufficiently high to give almost the same level of protection to the EU beef market. The reductions in the aggregate measure of support (AMS) for agriculture that are contained in the EU WTO proposals do not have an effect, if the MTR is implemented.
- Under the Baseline, by 2012, declines of 4 percent in EU beef prices, 2 percent in suckler cow numbers, 3 percent in beef production, and 16 percent in beef exports are projected. Increases of 30 percent in EU beef imports (from a low base) are projected. The EU is projected to become a net importer of beef in 2007.
- For Ireland, under the Baseline, nominal cattle prices in 2012 are projected to show little change from 2002, suckler cow numbers are projected to decline by 6 percent. Beef production will stay steady after recovering by 4 percent from the low levels caused by BSE and FMD. Beef exports are projected to increase by 7 percent over 2002 by 2012.
- Suckler cow numbers in the EU are projected to decline by about 10 percent relative to the Baseline by 2007 when in all EU member states all direct payments are decoupled to the fullest extent (MAX) and when Ireland retains the link between production and receipt of the slaughter premium (MAX*). This decline in suckler cow numbers that arises with decoupling is not reversed and ending stocks of cows remain at these new lower levels. The decline in the suckler cow herd will be largest in Ireland and the UK as producers in these countries depend most on the direct payments, which, under the MTR will not require the farmer to have an animal in order to claim them.
- Under the scenario in which direct payments are decoupled to the least extent possible under the Luxembourg Agreement (MIN), the reduction in EU suckler cow numbers relative to the Baseline is just 3 percent by 2012. The continued coupling of the suckler cow premium largely maintains the suckler cow herd at close to Baseline levels.
- Under the full decoupling scenarios an initial increase in the slaughtering of cows by EU producers who were previously making a market loss but were keeping the animals in order to claim direct payments leads to a transitory increase in the supply of beef. This increase in the supply of beef leads to an initial fall in EU cattle prices of about 5 percent under the maximum decoupling scenarios.

  After these suckler cows have been slaughtered, with a lower reproductive stock, the supply of calves and ultimately the supply of cattle to the market will have been reduced and the beef price is projected to rise. Relative to the 2012 Baseline level, the beef price will increase to about 9 percent under the maximum decoupling scenario and by 8 percent under the scenario where Ireland alone retains the link between the slaughter premium and production.

  Under the minimum decoupling scenario the smaller reduction in EU suckler cow numbers leads to smaller changes in beef production than under the maximum decoupling scenarios. Ultimately, beef prices increase by just 3 percent relative to the Baseline in 2012.
- In Ireland, under the maximum decoupling scenario (MAX) and the scenario where Ireland retains the link between production and the slaughter premium and all other member states fully decouple (MAX*), the Irish suckler cow herd declines by approximately 18 percent and 14 percent relative to the Baseline by 2012. The projected declines in Irish suckler cow numbers are reflected in projected declines in Irish beef production declines of approximately 7 percent and 6 percent respectively by 2012. In the minimum decoupling scenario suckler cow numbers decline by 3 percent relative to the 2012 Baseline.
- Under the two maximum decoupling scenarios Irish cattle prices are projected to rise relative to the Baseline by 10 percent and 9 percent respectively. This projected increase in price relative to the Baseline (Agenda 2000) level arise from the reduced beef supplies that follow from the reduction in the EU suckler cow herd. The 2012 Irish cattle price, under full decoupling, is projected to be approximately 123 euro per 100kg. The cattle price changes are more modest under the minimum decoupling scenario (116euro per 100kg in 2012, +3 percent) reflecting the smaller change in output.

Outputs, Inputs and Sectoral Income

- Relative to the average of 2000 to 2002, by 2012 there is a decline in livestock value of 6 percent under the Baseline, a decline in milk value of 14 percent, and a decline in crop value. This leads to an overall decline in goods value of 8 percent.

- Compared to the Baseline level in 2012, the value of the cattle sector declines by less than 1 percent under the full decoupling scenario (MAX). Under the scenario where Ireland retains the link between production and the slaughter premium (MAX*) and the scenario where the direct payments are decoupled to the smallest extent allowable under the Luxembourg Agreement (MIN) the value of the cattle sector increases slightly. The value of the dairy sector, under all three scenarios, declines by approximately 5 percent. The value of the cereals sector declines under the maximum decoupling scenario by approximately 4 percent. Overall the value of goods output from agriculture declines by over 1 percent under the full decoupling scenario.

- On the inputs side, relative to the 2000 to 2002 period, Baseline input expenditures increase by 3 percent by 2012. Under the two maximum decoupling scenarios (MAX and MAX*), input expenditures decrease by 8 percent and 7 percent respectively relative to the Baseline in 2012. Reductions in expenditure in the scenario where direct payments are decoupled to the least extent (the MIN scenario) are smaller (down 1 percent relative to the 2012 Baseline) since the level of agricultural activity is closer to Baseline levels.

- Changes in the values of outputs and input mean that under the Baseline between 2000-2002 and 2012, sectoral income is projected to declines by 9 percent. Under the two maximum decoupling scenarios, income levels in 2012 are higher than in the corresponding Baseline period due, in the main, to the reduction in overall input expenditure. Consequently, in 2012 nominal income levels with full and almost full decoupling (the MAX and MAX* scenarios) remains close to the 2000-2002 level. In the minimum decoupling scenario, since reductions in input expenditure are more modest, income levels are closer to the Baseline level in 2012.

Dairy Decoupling Options: Farm Level Analysis

- Two decoupling options are analysed for the dairy sector. The first, DAIRY05 involves the decoupling of the dairy premium from 2005, while DAIRY08 involves decoupling from 2008.
- Structural change in the DAIRY05 scenario is more gradual than in the DAIRY08 scenario. Farmers exiting from production from 2005 onwards will retain their full decoupled payment and this encourages exits and retirements. In the DAIRY08 scenario, farmers must remain in production until 2008 to establish their payment. This causes stagnation in the restructuring scheme in DAIRY08.
- Due to more gradual rates of change, more farmers are retained in the DAIRY05 scenario. By 2012 it is projected that there will be 18,000 dairy farmers in the DAIRY05 scenario, with an average quota size of 65,000 gallons. In DAIRY08 16,000 farmers are projected with an average quota size of 77,000 gallons. Two thousand more farmers go out of business in DAIRY08 than in DAIRY05 because of the difficulty in acquiring quota during the period of stagnation up to 2008.
- With fewer farms, DAIRY08 produces higher average incomes for active dairy farms than DAIRY05. By 2012, farm incomes are projected to be almost 50 per cent higher than present levels in nominal terms. The income increase is slightly less in the DAIRY05 scenario, where the increase by 2012 is almost 40 per cent in nominal terms. This is a sufficient increase to offset the effect of inflation.

Beef Decoupling Options Farm Level Analysis

- The MAX or full decoupling scenario provides the highest Single Farm Payment because all payments are included in its calculation. For some farms, due to their activities in the reference period, the Single Farm Payment is lower in those scenarios where some link between production and the receipt of direct payment is maintained (the MAX* and MIN scenarios).
- In the scenario where the slaughter premium alone remains coupled (MAX*) 56 per cent of farmers have a lower Single Farm Payment than under the full decoupling scenario (MAX) while 81 per cent of farmers have a lower payment in the minimum decoupling scenario (MIN).
- The proportion of farmers experiencing a reduction in their Single Farm Payment in the scenarios where a link between direct payments and production remains (MAX* and MIN) varies substantially be system. For example, 71 per cent of 'cattle other' farms have a lower Single Farm Payment when the slaughter premium remains coupled than when all direct payments are fully decoupled. When compared with the full decoupling scenario (MAX) 98 per cent of cattle farmers have a lower Single Farm Payment in minimum decoupling scenario.
- Whichever of the partial decoupling scenarios (MAX* or MIN) is chosen, it is clear that particular groups of farms will be discriminated against by being compelled to retain animals in order to offset the reduction in their Single Farm Payment because of the coupling of certain payments to production.
- When the slaughter premium is coupled, significant proportions of its value are transmitted back into store and calf prices. Hence, certain farms will have windfall gains. These are farms that will not incur any reduction in their Single Farm Payment but will benefit from higher calf and store prices.
- The results of scenario in which all payments **except** the slaughter premium are decoupled are somewhat ambiguous. One in three farms experience less than a 5 per cent change in their income relative to the full decoupling scenario. However, over 40 per cent of cattle farmers have a 5 per cent or more increase in their income. The main losers are commercial farms with large profits. While only a small number of farms are worse off this still results in a substantial sum of money being redistributed across a large number of small farmers. In other words, there are more gainers than losers but on a per farm basis the loss is more substantial than the gain.

Greenhouse Gas emissions from Agriculture

- Irish Agriculture produces a sizable proportion of Irish Greenhouse Gas (GHG) emissions. Under the Kyoto protocol, Ireland is permitted to increase its GHG emissions across the whole economy by 13 percent relative to the 1990 level.
- Using the projections of agricultural activity already described, projected future GHG emissions from agriculture have been estimated under the Baseline and Scenarios.
- Under the Baseline, emissions of GHG's are projected to fall relative to current levels, as milk yields rise and dairy cow numbers decline. Lower number of drystock and lower fertiliser use also contribute to the reduction.
- Of the policy reform options examined, the MAX scenario results in the lowest level of GHG emissions from agriculture. Relative to the Baseline, emissions are projected to fall by 8 percent by 2012 under the MAX scenario. While not as large a decrease, a broadly similar level of reduction in GHG emissions is projected to be achieved under the MAX* option.
- The reduction in GHG emissions under the MIN scenario is not as substantial as under the MAX or MAX* scenarios since the level of reduction in agricultural activity in the MIN scenario is smaller. However GHG emissions under the MIN scenario are still lower than projected Baseline emissions levels.
- These reductions in GHG emissions from agriculture should ease the pressure to reduce emissions in other sectors of the economy in order to meet the Kyoto target.

1 The Luxembourg CAP Reform Agreement: Implications for EU and Irish Agriculture

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Some people change when they see the light, others when they feel the heat.
Caroline Schoeder

Introduction

The Agenda 2000 Berlin Agreement of March 1999 set out EU agriculture policy to 2006 subject to a review of its operation in 2003. This Mid Term Review (MTR) was subsequently brought forward to 2002. As part of the MTR, an initial communication from the Commission to the EU Council of Ministers was published in July 2002 (European Commission, 2002). This was followed by detailed legislative proposals for agriculture policy reform in January 2003 (European Commission, 2003).

On June 26th 2003 Agriculture Ministers from across the European Union (EU) reached a compromise on reform of the Common Agricultural Policy (CAP). The Luxembourg Agreement (Council of the European Union, 2003), as it has become known, provides the setting in which farming in the EU will take place over the next decade and beyond. The dominant feature of the Commission's proposals, and the final Council compromise agreement is the decoupling of agricultural income support payments from production.

This publication follows up two previous reports produced in advance of the Agreement by the FAPRI-Ireland Partnership[1] in January of 2003 (FAPRI-Ireland, 2003) and May of 2003 (Binfield et al., 2003). The results of the analysis presented here should be read in conjunction with these earlier reports.

FAPRI-Ireland produced this study and earlier reports in order to indicate the potential impact of the reforms on the agri-food sector in Ireland. The analysis is primarily intended to inform government, farm and food industry representative organisations and aid them in their future decision-making.

Contained within the details of the final agreement are a number of options, principally relating to the decoupling of policies within the beef sector. Preferred options will be decided upon and implemented at Member State level. At the time of writing (October 2003) it is unclear which options individual Member States will select. In this report we examine a number of decoupling possibilities that might emerge and look at the consequences for the Irish agricultural sector. The projected effects of the other elements of the reform package are also reported.

The impact of the reform is measured against the May 2003 Baseline (no policy change) simulation of the FAPRI-Ireland modelling system (Binfield et al., 2003). The Baseline simulation is a view of the world where policies remain unchanged. It is generated in order to evaluate the policy change scenarios. It provides the results of the model under assumptions of current policy, normal weather, and external macroeconomic projections. It should not be interpreted as a forecast. Developments on agricultural markets since May 2003 that have arisen due, *inter alia*, to the drought in continental Europe were not anticipated in April of 2003 and are not part of the Baseline, this should be recalled when examining the projections.

In the report we also factor in the terms of the EU submission to the Doha WTO trade negotiations. A compromise in these negotiations has yet to be reached and despite the WTO failure in Cancun, it is possible that a more fundamental agreement on agriculture trade reform could yet emerge from the Doha Round. The consequences of the Luxembourg CAP Agreement will be influenced by the terms

[1] The FAPRI-Ireland Partnership is a joint venture between the Food and Agriculture Policy Research Institute at the University of Missouri, Teagasc - The Irish Agriculture and Food Development Authority and the Irish Universities

of the eventual Doha WTO agreement. It is intended to return to this topic when more information on the outcome of the ongoing WTO negotiations is available.

1.1 Motivation for the Luxembourg Agreement CAP reforms

The European Commission's stated position is that it remains committed to the support of the EU agriculture sector. However, it is also challenged in meeting this objective by the following concerns:

- the requirement to incorporate 10 new Member States into the EU within the constraint of a limited agriculture budget
- the necessity to meet growing consumer expectations with regard to environmental, food quality and animal welfare standards and the desire to make production more market and consumer focused and less dependent on intervention
- the goal of increasing the proportion of budgetary spending on rural development initiatives as opposed to commodity price supports
- the obligation to tailor EU agriculture policy in a way that will allow the optimal outcome for the EU from future WTO agriculture negotiations

In the face of EU expansionary pressures, a fixed budget, increasing consumer awareness and external political factors, the Commission argued that existing EU agricultural policies would not deliver the best outcome for those involved in farming. These are the forces which shaped the terms of the ultimate agreement.

1.2 Detail of the Luxembourg Agreement Reforms and Related Assumptions

The policy reforms examined in this report are those described in the Presidency compromise document (Council of the European Union, 2003). Unspecified detail in these documents has been clarified through contact with the Commission via the Department of Agriculture and Food (DAF). The legal texts of the Agreement had yet to be produced at the time the analysis was finalised (September 2003).

Given the limited time and other resources available for this study, it would not be possible to examine each and every policy option specified in the Agreement. Particularly in the case of beef, the scope for implementation of preferred options at Member State level means that the number of possible policy permutations that could operate across the EU is a very large multiple of the number of options described in the Agreement.

To make the analysis and the interpretation of the results manageable, it was decided in conjunction with DAF, that the scenarios to be investigated would include a number of the more likely beef options. The options chosen have the advantage that the results derived should present an upper and lower bound within which the outcomes of other possible policy permutations would lie. The policy options selected for examination in this report are:

- Full decoupling of all beef payments, ewe premiums and arable aid payments across all Member States in the EU15 (MAX Decoupling).
- Partial decoupling of the slaughter premium, suckler cow premium, ewe premiums and arable aid payments across all Member States in the EU15 (MIN Decoupling).
- Full Decoupling of beef direct payments in 14 EU Member States. Full coupling of the slaughter premium in Ireland with all other beef direct payments decoupled in Ireland. Sheep policy and crops and oilseeds policies in all 15 EU Member States as per the MAX scenario (MAX* Decoupling).

The key features of the Luxembourg Agreement are summarised below in Box 1-1.[2]

[2] For a more detailed description see Council of the European Union (2003).

Box 1-1: The Luxembourg Agreement

The proposals that were contained in the Luxembourg Agreement are not dissimilar to those in the legislative reform proposals of January 2003. The biggest change is the inclusion of a number of options that are to be decided upon and implemented at Member State level in the beef sector.

Decoupling:
From January 2005, or January 2007 at the latest, the decoupled or partially decoupled single farm payment is to be introduced. The basis for the decoupled payments is the average for the three years 2000, 2001 and 2002 for crops, beef and sheep payments.

Beef: Full decoupling of beef payments is one of a number of options that are available at Member State level. The other two options are to:

- retain up to 100% of the suckler cow premium and retain up to 40% of the slaughter premium
- retain either up to 100% of the slaughter premium **or alternatively** retain up to 75% of the special male premium

Sheep: Apart from full decoupling the option available is:

- continue up to 50% of the ewe premium in less favoured areas.

Crops: The intervention price for cereals remains unchanged. Intervention for rye is abolished. Apart from full decoupling the options are to either:

- retain up to 25% the of single farm payment in coupled form
  or
- retain up to 40% of the durum wheat payment in coupled form

Dairy: The new dairy payment will not be part of the single farm payment immediately. This payment remains coupled to production until 2007 when it becomes part of the 'single farm payment'.

- The quota system is retained until 2014/15. A 1.2% EU quota increase goes ahead as outlined in Agenda 2000. No further increases in milk quota are agreed.
- From 2004 intervention prices are reduced on a phased basis by 25 per cent for butter (over four years) and 15 percent for skimmed milk powder (over three years). The target price for milk is abolished.
- Compensation is fixed as follows: EUR 11.81/tonne in 2004, EUR 23.65 in 2005 and EUR 35.5 from 2006 onwards. There will be a gradual phasing in of a 30,000 tonne annual limit on butter intervention purchases before tendering, starting from 2004 at 70,000 tonnes and reaching 30,000 tonnes (in 10,000 tonnes annual reductions) by 2008.

Key Horizontal Measures

Cross-Compliance: In order to continue to receive the 'single farm payment' payment producers must meet a series of European standards in terms of the environment, food safety and animal health and welfare. In addition the producer must maintain land in "good agricultural condition".

Modulation: Begins in 2005 with a cut of 3% in the single farm payment, rising to 5% from 2007 onwards. The first 5,000 euro in payments per farmer is exempt each year.

Financial discipline *(degressivity):* From 2007 onward if direct payments are projected to overshoot the budget, reductions in individual payments will take place.

1.3 WTO: European Proposal on Modalities

This analysis cannot ignore the WTO Doha Round negotiations. Despite initial optimism that a deal could be brokered at the WTO meeting in Cancun, the WTO talks process broke down on September 14th 2003, when developing countries refused to accept a WTO proposal that would have allowed for cuts in agriculture subsidies in developed countries only if developing nations agreed to launch new talks on liberalising competition and investment policies.

It is likely that the talks process will resume at some point but we cannot be sure what sort of agreement might eventually be reached. For this study we have operated on the assumption that the EU's proposals on WTO reform, as set out in Box 1-2 below are accepted and that a more substantial reform is not agreed.[3] This is in keeping with the position of the European Commission, the Irish government and the Irish farm organisations with respect to the WTO negotiations. Implementation of the proposal is assumed to occur over six years from 2006.

Box 1-2: Summary of EU European Proposal on Doha Round Modalities submitted to WTO

Market Access: That tariff rates for imports are reduced by 36 per cent. The proposal is actually for an average of a 36 per cent drop and a minimum reduction of 15 per cent. In the analysis all tariffs are reduced by 36 per cent, but it might be expected that the most sensitive products such as beef and dairy would only see the 15 per cent cut. Tariff rate quotas are maintained at their Uruguay Round Agreement on Agriculture (URAA) levels.

Export Subsidies: The EU proposal does not specify the reduction in the allowed quantity of goods that are exported with the aid of subsidy. Rather it specifies an average cut in budgetary outlays of 45 per cent. As in the case of tariff reductions, it would be likely that in practice this would mean that the reduction for sensitive or vulnerable commodities would be less than this amount. In the scenario, the permitted expenditure on export refunds for all commodities is assumed to fall to 55 per cent of its URAA limit.

Domestic Support: The other major component of the EU proposal is the reduction of the permitted Aggregate Measure of Support (AMS) of 55 per cent. The changes that have been made under Agenda 2000 mean that the EU has significantly reduced its AMS by switching payments to the "blue" box. The Luxembourg Agreement would further shift payments, and calculations show that the EU would not have to make significant changes to reach the 55 per cent target. The reduction of AMS, therefore, has no impact on the scenario.

In addition it is assumed in this analysis that the changes proposed in the EU modalities proposal are implemented only in the EU. There has been no simulation using the FAPRI world modelling system. It can be safely assumed that if such a simulation were carried out, then there would be a positive effect on world prices, and this would have an additional positive impact on the results for the EU.

1.4 Agriculture Sector Level: Scenario Results

In this section we summarise the key features of the Luxembourg Agreement and WTO scenario analysed in this paper, bearing in mind the assumptions about the conclusion of the WTO negotiations.

1.4.1 EU and Irish Scenario Results: Dairy

The main features of the Luxembourg Agreement dairy reforms are summarised in Box 1-3. The new dairy payments are due to be decoupled in 2008 or 2005. Producers will then be free to exit milk production and retain the right to receive the new compensatory payments subject to specific criteria.

Under a decoupled payments system the milk price alone must cover the cost of producing the milk. The decoupled payment will be received regardless of any production decision. In economic terms while the coupled or uncoupled nature of the support will not effect the marginal cost of milk production to any degree, decoupling means that the marginal revenue from production will be lower relative to a coupled system offering the same level of support payment. In other words, as farm milk

[3] This interpretation of the EU proposal does not reflect the views of either Teagasc or FAPRI as to how the EU proposal would be implemented. For example in designing the scenario we did not consider the possibility that tariff reductions for some 'sensitive' products could be lower than the 36 percent rate. The Irish government's acceptance of the Commission's proposal on WTO modalities was on the basis that, at most, minimal tariff reductions will be applied to sensitive sectors.

prices fall under the reforms, for some EU producers this may mean that it is no longer economically rational to produce milk.

Box 1-3: Luxembourg Agreement Scenarios: Dairy

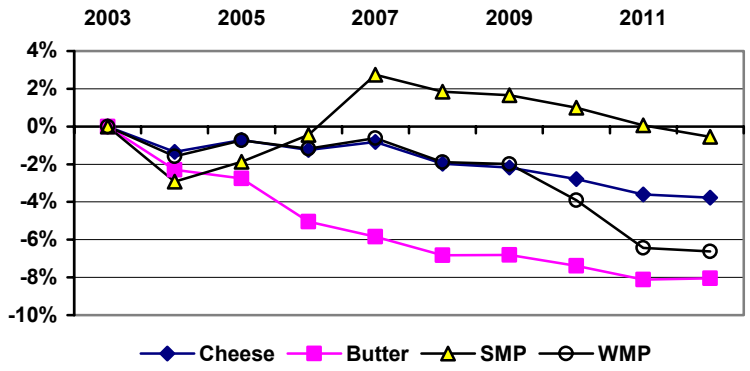
- Agenda 2000 would begin a year earlier in 2004/05
- Quota guaranteed to 2014/15. Agenda 2000 increase in milk quota deferred to 2006. Further increases in quotas subject to review.
- Intervention butter price reduced by 10 percent relative to Agenda 2000 reductions. SMP support price reduction as agreed in Agenda 2000
- Progressive reduction from 70,000 tonne to 30,000 tonne limit on intervention (before tendering) by 2008
- From 2004 direct payments progressively increasing to € 35.50 per tonne (3.5 cent per litre or 13p per gallon) from 2006
- Beef Policies MIN, MAX and MAX* as described in Box 2-2

Under the Luxembourg Agreement the asymmetric reduction in the intervention prices of butter and SMP will considerably reduce the price of butter relative to the Agenda 2000 Baseline. In practical terms the price of all dairy commodities will fall. Relative to the Baseline in 2012, cheese, butter and WMP price reductions of 8 percent, 4 percent, 6 percent respectively are projected. SMP prices will be little changed on the projected Agenda 2000 level, given that the Luxembourg Agreement specifies the same change in SMP intervention prices. A feature of the SMP price projection under the Luxembourg Agreement is that prices are actually higher than in the Baseline. This is due to the reduction in production of SMP (below Baseline levels) that comes about when butter production falls in the face of lower butter intervention prices. From 2004 compensation increasing in steps to over 16 cent per litre, is available for these milk price cuts.

In addition to the Baseline, dairy sector results were obtained under the terms of the Luxembourg Agreement dairy reforms, the EU WTO modalities as well as the MIN, MAX and MAX* EU beef policy options. At an aggregate level, results for the dairy sector under each of the scenarios were very similar. Milk production was in line with quotas and milk price, milk yield, dairy cows number and product production did not vary appreciably across the scenarios. In this section we report only the results for the dairy reform under the MAX beef scenario. More detailed results are available in the appendices. Of course, one should not conclude from the aggregate dairy sector outcome, that the choice among the beef options is of no consequence to dairy farmers since most dairy farmers will have a beef enterprise of some form. Farm level analysis presented in Paper 2 of this report provides a clearer picture of the implications of the different policy reform options on Irish dairy farms.

Figure 1-1 shows the projected change in EU dairy product prices under the Luxembourg Agreement relative to the 2003 Baseline . A more detailed discussion of the Baseline dairy product price outlook can be found in Binfield et al. (2003).

Figure 1-1: EU Dairy Product Prices: Scenario Change from Baseline



FAPRI-Ireland Partnership Model (2003).

On the demand side, lower EU product prices will mean higher consumption relative to the Baseline. Minimal EU milk quota increases and the continued protection offered by EU import tariffs will limit expansion of dairy product supplies on the EU dairy market in future years. Overall there will be

reduced volumes of EU dairy products available for export and this will ease the pressure that would come from the new lower export subsidy outlay limitations specified in the EU WTO proposal.

In the EU WTO proposal the expenditure limit for export subsidies would be reduced by 45 per cent on average relative to the final year limits of the URAA. In the scenario described here these reductions have been applied in a uniform fashion across the four dairy commodity categories (butter, cheese, SMP and `Other dairy products'). Equally, the EU might expect to optimise the profile of export expenditure reductions across the four categories - so as to minimise their constraining effect – but we have not allowed such an option in this analysis. In any event, one could argue that reduced export subsidy volume constraints might accompany the export subsidy expenditure reductions. This possibility has been excluded since it is not explicitly mentioned in the EU WTO proposal. With lower volumes of dairy exports likely, a measured decrease in volume constraints which tend currently to be binding, (i.e. SMP and cheese) would not greatly affect the projected outcome for EU dairy markets described here.

The Luxembourg Agreement will reduce the gap between world and EU prices that must be bridged by an export subsidy. EU dairy product prices will fall because of these lower supports but world price will also rise over and above the Baseline level due to reduced availability of EU dairy products for export.

Incorporating a 45 percent reduction in export subsidy outlays (EU WTO proposal) in addition to the Luxembourg Agreement reform is likely to further reduce EU dairy product and farm milk prices, as the EU cheese and 'Other Dairy' export outlay limits become binding.

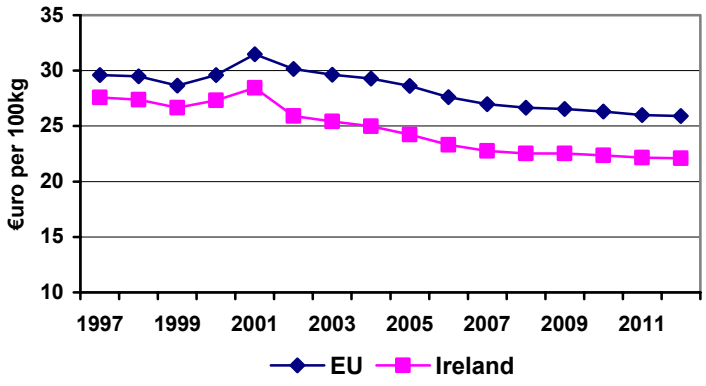
Given projected exchange rates, EU tariffs, even though reduced as part of the EU proposal, should continue to prevent imports of dairy products from third countries. The gap between EU and world prices will still be large enough to make tariffs operable and entry prices for third country dairy product imports would remain above EU price levels.

As previous work by FAPRI-Ireland has highlighted (Binfield et al., 2000), a different exchange rate path could influence the future effect of trade reform. For example, other things being equal, a stronger euro against the US dollar could narrow the gap between the tariff paid import price and the EU price, while a weaker euro against the US dollar would increase the level of protection afforded to the EU, making out of quota imports even less likely.

The combined effect of the reforms examined in this scenario is to reduce the EU and Irish average milk price by about 5 percent relative to the 2012 Baseline (Agenda 2000) position. This would put Irish milk prices at about 22 cent per litre in 2012, some 4 cent below the EU average.

As part of the Luxembourg Agreement compensation (for the price reduction) of over 3.5 cents per litre (16 cent per gallon) replaces the 2.5 cent per litre previously scheduled under Agenda 2000. This compensation does not fully offset the decline in the value of milk sold relative to current levels. The overall effect on EU and Irish milk prices of the scenario is summarised in Figure 1-2.

Figure 1-2: EU and Irish Farm Milk Price under Luxembourg Agreement/WTO Scenario to 2012



FAPRI-Ireland Partnership Model (2003).

Relative to Ireland's existing product mix, these Irish milk price projections involve some movement away from butter and SMP and towards cheese. If, on the one hand, the Irish product mix remains unchanged into the future, Irish milk prices would be lower than projected here. Equally, if the utilisation of milk in higher value products changes to a greater degree than projected, a higher milk price could be possible.[4]

1.4.2 EU and Ireland Scenario Results: Beef

The June 2003 Luxembourg Agreement provides member states with an unprecedented degree of flexibility within the CAP in the way in which decoupling is introduced. The very large number of policy choices (and related outcomes) that are possible under the June agreement means that we have chosen to limit our analytical focus to three scenarios that represent a subset of the more than five hundred possibilities. The three scenarios as they apply to the beef CMO are described in Box 1-4

Box 1-4: Luxembourg Agreement Scenarios: Beef

Minimum EU15 Decoupling (MIN)

- In all EU member states the suckler cow premium and 40% of the slaughter premium remain coupled to production
- All other beef direct payments are decoupled from production and their value incorporated in the single farm payment
- The single farm payment (and decoupling) introduced at latest possible date (i.e. in 2007).

Maximum EU15 Decoupling (MAX)

- All direct payments are decoupled to the fullest extent allowed for under the Luxembourg Agreement
- The single farm payment (and decoupling) introduced in 2005

Maximum ***EU14*** Decoupling:(MAX*)

- All EU member states, ***except*** Ireland, decouple direct payments to the greatest extent allowed for under the Luxembourg Agreement
- Ireland chooses to decouple all direct payments ***except*** the slaughter premium.
- 100% of the Irish slaughter premium remains coupled to production.
- The single farm payment (and decoupling) introduced in 2005

Table 1-1 presents the May 2003 FAPRI-Ireland Baseline results for the EU beef sector, together with the percentage differences from the Baseline outcome under each of the three Luxembourg Agreement scenarios that are described in Box 2-2.

From Table 1-1 it is clear that for the EU beef market the greatest differences between the projected outcomes under the three different scenarios results are between the MIN and MAX scenarios.

Maintaining the link between production and receipt of the suckler cow premium leads to quite different outcomes in terms of the decline, relative to the Baseline, in EU suckler cow numbers over the projection period.

Under the MIN scenario EU suckler beef cow numbers decline, relative to the Baseline, by 5 percent by the end of the projection period. Relative to the Baseline this decline in suckler cow numbers is reflected in a decline of 1 percent in EU beef production by 2012.

The decline in EU beef production under the MIN scenario when combined with increases in EU beef imports and a decline of almost 10 percent in the volume of exports relative to the Baseline leads to EU finished cattle prices at a level almost 3 percent higher than under the Baseline by 2012.

The decoupling that takes place under the MIN scenario, in other circumstances, would represent a dramatic change to the EU beef CMO. The Luxembourg Agreement, however, provides for an even more radical decoupling policy option under which the link between beef production and all direct payments is broken. The results in Table 1-1 show that when compared with the Baseline and with the outcome under the MIN scenario the results under both the MAX and MAX* scenarios are much more dramatic.

In the MAX and MAX* scenarios, the decoupling of all direct payments from 2005 onwards leads to an 11 percent decline in EU suckler cow ending numbers. This result illustrates the importance of the

[4] However, large-scale change in the Irish product mix would require considerable new investment at a processing level, which could run into several hundred million euro.

suckler cow premium to EU suckler cow farming.[5] This decline is reflected in an approximately 4 percent decline in EU beef production. Despite increases in EU beef imports of over 3.5 percent, EU finished cattle prices are projected under both the MAX and MAX* scenarios to reach levels that are over 8 percent above the Baseline level by 2012.

There is little difference between the results under the MAX and the MAX* scenarios at an EU level. The similarity of the two scenario results is due to the two scenarios differing only in terms of the Irish decoupling policy choice and because in economic terms the Irish beef industry is largely a price taker.

Table 1-1: EU Main Beef Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
					'000 Head			
Suckler Cows	11,881	11,844	11,810	11,786	11,789	11,812	11,854	11,909
MIN	1	1	-2	-3	-5	-5	-5	-5
MAX	-5	-8	-10	-11	-12	-12	-11	-11
MAX*	-5	-8	-10	-11	-11	-11	-11	-11
Total Cows	30,856	30,662	30,472	30,222	30,016	29,834	29,676	29,535
MIN	0.1	0.2	-0.7	-1.2	-1.7	-1.9	-2.1	-2.1
MAX	-2.1	-3.3	-4.0	-4.2	-4.5	-4.5	-4.4	-4.4
MAX*	-2.1	-3.2	-4.0	-4.2	-4.4	-4.4	-4.3	-4.3
					'000 Tonnes			
Beef Production	7,408	7,425	7,381	7,347	7,293	7,242	7,194	7,151
MIN	0.1	0.0	0.9	0.4	0.1	-0.5	-1.0	-1.3
MAX	2.5	0.6	-0.6	-1.9	-2.6	-3.2	-3.6	-3.9
MAX*	2.4	0.6	-0.6	-1.9	-2.5	-3.1	-3.5	-3.8
Beef Consumption	7,369	7,387	7,382	7,370	7,340	7,300	7,258	7,209
MIN	0.0	0.0	0.4	0.3	0.1	-0.2	-0.5	-0.6
MAX	0.9	0.4	-0.1	-0.9	-1.2	-1.5	-1.7	-1.8
MAX*	0.9	0.4	-0.1	-0.9	-1.2	-1.5	-1.7	-1.8
Beef Imports	469	473	484	491	498	503	506	508
MIN	-0.2	-0.1	-1.1	-0.4	0.0	0.5	0.9	1.2
MAX	-2.6	-0.4	0.9	2.0	2.5	3.1	3.4	3.6
MAX*	-2.5	-0.4	0.9	1.9	2.4	3.0	3.3	3.5
Beef Exports	507	511	482	468	451	444	442	450
MIN	1.5	0.5	7.0	2.5	-0.3	-3.8	-7.2	-9.5
MAX	20.4	3.0	-5.8	-14.0	-18.8	-23.9	-26.9	-27.9
MAX*	20.0	2.7	-5.8	-13.8	-18.5	-23.4	-26.3	-27.3
					€uro/100 Kg			
Cattle R3 Price	249.2	240.6	238.4	237.2	238.6	240.5	242.7	244.8
MIN	-0.4	-0.2	-2.1	-0.7	0.1	1.2	2.2	2.9
MAX	-4.5	-0.8	1.8	4.3	5.7	7.2	8.1	8.5
MAX*	-4.4	-0.7	1.8	4.2	5.6	7.0	7.9	8.3

Source: FAPRI-Ireland Partnership Model (2003).

[5] The greater dependence of beef production in certain member states on the suckler cow herd also means that the impact of the fuller decoupling scenario differs between member states in terms of its impact on beef production. This is clear from a comparison of the EU and Irish results.

The relatively small positive supply side impact of retaining the link between the slaughter premium and production in Ireland is even smaller at a EU level and as a consequence only very minor differences in the EU beef supply and use and cattle price projections occur under the MAX* scenario relative to the MAX scenario.

The results for Ireland under the Baseline (Agenda 2000 policy) and the percentage differences from these levels under the three scenarios are presented in detail in Table 1-2. The differences between the MAX and MAX* scenarios are discussed in more detail below.

Table 1-2: Ireland: Main Beef Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
					'000 Head			
Suckler Cows	1,126.5	1,118.1	1,109.6	1,101.7	1,095.3	1,090.5	1,087.4	1,085.3
MIN	-0.1	-0.2	-1.0	-1.8	-2.5	-2.9	-3.1	-3.1
MAX	-9.7	-12.9	-14.7	-15.5	-16.2	-16.8	-17.3	-17.8
MAX*	-9.1	-11.8	-13.2	-13.5	-13.8	-14.0	-14.2	-14.3
Total Cows	2,220.4	2,199.6	2,179.2	2,157.6	2,138.2	2,120.8	2,107.0	2,094.4
MIN	0.0	-0.1	-0.5	-0.9	-1.2	-1.4	-1.5	-1.5
MAX	-4.9	-6.5	-7.5	-7.9	-8.3	-8.6	-8.9	-9.2
MAX*	-4.6	-6.0	-6.7	-6.9	-7.0	-7.1	-7.2	-7.4
					'000 Tonnes			
Beef Production	578	569	561	555	549	545	541	537
MIN	0.1	0.1	0.9	0.4	-0.1	-0.6	-0.9	-1.0
MAX	13.2	-0.9	-3.8	-5.9	-6.1	-6.3	-6.4	-6.6
MAX*	12.3	-1.4	-3.9	-5.8	-5.7	-5.6	-5.5	-5.5
Beef Consumption	66	67	66	66	66	65	65	65
MIN	0.1	0.0	0.7	0.4	0.1	-0.4	-0.8	-1.1
MAX	2.0	0.5	-0.5	-1.7	-2.3	-2.8	-3.2	-3.4
MAX*	1.9	0.5	-0.5	-1.7	-2.2	-2.7	-3.1	-3.3
Beef Imports	20	20	20	20	20	20	19	19
MIN	0.1	0.0	0.7	0.4	0.1	-0.4	-0.8	-1.1
MAX	2.0	0.5	-0.5	-1.7	-2.3	-2.8	-3.2	-3.4
MAX*	1.9	0.5	-0.5	-1.7	-2.2	-2.7	-3.1	-3.3
Beef Exports	532	523	515	508	503	499	496	492
MIN	0.1	0.1	0.9	0.4	-0.1	-0.6	-0.9	-1.0
MAX	14.1	-1.1	-4.1	-6.3	-6.5	-6.6	-6.7	-6.9
MAX*	13.2	-1.5	-4.2	-6.2	-6.0	-5.9	-5.7	-5.7
					€uro/100 Kg			
Reference Price	114	109	109	108	109	110	111	112
MIN	-0.4	-0.2	-2.3	-0.8	0.1	1.3	2.4	3.2
MAX	-5.6	-0.8	2.2	5.0	6.6	8.2	9.2	9.7
MAX*	-5.4	-0.7	2.2	5.0	6.4	8.0	9.0	9.4
					Million €uro			
Cattle Output Value	1,304	1,241	1,214	1,195	1,193	1,195	1,200	1,206
MIN	-0.4	-0.3	-2.6	-1.8	-1.1	-0.1	0.9	1.9
MAX	-6.2	-7.9	-6.2	-4.1	-2.7	-1.3	-0.5	-0.2
MAX*	-6.0	-7.4	-5.4	-3.1	-1.5	0.2	1.2	1.7

Source: FAPRI-Ireland Partnership Model (2003).

The large difference in the impact of the MIN and MAX scenarios at the EU level is magnified in Ireland. The decline in the Irish suckler cow herd under the MIN scenario is only 3 percent relative to the Baseline, whereas under the MAX scenario the decline in the Irish suckler cow herd is almost 18 percent. The smaller decline under the MIN scenario and the large decline under the MAX scenario (when compared with the EU average) reflect the greater dependence of Irish suckler cow farmers on the suckler cow premium. The partial maintenance of the link between production and support payments in the MIN scenario explains the significant differences between suckler cow numbers under the MIN and MAX scenarios.

Unsurprisingly, significantly different Irish beef supply, use and cattle price projections occur under the MIN and MAX scenarios. When compared with the MIN scenario, the much larger contraction in the Irish suckler cow herd under the MAX scenario leads to a very much larger change in Irish beef production. Irish beef production under the MIN scenario contracts by just 1 percent whereas under the MAX scenario the volume of beef produced in Ireland contracts by 2012 by almost 7 percent relative to the level under the Baseline in 2012.

Irish exports of beef contract under both the MIN and MAX scenarios by magnitudes that are roughly comparable to the shifts in production. This reflects the overwhelming export dependence of the Irish beef industry. In contrast with the results for the EU, relative to the Baseline, Irish imports of beef decrease slightly. This counter-intuitive result occurs because of the diversion of small volumes of Irish beef production from the export to the domestic market under the three scenarios.

Under both the MIN and the MAX scenarios EU (and Irish) beef production contracts. The contraction in EU beef production, when combined with changes from Baseline level in beef exports, imports and consumption, leads to increased finished cattle prices in Ireland. The magnitude of the difference between Irish cattle prices under each of the scenarios and the Baseline projections varies. Under the MIN scenario the smaller contraction in EU beef production means that, relative to the Baseline, the Irish cattle reference price by 2012 is some 3 percent higher. In contrast under the MAX scenario the change in price is more dramatic, with the Irish cattle price almost 10 percent higher under the MAX scenario than under the Baseline.

In Ireland the different price levels under the various scenarios and the different changes in the volume of beef sector output, lead to different outcomes in terms of the value of output produced. The large decline in the volume of beef produced under the MAX scenario is sufficient to offset the higher level of cattle prices so that the value of sector output is, by 2012, slightly lower than under the Baseline.

By contrast, under the MIN scenario, the much smaller decline in the volume of output produced by the sector means that the increase in prices that occurs is sufficient to leave the value of the sector almost 2 percent higher when compared with the Baseline level. This seemingly positive result associated with the MIN scenario comes with an important caveat. The smaller decline in the volume of output produced that occurs under the MIN scenario when compared with the MAX scenario is associated with a much smaller decline in the level of expenditure on inputs.

As will be clear from the discussion at the close of the paper the benefits from decoupling in terms of improvements in the agriculture sector's Operating Surplus (agricultural sector income) flow in large measure from reduced expenditure on inputs. When the MIN and MAX scenarios are compared in agricultural income (profit) as opposed to revenue (output value) terms, the apparent advantage of smaller output volume reductions in the MIN scenario is reduced.

Up to this point, the discussion has largely focused on the difference between the MIN and MAX scenarios. At the EU level, the third scenario analysed, which we have called MAX*, does not have a very different impact when compared with the MAX scenario. In Ireland however, when we examine the impacts on the beef sector, the differences between the two scenarios are much more evident.

Under the MAX* scenario the slaughter premium remains coupled to production in Ireland only. With the retention of this link, the slaughter premium remains a component of suckler cow margins. Compared to the MAX scenario the decline in the Irish suckler cow herd is moderated, with Irish suckler cow numbers in 2012 under the MAX* scenario 14 percent lower than under the Baseline

compared with a decline of 18 percent under the MAX scenario. This difference is equivalent to approximately 40,000 more suckler cows under MAX* than under MAX.

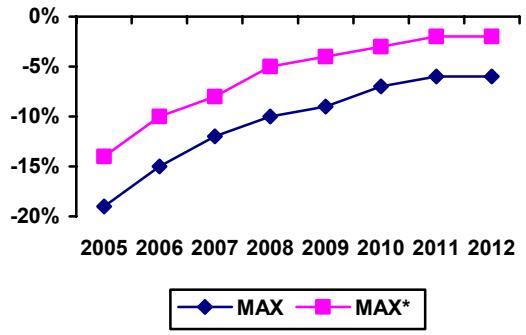
The relatively small difference between suckler cow numbers under the MAX and MAX* scenarios reflects the importance of the slaughter premium relative to the other (decoupled) direct payments that are part of the Agenda 2000 beef CMO. The negative supply impact of decoupling the suckler cow, special beef and extensification premiums greatly outweighs the positive supply impact of retaining the slaughter premium.

The beef production, trade and consumption effects of the MAX* scenario are very close to those associated with the MAX scenario. The decline in Irish production is smaller under MAX* than under MAX due to the smaller decline in suckler cow numbers. Beef consumption and trade are largely similar in the MAX and MAX* scenarios due to the limited difference that the retention of the slaughter premium in Ireland makes to EU cattle prices.

When we compare the impact of the MAX and MAX* scenarios on male and female calf prices the retention of the link between production and the slaughter premium does however have different impacts. Figure 1-3 graphs the percentage difference in male and female calf prices relative to the Baseline. The retention of the link between this subsidy and production (MAX*) leaves both male and female calf prices higher than they would be under full decoupling (MAX).

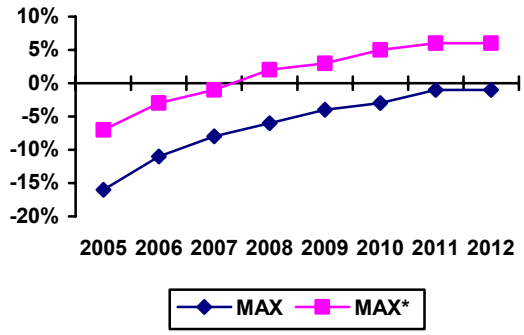
Figure 1-3: Irish Calf Prices: Percentage Change Under MAX and MAX* Scenarios

Male Calf Price: % Change from Baseline



Source: FAPRI-Ireland Partnership Model (2003)

Female Calf Price: % Change from Baseline



Source: FAPRI-Ireland Partnership Model (2003)

Under both the MAX and MAX* scenarios the changes in calf prices following decoupling are due to two factors. The first factor is the decoupling of the direct payments that are associated with possession of male and female bovine animals. Other things being equal, decoupling direct payments, by removing the link between possession of an animal and the receipt of a support payment would be expected to reduce the demand for and lower the price of the animal concerned. The second factor driving the change in calf prices is the change in finished cattle prices. A calf, from the perspective of the cattle finisher, is an input. The demand for this input is derived from the demand for finished cattle. Other things equal, an increase in the price of fattened adult animals, will increase the supply of finished animals. To produce a greater supply of finished cattle an increased amount of inputs are required. As a necessary input into the production of adult cattle, the demand for calves will increase as farmers seek to increase the supply of adult cattle. Thus as the price of finished cattle increases we expect the price of calves to increase.[6]

By 2012, the retention of the slaughter premium under the MAX* scenario means that female calf prices are over 5 percent higher than under the Baseline. Under the MAX * scenario the negative price impact of decoupling the special beef and extensification premiums is such that the increases in finished cattle prices are insufficient to pull male calf price to levels higher than under the Baseline. Under the MAX* scenario the male calf price, by 2012, is only 2 percent lower than under the Baseline.

[6] The same argument applies when examining the consequences for calf prices of a fall in the price of finished animals. Other things being equal, a fall in the price of finished animals will lead to a fall in the price of calves.

The value of output from the sector under the MAX* scenario is almost 2 percent higher than under the Baseline by 2012. This outcome occurs because the improvement in prices relative to the Baseline that occurs under the MAX* scenario is sufficient to more than offset the decline in the volume of beef produced. As was noted in the discussion above the higher beef sector output value under the MAX* scenario has to be assessed in the context of the higher input expenditure that is incurred.

1.4.3 EU and Ireland Scenario Results: Sheep

A summary of the EU sheep sector results under the three scenarios analysed is presented in Table 1-3. The differences between the 3 scenarios in terms of the Sheep and Goat CMO are detailed in Text Box 1-5.

Box 1-5: Luxembourg Agreement Scenarios: Sheep

Minimum EU15 Decoupling (MIN)

- In all EU member states 50% of the sheep and goat premium including the supplementary premium for less favoured areas (Rural World Premium) is decoupled from production.
- The single farm payment (and decoupling) introduced in 2007

Maximum EU15 Decoupling (MAX)

- All direct payments (ewe premium and rural world premium) are fully decoupled from production.
- The Single farm payment (and decoupling) introduced in 2005

Maximum EU14 Decoupling (MAX*)

- As detailed in Text Box 1-4.

As is clear from the results that are presented in Table 1-3, the differences between MAX and MAX* scenarios are such that they can be largely ignored in terms of impact at the EU level of aggregation. We discuss the differential impact of the two scenarios in Ireland below.

Decoupling the value of ewe premiums reduces ewe numbers under both the MIN and MAX scenarios. The reductions in ewe numbers and the volume of lamb production are not as large as the decline in suckler cow numbers under the scenarios analysed.

Under the MAX scenario the EU ewe flock contracts by approximately 5 percent relative to the Baseline. The contraction in the EU ewe flock under the MIN decoupling scenario is about 2 percent. These decreases are reflected in reductions in lamb production of approximately equal magnitude.

This reduction in the EU ewe flock under the MAX scenario is small when compared with the fall in EU suckler cow numbers. There are two reasons that explain this difference. Sheep production systems in the EU can be roughly divided in two, a Northern European system which produces lambs for fattening and slaughter and a Southern European system in which lambs and milk are a joint product, and lamb slaughter occurs at lighter weights. The impact of the decoupling of ewe premia in light lamb-milk system is projected to be less than in heavy lamb system due to a lower dependence on direct payments in the light-lamb milk system. The lower drop in ewe numbers (relative to beef numbers) is also partly due to the greater price increase for sheep meat that occurs under the scenario. Since the EU market is highly protected, imports cannot respond to the higher prices. There is more than sufficient “water” in the sheep meat import tariff to prevent large amounts of imports in excess of the tariff rate quota (TRQ). Also, in the beef sector analysis, the Commission reduces the volume of subsidised exports of beef in response to the higher cost of refunds. In the sheep sector there are no subsidised exports and the absence of this policy lever means that EU lamb prices increase to a greater extent than EU beef prices.

Under the MAX scenario the EU sheep reference price increases by over 12 percent relative to the Baseline by 2012. Under the MIN scenario the change in ewe numbers and lamb production is smaller than under the MAX scenario and as a result, the path of sheep prices in the EU is much less extreme. Nevertheless, the price level under the MIN scenario is over 5 percent higher than under the Baseline in 2012.

Table 1-3: EU Main Sheep and Lamb Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
					'000 Head			
Ewes (Ending)	65,346	64,961	64,872	64,716	64,470	64,198	63,965	63,699
MIN	0.0	-0.1	-3.0	-2.7	-2.2	-2.3	-2.3	-2.2
MAX	-6.1	-6.2	-4.5	-4.8	-5.1	-4.9	-4.8	-4.8
MAX*	-6.2	-6.3	-4.6	-4.8	-5.1	-4.9	-4.8	-4.8
					'000 Tonnes			
Lamb Production	1,112	1,105	1,095	1,093	1,094	1,091	1,087	1,083
MIN	0.0	0.1	2.2	-2.2	-3.3	-2.2	-2.2	-2.3
MAX	4.9	-4.0	-7.8	-5.0	-4.5	-5.2	-5.1	-4.9
MAX*	5.0	-4.2	-7.9	-5.1	-4.6	-5.3	-5.2	-4.9
Lamb Consumption	1,368	1,363	1,355	1,356	1,358	1,358	1,356	1,355
MIN	0.0	0.1	1.5	-1.5	-2.2	-1.5	-1.4	-1.5
MAX	3.2	-2.7	-5.1	-3.3	-2.9	-3.4	-3.3	-3.1
MAX*	3.3	-2.8	-5.1	-3.3	-3.0	-3.4	-3.3	-3.1
Lamb Imports	458	458	460	461	463	465	467	468
MIN	-0.1	0.0	-0.2	0.0	0.2	0.3	0.3	0.3
MAX	-0.5	0.2	0.6	0.6	0.3	0.3	0.2	0.1
MAX*	-0.3	0.1	0.4	0.3	0.1	0.1	0.1	0.0
					€uro/100 Kg			
Sheep Meat Reference Price	372.5	369.1	372.2	369.9	367.6	366.3	366.5	364.8
MIN	-0.2	-0.4	-4.9	4.4	7.0	4.9	4.9	5.4
MAX	-10.3	8.4	17.5	11.6	10.7	12.8	12.7	12.1
MAX*	-10.5	8.9	17.7	11.7	10.8	12.8	12.8	12.2

Source: FAPRI-Ireland Partnership Model (2003).

Table 1-4 gives the May 2003 Baseline results for the Irish sheep sector and the percentage changes from this Baseline that occur under the three scenarios analysed. We will focus on the comparison of the MIN and MAX scenarios and the differences that exist between the MAX and MAX* scenarios.

The greatest difference in the results of the three scenarios is between the MIN and the MAX scenarios. The results for the MIN scenario, where, 50 percent of the ewe (and rural world) premium remains coupled to production are that the number of ewes remains relatively unchanged when compared to the Baseline level. It should be recalled that between 2005 and 2012 under the Baseline ewe numbers in Ireland are projected to fall by over 11 percent, nevertheless, partial decoupling of the ewe premium results in what appears to be a counter-intuitive result - i.e. that ewe numbers remain unchanged. There are two factors that explain the result; the first is the improvement in relative sheep returns that occurs under the MIN scenario. The improvement in sheep prices under the MIN scenario of 6 percent (relative to the Baseline in 2012) is greater than the increase in cattle prices and it is the returns to farming sheep relative to the returns to farming cattle that largely determine the Irish ewe flock. The 50 percent coupling of the ewe premium also means that farmers face a strong incentive to at least retain the ewes that they have in the Base Period in order to maintain their Base Period direct payment receipts.

Under the MAX scenario, where 100 percent of the ewe premium is decoupled from production, the Irish ewe flock is projected to be almost 6 percent smaller by 2012 when compared with the Baseline level in that year. The decline in the ewe flock under the MAX* scenario is somewhat larger than under the MAX scenario (7 percent lower in 2012 than under the Baseline). This slightly smaller decline is due to the fact that with the retention of the slaughter premium, returns to suckler farming under the

MAX* scenario are greater than under the MAX scenario. This makes the relative returns to sheep farming less attractive under the MAX* scenario when compared to the MAX scenario and as a result the decline is ewe numbers is somewhat greater when the slaughter premium is retained than when it is decoupled.

The large change in prices under the MAX and MAX* scenarios is due to developments in the EU market that were discussed above. Relative to the Baseline, Irish sheep prices increase under the MAX scenario by 13 percent by 2012. This large increase in prices reduces consumption of lamb in Ireland by 18 percent. Lamb exports under the MIN, MAX and MAX* scenarios increase as the contraction in lamb production in continental EU markets allows for extra exports of Irish lamb.

Table 1-4: Ireland: Main Sheep and Lamb Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
					'000 Head			
Ewes (Ending)	3,408.1	3,332.5	3,280.2	3,225.3	3,166.5	3,109.8	3,061.1	3,014.9
MIN	0.0	-0.2	-1.7	0.1	1.1	0.6	0.0	-0.3
MAX	-3.1	-2.7	-1.3	-3.2	-4.6	-5.0	-5.4	-5.9
MAX*	-5.2	-4.9	-3.5	-5.2	-6.3	-6.4	-6.5	-6.7
					'000 Tonnes			
Lamb Production	69.9	67.5	65.7	64.8	63.9	62.8	61.7	60.8
MIN	-0.1	0.2	1.2	-3.1	-0.9	1.6	1.1	0.4
MAX	2.7	-3.2	-3.5	0.7	-1.3	-3.6	-3.9	-4.1
MAX*	4.6	-5.0	-5.5	-1.6	-3.4	-5.4	-5.5	-5.4
Lamb Consumption	25.6	25.5	24.8	24.6	24.3	23.9	23.4	22.9
MIN	0.3	0.6	7.5	-6.8	-10.6	-7.3	-7.4	-8.1
MAX	15.8	-12.7	-26.9	-17.6	-16.0	-18.9	-19.0	-18.0
MAX*	16.1	-13.4	-27.3	-17.6	-16.1	-19.1	-19.1	-18.1
Lamb Exports	46.3	43.9	42.9	42.3	41.6	40.9	40.3	39.8
MIN	-0.3	0.0	-2.5	-0.8	4.8	6.8	6.0	5.3
MAX	-4.6	2.5	10.2	11.2	7.3	5.5	5.0	4.1
MAX*	-1.9	0.1	7.4	7.8	4.1	2.8	2.7	2.2
					€uro/100 Kg			
Sheep Meat Reference Price	335.0	331.7	334.7	332.5	330.2	329.0	329.1	327.5
MIN	-0.2	-0.4	-5.3	4.8	7.6	5.3	5.3	5.9
MAX	-11.1	9.1	18.8	12.5	11.5	13.8	13.7	13.1
MAX*	-11.3	9.6	19.1	12.6	11.6	13.8	13.8	13.1
					Million €uro			
Sheep Sector Output Value	184.4	170.0	167.7	163.6	159.5	155.8	152.9	149.6
MIN	-0.2	-0.5	-5.9	3.5	8.1	6.6	6.0	6.0
MAX	-12.1	5.8	16.2	10.7	7.8	8.4	7.9	6.8
MAX*	-12.8	3.8	13.6	8.1	5.5	6.5	6.3	5.5

Source: FAPRI-Ireland Partnership Model (2003).

The value of marketed output from the sheep sector increases relative to the Baseline under all three of the Luxembourg Agreement scenarios analysed. This outcome is due to the relatively small reductions in the number of ewes relative to the Baseline that occur under all the scenarios and the quite large increase in prices that occurs under the scenarios. Under the MIN scenario the value of the sector's output increases by 6 percent relative to the Baseline in 2012. Under the MAX scenario the value of the sector increases by almost 7 percent. The increases in the value of the sector's output are

driven largely by the increased prices. Different policy at an EU level with respect to imports of lamb from non-EU members could change the path of prices projected under the scenarios. We have assumed that the EU will not alter its TRQ arrangements and that post quota tariffs are sufficient to insulate EU markets even when the reductions in tariffs proposed under the EU WTO modalities paper are factored in. A change in EU policy such as increasing the lamb TRQ of New Zealand could alter the path of prices under the scenarios. The ability of countries such as New Zealand to increase greatly their shipments of lamb to the EU, however, would most probably limit the extent to which the price increases that occur relative to the Baseline in all three scenarios could be offset.

1.4.4 EU and Ireland Scenario Results: Crops

Tables 2-6 and 2-7 present the May 2003 Baseline projections for the main EU and Irish Cereals and the percentage changes from these Baseline levels under the MIN, MAX and MAX* scenarios. Greater detail is available in the appendices to this paper. The use of the May 2003 Baseline should be noted. The weather that has occurred since spring 2003, namely the summer drought in continental Europe, has dramatically changed the expected short-term path of cereals supply, use and prices. If a new Baseline were used in this analysis it would reflect this reality. The use of the May 2003 Baseline means that it has not been possible to incorporate this information. However, in comparative static terms, we are confident that our results, in terms of the sign and the magnitude of the percentage changes projected, are good indicators of the likely impact of the Luxembourg Agreement on the cereals sector in the EU and Ireland.

Box 1-6: Luxembourg Agreement Scenarios: Cereals

Minimum Decoupling (MIN)

- 25% of the arable aid payment or 40% of the durum wheat payments is decoupled from production
- The single farm payment (and decoupling) introduced in 2007
- Other sectors as detailed in text boxes 2-1, 2-2, and 2-3.

Maximum Decoupling (MAX)

- All direct payments are fully decoupled from production.
- The Single farm payment (and decoupling) introduced in 2005
- Other sectors as detailed in text boxes 2-1, 2-2, and 2-3.

Maximum Decoupling with Irish Slaughter Premium (MAX*)

- As detailed in Text Box 2-1, 2-2 and 2-3.

The decoupling of direct payments (arable aid and set-aside payments) from production has a generally negative effect on cereals area harvested and on production of cereals. The magnitude of the changes in supply that occur in response to decoupling are small by comparison with the supply effects of decoupling direct payments in the livestock sector.

The difference between the magnitude of the impact of decoupling in the cereals and livestock sectors is due to the fact that direct payments under the crop and oilseeds programs of the CAP were already partially decoupled under Agenda 2000. Farmers largely had freedom to plant the cereal that they wished and could still receive their arable aid payment. This partial decoupling means that when these arable aid and set-aside payments are further decoupled the negative impact on supply is relatively small.

The supply effects of decoupling under the three scenarios are modest. EU wheat, barley and maize area harvested decline by less than 1 percent in 2012 under all three scenarios. The supply and use consequences for these crops are also very small with prices only varying slightly relative to the Baseline projection. By 2012 under all three Scenarios, EU prices have risen by less than 1 percent above their Baseline level.

Some changes occur in area harvested, production and prices under the MIN scenario prior to 2007. This result that appears to be at variance with the introduction of decoupling under the MIN scenario in 2007 is due to changes in the Dairy CMO under the three scenarios and the Agenda 2000 Baseline. Quota increases in 11 Member States that were scheduled for introduction under Agenda 2000 in 2005 are to be postponed until 2006 as part of the Luxembourg Agreement. This change in the dairy CMO occurs in all three scenarios, though the effect is only apparent in the MIN scenario since it is outweighed by the impact of decoupling in the MAX and MAX* scenarios. The change in quota has immediate consequences for milk price, milk yields and dairy cow numbers and has knock on affects on all other agricultural sectors.

Table 1-5: EU Cereals Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
				'000 ha				
Wheat Area	17,859	17,871	17,929	17,993	18,062	18,118	18,170	18,210
MIN	0.7	-0.2	-1.3	-1.0	-1.2	-1.4	-1.3	-1.1
MAX	-1.3	-1.8	-1.3	-1.2	-1.7	-1.8	-1.7	-1.4
MAX*	-1.3	-1.8	-1.3	-1.2	-1.7	-1.8	-1.7	-1.4
				'000 Tonnes				
Wheat Production	106,175	107,974	109,926	111,998	114,092	116,123	118,122	120,074
MIN	0.8	-0.2	-0.6	-0.3	-0.6	-0.8	-0.8	-0.6
MAX	-0.2	-1.0	-0.6	-0.5	-1.0	-1.1	-1.0	-0.8
MAX*	-0.2	-1.0	-0.6	-0.5	-1.0	-1.1	-1.0	-0.8
				€uro/Tonne				
Wheat Price	115	113	112	111	110	109	108	107
MIN	-2.0	-0.6	-0.5	-0.6	-0.3	-0.1	-0.2	-0.4
MAX	-0.4	0.4	-0.6	-0.4	0.0	0.0	-0.1	-0.3
MAX*	-0.4	0.4	-0.6	-0.4	0.0	0.0	-0.1	-0.3
				'000 ha				
Barley Area	10,934	10,998	10,915	10,843	10,770	10,709	10,652	10,610
MIN	0.0	0.2	-0.5	-0.4	-0.5	-0.4	-0.3	-0.3
MAX	-0.6	-0.5	-0.6	-0.4	-0.5	-0.4	-0.4	-0.4
MAX*	-0.6	-0.5	-0.6	-0.4	-0.5	-0.4	-0.4	-0.4
				'000 Tonnes				
Barley Production	52,035	52,820	52,966	53,179	53,342	53,555	53,787	54,090
MIN	0.0	0.2	-0.4	-0.4	-0.5	-0.4	-0.3	-0.3
MAX	-0.5	-0.4	-0.5	-0.3	-0.4	-0.3	-0.3	-0.3
MAX*	-0.5	-0.4	-0.5	-0.3	-0.4	-0.3	-0.3	-0.3
				€uro/Tonne				
Barley Price	108	106	104	103	102	101	100	100
MIN	-1.1	-1.1	-0.4	0.0	0.3	0.3	0.1	0.1
MAX	0.1	-0.1	0.0	0.3	0.5	0.4	0.2	0.1
MAX*	0.1	-0.1	0.0	0.3	0.5	0.4	0.2	0.1
				'000 ha				
Maize Area	4,395	4,392	4,396	4,385	4,372	4,362	4,358	4,353
MIN	0.1	0.2	-0.5	-0.2	-0.3	-0.2	-0.3	-0.2
MAX	-0.4	-0.3	-0.4	-0.2	-0.3	-0.2	-0.3	-0.3
MAX*	-0.4	-0.3	-0.4	-0.2	-0.3	-0.2	-0.3	-0.3
				'000 Tonnes				
Maize Production	41,111	41,542	42,049	42,416	42,742	43,083	43,492	43,876
MIN	0.1	0.2	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2
MAX	-0.3	-0.3	-0.3	-0.1	-0.2	-0.1	-0.2	-0.2
MAX*	-0.3	-0.3	-0.3	-0.1	-0.2	-0.1	-0.2	-0.2
				€uro/Tonne				
Maize Price	131	129	127	125	125	124	123	122
MIN	-0.9	-0.9	0.4	0.3	0.4	0.4	0.4	0.2
MAX	0.4	0.4	0.2	0.4	0.5	0.4	0.4	0.3
MAX*	0.4	0.4	0.2	0.4	0.5	0.4	0.4	0.3

Source: FAPRI-Ireland Partnership Model (2003).

The MAX and MAX* scenarios have only a limited impact on the Irish cereal sector. Relative to the Baseline areas harvested decline for both wheat and barley over the projection period by approximately 4 percent. This decline occurs due to the relatively unchanging nominal price path for cereals that occurs under the scenarios, the permanent set-a-side element of the Luxembourg Agreement and the decoupling of the arable aid payments.

Table 1-6: Ireland: Main Cereals Variables under Baseline with % Change under Scenarios

	2005	2006	2007	2008	2009	2010	2011	2012
					'000 ha			
Wheat Area	81.7	81.4	81.1	82.4	82.3	82.1	81.8	81.5
MIN	0.0	-4.0	-6.2	-7.1	-7.5	-7.6	-7.7	-7.8
MAX	-0.1	-1.9	-2.7	-3.3	-3.6	-3.7	-3.9	-3.9
MAX*	-0.1	-1.9	-2.7	-3.3	-3.6	-3.7	-3.9	-4.0
					'000 Tonnes			
Wheat Production	712.5	722.0	728.5	748.3	755.6	763.7	758.8	754.5
MIN	0.0	-4.1	-6.4	-7.3	-7.6	-7.7	-7.7	-7.8
MAX	-0.1	-1.9	-2.7	-3.3	-3.5	-3.7	-3.8	-3.9
MAX*	-0.1	-1.9	-2.7	-3.3	-3.5	-3.7	-3.8	-3.9
					€uro/Tonne			
Wheat Price	100	98	97	96	95	94	94	93
MIN	-1.0	-1.0	-0.4	0.0	0.3	0.3	0.1	0.0
MAX	0.1	-0.1	0.0	0.3	0.4	0.3	0.2	0.1
MAX*	0.1	-0.1	0.0	0.3	0.4	0.3	0.2	0.1
					'000 ha			
Barley Area	181.0	180.9	181.2	178.0	180.1	180.2	180.4	180.5
MIN	0.0	-3.8	-6.0	-6.9	-7.4	-7.6	-7.7	-7.7
MAX	-0.1	-1.9	-2.7	-3.3	-3.6	-3.8	-3.9	-3.9
MAX*	-0.1	-1.9	-2.7	-3.3	-3.6	-3.8	-3.9	-4.0
					'000 Tonnes			
Barley Production	1,276.7	1,280.1	1,285.4	1,281.7	1,286.0	1,289.5	1,290.8	1,291.2
MIN	0.0	-3.1	-4.9	-5.7	-6.1	-6.3	-6.4	-6.4
MAX	0.0	-1.5	-2.2	-2.7	-2.9	-3.1	-3.2	-3.2
MAX*	0.0	-1.5	-2.2	-2.7	-2.9	-3.1	-3.2	-3.2
					€uro/Tonne			
Barley Price	97	95	93	92	91	90	90	89
MIN	-1.1	-1.1	-0.4	0.0	0.3	0.3	0.1	0.1
MAX	0.1	-0.1	0.0	0.3	0.5	0.4	0.2	0.1
MAX*	0.1	-0.1	0.0	0.3	0.5	0.4	0.2	0.1
					Million €uro			
Cereal Sector Output Value	150	148	148	148	148	148	147	145
MIN	-1.1	-5.2	-6.8	-7.4	-7.4	-7.6	-7.9	-7.9
MAX	0.1	-2.0	-2.8	-3.1	-3.2	-3.4	-3.7	-3.9
MAX*	0.1	-2.0	-2.8	-3.1	-3.2	-3.4	-3.8	-3.9

Source: FAPRI-Ireland Partnership Model (2003).

The cereals area harvested and production in Ireland under the MIN scenario is significantly different from that occurring under either of the two more extreme decoupling scenarios and that which is projected to occur under the Baseline. Wheat and barley area harvested are projected to decline by almost 8 percent with production projected to decline by approximately 7 percent. Under the MIN scenario the decline in area harvested that occurs relative to the Baseline is due to lower returns from

cereal farming when compared with livestock enterprises. Under the MIN scenario, the partial decoupling of arable aid payments and the compulsory set-aside provisions of the agreement, when combined with only partial decoupling of livestock payments, shift the balance of returns towards livestock production. Some land that under the Baseline was planted with cereals is instead used as pastureland in the MIN scenario.

Overall, under all three scenarios analysed the volume of production of both barley and wheat in Ireland declines. In all three scenarios cereal prices are relatively unchanged from Baseline levels. The combination of reduced volume of production and unchanging prices means that relative to the Baseline the value of cereal output declines, depending on the scenario, by between 4 percent and 8 percent relative to the Baseline in 2012.

1.4.5 European and Ireland Scenario Results: Pigs

A summary of results of the scenario for the main variables for the pig sector in the EU is given in Table 1-7. The impact of the scenario on the pig sector is not significant. Changes mainly derive from the cross price effects of the reforms in the cattle and sheep sector – higher beef and lamb prices encourage some switch by consumers towards substitutes such as pigmeat, which then boosts price and production – and from the fact that a small amount of imports are triggered by the tariff reduction in the EU proposal.

Table 1-7: EU Pig Sector: Baseline and Scenario

	2000 to 2002 Average	**2012 Baseline**	**% change 2012 Baseline versus 2012 Scenario**		
	Euro/100kg		Min	Max	Max*
Reference Price	148	141.8	0.3	0.6	0.6
	000 Head				
Sows	12,500	12,354	0.2	0.5	0.5
	000 Tonnes				
Production	17,598	17,823	0.2	0.5	0.5
Imports	50	53	0.0	0.0	0.0
Domestic Use	16,476	16,659	0.2	0.5	0.5
Exports	1,181	1,252	0.0	0.1	0.1

Source: FAPRI-Ireland Partnership Model (2003).

Overall, In Ireland as with the wider EU pig sector, there is a very marginal increase in pig output and slaughterings. Even though pig prices increase slightly, relative to the Baseline, there is a slight increase in domestic consumption of pigmeat relative to the Baseline due to the cross commodity price effect of larger increases in beef and sheep meat prices relative to pigmeat prices under the Luxembourg Agreement scenarios relative to the Baseline. Irish pig sector results are summarised in Figure 1-4.

Figure 1-4: Irish Pig Sector: Baseline and Scenario

	2000-2002 average	2012 Baseline	**% change 2012 Baseline versus 2012 Scenario**		
	€uro / kg		MIN	MAX	MAX*
Irish Pig Price*	136	118.5	0.3	0.6	0.6
	000 Head				
Volume of output	3,341	3,295	0.1	0.4	0.4
	€uro Million				
Value of output	313	275	0.4	0.8	0.8

Source: FAPRI-Ireland Partnership Model (2003).
Note: * Price of finished pigs at licensed curers.

1.5 Irish Agricultural Output, Input and Income: Scenario Results

This section first summarises the implications for overall agricultural output in Ireland that follows from the results of the previous sections. The section looks at agriculture in aggregate sector terms and provides a top down view based on the supply, demand and price projections derived from the aggregate commodity models. The projections in this section indicate the total value to the economy of the output produced, inputs used in its production and the aggregate income derived from agriculture.

It could be misleading to draw inferences from the aggregate results in terms of specific farm level effects. Few Irish farms are specialised in the production of a single commodity. Most will have a mix of enterprises, be it differing types of livestock, livestock products or crops. In order to optimise their incomes, farmers change the enterprise mix in response to changing prices, policy payments and other factors. Also the continuing process of structural change in Irish farming means that output on farms and the number of farms is changing over time. For these reasons, specific farm level impacts are best derived from detailed farm level analysis, as they cannot be provided by the type of analysis produced in this paper. For detailed farm level results see Paper *2* of this publication.

1.5.1 Irish Intermediate Consumption (Inputs): Scenario Results

In this section we summarise the projected levels of intermediate consumption (agricultural input) expenditure. A detailed discussion of the Baseline input expenditure projections can be found in Binfield et al. (2003). The details of the effect of the scenarios on inputs are summarised in Table 1-8.

Table 1-8: Irish Intermediate Consumption: Scenario Results

	2000 –2002 Average	2012 Baseline	% change 2012 Scenario versus 2012 Baseline		
			MIN	MAX	MAX*
Animal Feed Consumption / head	Kg/head				
Dairy	728	600	-4	-18	-15
Beef	213	182	-3	-14	-12
Total Fertilizer Applications	000 Tonnes				
Nitrogen	387	367	-3	-11	-9
	€uro Million				
Total Input Expenditures	3,034	3,130	-1.5	-8.1	-6.7
of which					
Feeding stuff	887	716	-1.4	-9.9	-8.1
Fertiliser	343	355	-2.2	-12.2	-10.5
Energy	302	401	-1.2	-8.3	-6.8
Forage plants	455	443	-0.1	0.3	0.3
Agricultural services	312	306	-0.6	-0.9	-0.5

Source: FAPRI-Ireland Partnership Model (2003).

The results indicate little difference in input expenditure between the MAX and MAX* decoupling scenarios. Under these two scenarios input expenditure declines by 8 percent and 7 percent respectively by 2012 relative to the Baseline level of input expenditure. This differential is primarily due to the lower livestock numbers facilitated by the greater extent of decoupling in these two reform scenarios.

Input expenditure in the MIN scenario also runs below the Baseline level. However relative to the 2012 Baseline, the reduction is just under 2 percent. In other words in the MIN scenario, input expenditure is appreciably above the level projected in the MAX and MAX* scenarios. In the MIN scenario there is a smaller decrease in livestock numbers and this implies a smaller reduction in the usage of fertiliser, feed etc. relative to the other two reform scenarios.

1.5.2 Goods Output (Gross Agricultural Output): Scenario Results

The Baseline projections for sector output values are described in detail in Binfield et al. (2003). Overall Gross Agricultural Output at producer prices (GAO) is expected to decline marginally under each of the reform scenarios relative to the Baseline. The largest decrease in the value of output (a 1.2 reduction percent relative to the Baseline) is found with the MAX scenario where the reduction in

the value of the cattle and cereal sectors are the biggest contributors. Table 1-9 summarises the various sectors' output values under the three reform scenarios.

Table 1-9: Irish Agricultural Goods Output Value (GAO): Baseline and Scenarios

	Average of 2000 to 2002	Baseline 2012	% change 2012 Baseline versus 2012 Scenario		
			MIN	**MAX**	**MAX***
		€uro million			
Livestock					
of which					
Cattle	1,259	1,206	1.7	-0.2	1.6
Pigs	313	275	0.4	0.8	0.8
Sheep	230	150	6.1	6.3	5.2
Livestock Products					
of which					
Milk	1,476	1,272	-4.5	-4.4	-4.4
Crops					
of which					
Cereals	166	145	1.0	-4.0	-4.0
Root Crops	150	163	0.5	-1.8	-2.0
Forage Plants	459	448	-0.1	0.3	0.3
GAO	**4,689**	**4,328**	**-0.5**	**-1.2**	**-0.7**

Source: FAPRI-Ireland Partnership Model (2003).

As noted in the earlier discussion of the sectoral level results, it appears from the analysis of the MIN scenario that a partial decoupling option might be preferred over the more extreme decoupling policy choices such as were analysed by the MAX and MAX* scenarios. The results in terms of agricultural income rather than the value or volume of output should be what guides the normative assessment of these policy options in terms of the interests of the Irish agricultural sector and the Irish economy.

The higher output values under the MIN scenario when compared with the MAX or MAX* scenarios are also, as is clear from Table 1-8, associated with greater expenditure on inputs. The increase in the value of agricultural output from the cattle sector that occurs under the MAX* scenario compared to both the Baseline and the MAX scenario should also be assessed with regard to the level of input expenditure incurred.

For the pig sector there are slight positive price and volume effects, but the increase in sector value in the scenarios relative to the Baseline is less than one percent

Under each of the reform scenarios, the value of the Irish dairy sector is projected to decline relative to the Baseline. The reform scenarios involve a reduction in butter support prices over and above those agreed in the Agenda 2000 Baseline. In addition, the impact of reduced limits on export subsidies that form part of the WTO scenario causes prices to fall further. By 2012 the value of the dairy sector is less than 5 percent down relative to the Baseline 2012 position, which is itself 14 percent down on the 2000-2002 average.

1.5.3 Agricultural Output at Basic Prices: Scenario Results

Under Agenda 2000, over the period 2000 to 2002 and out to 2012 subsidies on products are set to increase by 20 per cent. Most of this increase will arise from changes in policy brought in under the Agenda 2000 reforms.

Box 1-7: Classification of Subsidy Payments in Presentation of Output, Input and Income

Subsidies on products such as the special beef, slaughter and suckler cow premiums and the new dairy payments when added to GAO provide a measure of agricultural output at basic prices. It is possible that in future some of these payments on becoming part of the single farm payment may be reclassified as *subsidies on production* by the Central Statistics Office to reflect their decoupled nature.

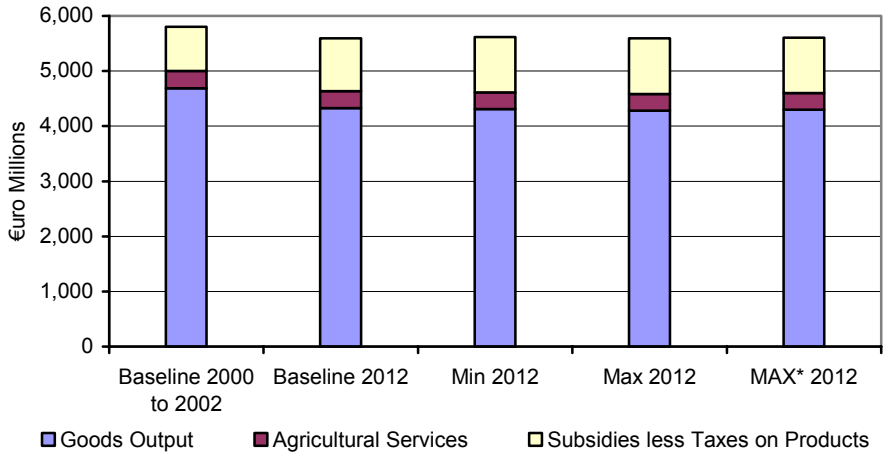
However, to simplify comparisons between the baseline and the various scenarios in this report, we have not made such a reclassification in our tables of Output, Input and Income in Appendix A1.

Since these subsidies are coupled to production levels under Baseline policies the projected "draw down" of these payments reflects the level of animal and crop production. Even though these payments increase under the Baseline, declining volumes of production mean that the increase in payments does not fully reflect the increase in the rate of payment.

Income from products conventionally categorised as subsidies on products is higher in all three scenarios than under the Baseline. The increased rate of dairy payment in the Luxembourg Agreement (relative to Agenda 2000) is a factor. In addition however, since these payments are less dependent (and in the full decoupling option independent) of the volume of output, under each of the decoupling options the total receipt under payments systems (conventionally subsidies on products) increases relative to the Baseline. Agricultural Output at basic prices is shown in Figure 1-5.

Modulation of the single farm payment will take effect from 2005 at a rate of 3 percent for payments in excess of €5,000 per farm, rising to 4 percent in 2006 and 5 percent in subsequent years. One fifth of the amount generated in the Member State will be retained by default. A portion of the modulated funds is to be used for additional EU Community support for measures under rural development. Remaining amounts will be allocated to Member States using criteria such as agricultural area, agricultural employment and GDP per capita, with a guarantee that Member States will retain at a minimum 80 percent of the modulated funds. While Ireland is not projected to recoup the total amount of funds modulated, in aggregate the deficit is expected to be quite small (less than 1 percent) relative to the total value of the national single farm payment.

Figure 1-5: Irish Agricultural Output at Basic Prices: Baseline and Scenarios



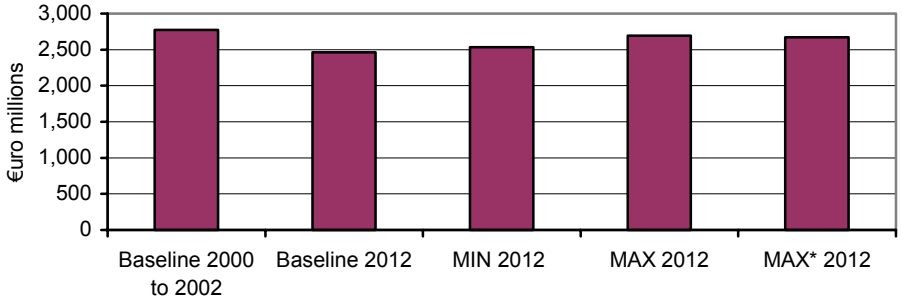
Source: FAPRI-Ireland Partnership Model (2003).

Overall, our analysis shows that agricultural output at basic prices is set to decline in the Baseline (down 4 percent by 2012 relative to the 2000-2002 reference period) and is marginally lower than the Baseline level in each of the three reform options examined. This implies that the expected decline in output values is not quite offset by the projected increase in subsidies on products accruing to the agricultural sector.

1.5.4 Gross Value Added: Scenario Results

Gross value added (GVA) at basic prices is defined as "Agricultural Output less intermediate consumption". It is the clearest measure of agriculture's direct contribution to the economy. Expenditure on intermediate consumption is set to decline relative to the Baseline in each of the reform scenarios (due to savings in expenditures brought about by decoupling). Since Agricultural Output is similar under each of the reform scenarios, this means that by 2012 GVA is 8 percent higher than Baseline in the MAX and MAX* scenarios and just 3 percent higher in the MIN scenario (due to lower savings on expenditures). The values of agricultural output and gross value added are shown in Figure 1-6.

Figure 1-6: Irish Gross Value Added: Baseline and Scenarios



Source: FAPRI-Ireland Partnership Model (2003).

1.5.5 Subsidies on Production

The second component of subsidy payments – "*subsidies on production*" consists of subsidies such as REPS payments, headage or area based compensatory allowances, set-aside and extensification payments. This analysis is 'REPS neutral' – while the total REPS payout is projected to increase over time, we have assumed that it does not vary across the Baseline or the reform scenarios. As a result there is very little difference in the level of subsidies on production in 2012 between the Baseline or the three reform scenarios. One could argue that this might not be the case – for example the decision to participate in REPS might be less attractive for some producers under the Baseline and MIN options as compared with the MAX option.

1.5.6 Operating Surplus: Scenario Results

Under the three reform scenarios there is little change in the overall agricultural output value. Input expenditure declines to different degrees in each of the reform scenarios, so that the overall income position in 2012 under **all** reform options is more favourable than under the Baseline.

Under the MIN scenario, operating surplus is over 4 percent higher than under the Agenda 2000 Baseline policy. Under both the MAX and the MAX* scenarios the greater reduction in expenditure on inputs by the agricultural sector as a whole means that in 2012 operating surplus is up 10 percent relative to the Baseline in both cases. A more detailed presentation of the Output, Input and Income position in agriculture under the Baseline and the three Luxembourg Agreement reform scenarios is contained in Appendix Tables A1 to A7.

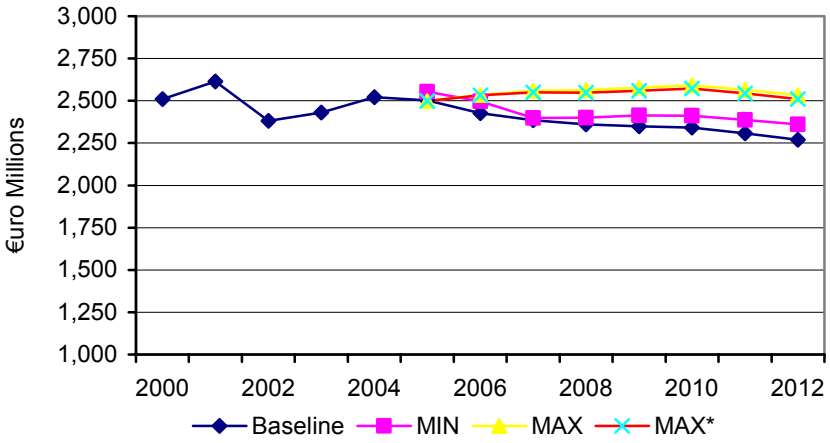
Figure 1-7 graphically presents the projections for agriculture operating surplus under the Baseline and under each of the three Luxembourg Agreement reform scenarios that were analysed. As argued in the introduction to this paper the MAX and MIN scenario represent what can be considered as extremes of the reform possibilities under the Luxembourg Agreement.

Figure 1-7 indicates that all of the reform scenarios analysed represent an "improvement" over a continuation of the present policy. The difference in operating surplus under the MAX and MAX* scenarios is marginal, with operating surplus slightly larger under the MAX scenario. In terms of operating surplus, both the MAX and MAX* scenarios are superior to the MIN scenario.

The volume and value of agricultural output is higher under the MIN scenario than under either the MAX or MAX* scenario. With increased level of expenditure on inputs required in the MIN scenario, this means that in income terms the sector is "better off" producing less and receiving the decoupled single farm payment entitlements established over the base period 2000-2002.

Under the MIN decoupling scenario subsidy receipts from the single farm payment and the coupled direct payments are lower than under either of the MAX or MAX* scenarios. This is due primarily to declining suckler cow and ewe numbers in the MIN reform scenario that necessarily imply lower aggregate national direct payment receipts.

Figure 1-7: Irish Operating Surplus (Agricultural Income):Baseline and Scenarios



Source: FAPRI-Ireland Partnership Model (2003).

1.6 Conclusion

The reform scenarios analysed in this paper represent just a small subset of some of the possible options that could be chosen across the 15 existing EU Member States within the terms of the Luxembourg Agreement. Each scenario also includes the EU WTO Modalities proposal of January 2003.

As already reflected in earlier analyses, the aggregate income effect of the scenarios analysed is positive when compared with the projected outcome under Agenda 2000. The scenarios have important and serious implications for Ireland, especially for its two largest agricultural sectors – beef and dairy.

Under the scenarios examined, relative to current levels, there is a pronounced decline in milk prices and the value of milk sector output. However much of the reductions had already been agreed to as part of Agenda 2000. The extent of the decline is such that it is unlikely that the compensatory payments being made available will be sufficient to offset the reduction in the output value of the sector. The decoupled dairy direct payments will increase the incentive for marginal milk producers to leave the sector. However, these payments and the price cuts are smaller than suggested in the January 2003 legislative proposals and this may temper the rate of exit and the degree of quota consolidation at farm level.

The analysis also suggests that the restrictions on the value of export subsidies that are proposed under the EU WTO modalities would create some pressure on cheese and “other” dairy product exports from the EU. This implies that exports from the EU may be constrained and in order that the surplus output can be absorbed within the EU, internal EU prices would have to decline further if the EU market were to be brought into balance.

Under the three Luxembourg Agreement reform scenarios, the EU WTO Modalities proposal is not projected to affect the EU beef sector; for further discussion see Binfield et al. (2003) and Donnellan and Hanrahan (2003). Variations in the beef sector outcome are solely attributable to the Luxembourg Agreement policy options selected. Under all three of the reform scenarios analysed suckler cow numbers are projected to decline across the EU, with the largest proportionate decline expected to occur in Ireland.

Relative to the Baseline of no policy change, the reduction in suckler cow numbers reduces EU beef supply and brings EU beef market into greater balance and leads to prices that are above Baseline levels. In all of the policy reform scenarios analysed, following initial declines in the value of output relative to the Baseline, the value of the Irish beef sector by the end of the projection period is relatively unchanged compared to the Baseline level. Under the MIN and MAX* scenarios the value of

cattle output is higher than under the Baseline while under the MAX scenario the value of output is marginally lower.

Despite the reduction in the value of dairy and crops sector output under all three of the Luxembourg Agreement reform scenarios, reduced expenditure on inputs, combined with more stable direct payment receipts produces increases in overall agricultural operating surplus. The MAX and MAX* scenarios by construction "lock-in" a greater proportion of the direct payment entitlement than the MIN scenario and the lower expenditure on inputs that occurs under these scenarios (when compared with the MIN scenario and the Baseline) result in operating surplus levels larger than the Baseline and the MIN scenario outcomes.

The analysis here suggests that the effects on non-dairy sectors of EU and Irish agriculture of the WTO elements of the scenario analysed would be somewhat modest. The changes that arise under the scenario relative to the Baseline in these sectors arise largely due to policy changes within the Luxembourg Agreement. However, more extensive trade reforms might have a more widespread impact on agriculture in the EU and Ireland. Results will also be sensitive to the future exchange rate between the euro and the US dollar.

All results presented in this paper are presented in nominal terms. Consequently with inflation projected to rise by about three per cent annually over the projection period, real agricultural income under the Baseline and under all three of the Luxembourg Agreement reform scenarios is set to decline over the period 2003-2012. However, the presentation of the results in nominal terms does not affect the key conclusion that each of the reform options examined provides a higher level of agricultural income in 2012 than the Baseline projection in the same year.

Farmer numbers are expected to fall during the period under review. If past trends continue, farmer numbers could fall by up to three per cent per annum depending on the prevailing agricultural policy climate. Should this trend prevail, then on a per farm basis, real income levels in agriculture might be expected to remain, on average, relatively static.

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Appendix I

Table A 1: Output Input and Income in Agriculture (Baseline) [7]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012 v 2000 to 02
	€uro millions													
Livestock	**2173**	**2178**	**2,005**	**2,106**	**2,159**	**2,127**	**2,042**	**2,014**	**1,992**	**1,987**	**1,985**	**1,988**	**1,987**	-6.2
of which: cattle	1366	1246	1,164	1,270	1,322	1,304	1,241	1,214	1,195	1,193	1,195	1,200	1,206	-4.2
pigs	295	350	296	315	319	311	301	298	294	292	287	283	275	-12.2
sheep and lambs	203	284	203	204	194	184	170	168	164	159	156	153	150	-35.1
Livestock Products	**1485**	**1602**	**1,456**	**1,421**	**1,427**	**1,380**	**1,335**	**1,295**	**1,301**	**1,304**	**1,307**	**1,308**	**1,309**	-13.6
of which: milk	1446	1564	1,417	1,390	1,397	1,349	1,303	1,262	1,266	1,269	1,271	1,271	1,272	-13.8
Crops	**1060**	**1097**	**1,011**	**1,011**	**1,014**	**1,015**	**1,016**	**1,019**	**1,023**	**1,026**	**1,029**	**1,031**	**1,033**	-2.2
of which: cereals	185	170	144	153	153	150	148	148	148	148	148	147	145	-12.7
root crops	139	162	149	140	144	147	151	154	158	160	162	163	163	8.7
forage plants	463	474	441	451	451	450	450	449	449	448	448	448	448	-2.6
Goods output at producer prices	**4719**	**4876**	**4,472**	**4,538**	**4,601**	**4,521**	**4,393**	**4,328**	**4,316**	**4,317**	**4,321**	**4,326**	**4,328**	-7.7
														-7.6
Agricultural services	288	317	331	327	321	322	319	312	307	305	305	306	306	-2.0
Subsidies less taxes on products	844	686	877	880	872	907	943	981	976	972	968	964	960	19.7
Agricultural output at basic prices	**5851**	**5879**	**5,680**	**5,745**	**5,793**	**5,750**	**5,654**	**5,621**	**5,599**	**5,595**	**5,595**	**5,596**	**5,594**	-3.6
Intermediate consumption	**2925**	**3056**	**3,122**	**3,149**	**3,131**	**3,117**	**3,101**	**3,097**	**3,090**	**3,091**	**3,097**	**3,110**	**3,130**	3.2
of which: feeding stuffs	831	876	954	909	879	843	813	792	773	757	743	725	716	-19.3
fertilizers	337	350	344	327	326	326	327	330	333	337	341	348	355	3.3
energy	299	298	308	336	351	354	359	364	369	375	383	392	401	33.0
forage plants	459	470	437	447	446	446	445	445	444	444	444	443	443	-2.7
agricultural services	288	317	331	327	321	322	319	312	307	305	305	306	306	-2.0
Gross value added at basic prices	**2926**	**2832**	**2,558**	**2,596**	**2,662**	**2,633**	**2,553**	**2,524**	**2,509**	**2,504**	**2,498**	**2,485**	**2,464**	-11.1
Fixed capital consumption	583	612	622.	622	622	622	622	622	622	622	622	622	622	2.7
Net value added basic prices	**2343**	**2222**	**1,936**	**1,974**	**2,040**	**2,011**	**1,931**	**1,902**	**1,887**	**1,882**	**1,876**	**1,863**	**1,842**	-15.0
Subsidies less taxes on production	451	694	743.	751	778	808	823	824	825	827	828	828	828	31.5
Factor income	2794	2906	2,679	2,725	2,818	2,819	2,754	2,726	2,713	2,709	2,704	2,691	2,670	-4.4
Compensation of employees	284	292	298	294	297	316	328	341	352	359	363	384	400	37.3
Operating surplus	**2510**	**2614**	**2,381**	**2,431**	**2,521**	**2,503**	**2,426**	**2,385**	**2,361**	**2,350**	**2,341**	**2,307**	**2,270**	-9.3

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

[7] The Baseline projections reproduced here are those published by FAPRI-Ireland in May 2003. See Binfield et al. (2003) for further details.

Table A 2: Output Input and Income in Agriculture (MAX Decoupling Scenario) [8]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012 v 2000 to 02
	€uro millions													
Livestock	**2,173**	**2,178**	**2,005**	**2,106**	**2,164**	**2,019**	**1,957**	**1,971**	**1,962**	**1,970**	**1,987**	**1,998**	**1,998**	-5.7
Of which: cattle	1,366	1,246	1,164	1,270	1,327	1,223	1,142	1,139	1,146	1,161	1,180	1,195	1,203	-4.4
pigs	295	350	296	315	319	307	303	301	295	293	290	286	277	-11.5
sheep and lambs	203	284	203	204	194	162	180	195	181	172	169	165	160	-30.7
Livestock Products	**1,485**	**1,602**	**1,456**	**1,421**	**1,396**	**1,357**	**1,307**	**1,282**	**1,273**	**1,274**	**1,268**	**1,257**	**1,254**	-17.2
of which: milk	1,446	1,564	1,417	1,390	1,366	1,327	1,276	1,248	1,238	1,239	1,232	1,220	1,218	-17.5
Crops	**1,060**	**1,097**	**1,011**	**1,011**	**1,014**	**1,017**	**1,020**	**1,026**	**1,032**	**1,035**	**1,036**	**1,032**	**1,026**	-2.9
Of which: cereals	185	170	144	153	153	151	145	144	143	143	143	141	140	-16.0
root crops	139	162	149	140	143	150	158	165	171	174	174	170	161	6.9
forage plants	463	474	441	451	451	450	449	449	449	449	449	449	449	-2.3
Goods output at producer prices	**4,719**	**4,876**	**4,472**	**4,538**	**4,575**	**4,394**	**4,284**	**4,278**	**4,267**	**4,279**	**4,291**	**4,287**	**4,278**	-8.8
Agricultural services	288	317	331	327	320	318	312	305	302	302	303	303	303	-2.9
Subsidies less taxes on products	844	686	877	875	900	958	1,019	1,018	1,017	1,015	1,014	1,013	1,012	26.1
Agricultural output at basic prices	**5,851**	**5,879**	**5,680**	**5,740**	**5,795**	**5,671**	**5,616**	**5,601**	**5,586**	**5,597**	**5,608**	**5,603**	**5,592**	-3.6
Intermediate consumption	**2,925**	**3,056**	**3,122**	**3,149**	**3,130**	**3,072**	**2,984**	**2,932**	**2,903**	**2,893**	**2,888**	**2,889**	**2,896**	-4.5
of which: feeding stuffs	831	876	954	909	879	831	779	747	721	702	684	663	651	-26.6
fertilizers	337	350	344	327	325	311	303	301	302	304	307	312	316	-7.9
energy	299	298	308	336	351	353	355	346	346	350	356	363	371	22.8
forage plants	459	470	437	447	446	445	445	445	444	444	444	444	444	-2.4
agricultural services	288	317	331	327	320	318	312	305	302	302	303	303	303	-2.9
Gross value added at basic prices	**2,926**	**2,832**	**2,558**	**2,591**	**2,664**	**2,599**	**2,632**	**2,670**	**2,683**	**2,704**	**2,720**	**2,714**	**2,696**	-2.8
Fixed capital consumption	583	612	622	622	622	622	622	622	622	622	622	622	622	2.7
Net value added basic prices	**2,343**	**2,222**	**1,936**	**1,969**	**2,042**	**1,977**	**2,010**	**2,048**	**2,061**	**2,082**	**2,098**	**2,092**	**2,074**	-4.3
Subsidies less taxes on production	451	694	743	751	809	839	852	852	854	855	856	857	859	36.4
Factor income	**2,794**	**2,906**	**2,679**	**2,720**	2,851	2,815	2,862	2,900	2,914	2,937	2,954	2,949	2,932	5.0
Compensation of employees	284	292	298	294	297	316	328	341	352	359	363	384	400	37.3
Operating surplus	**2,510**	**2,614**	**2,381**	**2,426**	**2,554**	**2,499**	**2,534**	**2,559**	**2,562**	**2,578**	**2,591**	**2,565**	**2,532**	1.2

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

[8] ·Full decoupling of all beef payments, ewe premiums and arable aid payments across all Member States in the EU15. WTO reform as per EU Modalities Paper of January 2003.

Table A 3: Output Input and Income in Agriculture (MIN Decoupling Scenario) [9]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012 v 2000 to 02
	€uro millions													
Livestock	**2,173**	**2,178**	**2,005**	**2,106**	**2,164**	**2,120**	**2,036**	**1,970**	**1,977**	**1,988**	**1,994**	**2,009**	**2,019**	-4.7
of which: cattle	1,366	1,246	1,164	1,270	1,327	1,299	1,237	1,182	1,174	1,179	1,193	1,211	1,227	-2.5
pigs	295	350	296	315	319	310	299	296	295	293	287	284	276	-11.9
sheep and lambs	203	284	203	204	194	184	169	158	170	173	167	163	159	-30.8
Livestock Products	**1,485**	**1,602**	**1,456**	**1,421**	**1,396**	**1,357**	**1,307**	**1,281**	**1,272**	**1,274**	**1,268**	**1,256**	**1,254**	-17.2
of which: milk	1,446	1,564	1,417	1,390	1,366	1,326	1,275	1,248	1,238	1,238	1,231	1,220	1,217	-17.5
Crops	**1,060**	**1,097**	**1,011**	**1,011**	**1,014**	**1,013**	**1,014**	**1,018**	**1,024**	**1,029**	**1,032**	**1,033**	**1,035**	-2.0
of which: cereals	185	170	144	153	153	149	147	147	148	149	150	148	147	-11.8
root crops	139	162	149	140	144	147	150	155	159	163	165	165	164	9.3
forage plants	463	474	441	451	451	450	450	449	448	448	447	447	447	-2.7
Goods output at producer prices	**4,719**	**4,876**	**4,472**	**4,538**	**4,575**	**4,490**	**4,357**	**4,269**	**4,274**	**4,291**	**4,295**	**4,299**	**4,308**	-8.1
Agricultural services	288	317	331	327	320	321	316	309	304	302	303	304	304	-2.5
Subsidies less taxes on products	844	686	877	875	886	959	1,020	1,019	1,016	1,012	1,009	1,006	1,005	25.2
Agricultural output at basic prices	**5,851**	**5,879**	**5,680**	**5,740**	**5,781**	**5,770**	**5,693**	**5,597**	**5,593**	**5,606**	**5,607**	**5,609**	**5,617**	-3.2
Intermediate consumption	**2,925**	**3,056**	**3,122**	**3,149**	**3,130**	**3,109**	**3,091**	**3,078**	**3,063**	**3,058**	**3,057**	**3,066**	**3,083**	1.6
of which: feeding stuffs	831	876	954	909	879	837	807	788	769	751	735	715	706	-20.4
fertilizers	337	350	344	327	325	326	327	327	328	331	334	340	347	1.1
energy	299	298	308	336	351	354	359	364	368	373	380	388	397	31.5
forage plants	459	470	437	447	446	446	445	444	444	443	443	443	442	-2.8
agricultural services	288	317	331	327	320	321	316	309	304	302	303	304	304	-2.5
Gross value added at basic prices	**2,926**	**2,832**	**2,558**	**2,591**	**2,651**	**2,661**	**2,602**	**2,519**	**2,530**	**2,548**	**2,550**	**2,544**	**2,533**	-8.6
Fixed capital consumption	583	612	622	622	622	622	622	622	622	622	622	622	622	2.7
Net value added basic prices	**2,343**	**2,222**	**1,936**	**1,969**	**2,029**	**2,039**	**1,980**	**1,896**	**1,908**	**1,926**	**1,927**	**1,921**	**1,911**	-11.8
Subsidies less taxes on production	451	694	743	751	795	830	844	844	845	847	848	849	850	35.1
Factor income	**2,794**	**2,906**	**2,679**	**2,720**	2,824	2,869	2,824	2,741	2,753	2,772	2,775	2,771	2,762	-1.1
Compensation of employees	284	292	298	294	297	316	328	341	352	359	363	384	400	37.3
Operating surplus	**2,510**	**2,614**	**2,381**	**2,426**	**2,527**	**2,553**	**2,496**	**2,399**	**2,401**	**2,413**	**2,412**	**2,387**	**2,361**	-5.6

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

[9] ·Partial decoupling of the slaughter premium, suckler cow premium, ewe premiums and arable aid payments across all Member States in the EU15. WTO reform as per EU Modalities Paper of January 2003.

Table A 4: Output Input and Income in Agriculture (MAX* Decoupling Scenario) [10]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012 v 2000 to 02
	€uro millions													
Livestock	**2,173**	**2,178**	**2,005**	**2,106**	**2,164**	**2,020**	**1,960**	**1,975**	**1,969**	**1,981**	**2,001**	**2,016**	**2,018**	-4.7
of which: cattle	1,366	1,246	1,164	1,270	1,327	1,225	1,149	1,148	1,158	1,175	1,197	1,215	1,226	-2.6
pigs	295	350	296	315	319	308	304	301	295	293	290	286	277	-11.5
sheep and lambs	203	284	203	204	194	161	176	190	177	168	166	162	158	-31.5
Livestock Products	**1,485**	**1,602**	**1,456**	**1,421**	**1,396**	**1,357**	**1,306**	**1,281**	**1,273**	**1,274**	**1,268**	**1,257**	**1,254**	-17.2
of which: milk	1,446	1,564	1,417	1,390	1,366	1,327	1,276	1,248	1,238	1,239	1,232	1,220	1,218	-17.5
Crops	**1,060**	**1,097**	**1,011**	**1,011**	**1,014**	**1,017**	**1,020**	**1,026**	**1,032**	**1,035**	**1,036**	**1,032**	**1,025**	-2.9
of which: cereals	185	170	144	153	153	151	145	144	143	143	143	141	140	-16.0
root crops	139	162	149	140	143	150	158	165	171	174	174	170	160	6.6
forage plants	463	474	441	451	451	450	449	449	449	449	449	449	449	-2.3
Goods output at producer prices	**4,719**	**4,876**	**4,472**	**4,538**	**4,575**	**4,395**	**4,287**	**4,282**	**4,274**	**4,290**	**4,305**	**4,304**	**4,298**	-8.3
Agricultural services	288	317	331	327	320	318	312	306	303	303	303	304	304	-2.5
Subsidies less taxes on products	844	686	877	875	901	959	1,020	1,015	1,011	1,009	1,007	1,006	1,005	25.2
Agricultural output at basic prices	**5,851**	**5,879**	**5,680**	**5,740**	**5,795**	**5,672**	**5,619**	**5,603**	**5,587**	**5,601**	**5,616**	**5,614**	**5,607**	-3.4
Intermediate consumption	**2,925**	**3,056**	**3,122**	**3,149**	**3,130**	**3,073**	**2,989**	**2,943**	**2,920**	**2,915**	**2,915**	**2,921**	**2,933**	-3.3
of which: feeding stuffs	831	876	954	909	879	831	781	751	727	709	693	673	662	-25.3
fertilizers	337	350	344	327	325	311	304	302	304	307	311	316	321	-6.5
energy	299	298	308	336	351	353	355	347	348	353	360	367	376	24.6
forage plants	459	470	437	447	446	445	445	445	444	444	444	444	444	-2.4
agricultural services	288	317	331	327	320	318	312	306	303	303	303	304	304	-2.5
Gross value added at basic prices	**2,926**	**2,832**	**2,558**	**2,591**	**2,665**	**2,599**	**2,630**	**2,660**	**2,668**	**2,687**	**2,701**	**2,693**	**2,673**	-3.6
Fixed capital consumption	583	612	622	622	622	622	622	622	622	622	622	622	622	2.7
Net value added basic prices	**2,343**	**2,222**	**1,936**	**1,969**	**2,043**	**1,977**	**2,007**	**2,038**	**2,046**	**2,065**	**2,079**	**2,071**	**2,051**	-5.3
Subsidies less taxes on production	451	694	743	751	809	839	852	852	854	855	856	857	859	36.4
Factor income	**2,794**	**2,906**	**2,679**	**2,720**	2,852	2,815	2,860	2,891	2,899	2,919	2,935	2,928	2,910	4.2
Compensation of employees	284	292	298	294	297	316	328	341	352	359	363	384	400	37.3
Operating surplus	**2,510**	**2,614**	**2,381**	**2,426**	**2,555**	**2,499**	**2,532**	**2,549**	**2,547**	**2,560**	**2,572**	**2,544**	**2,510**	0.3

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

[10] ·Full Decoupling of beef direct payments in 14 EU Member States. Full coupling of the slaughter premium in Ireland with all other beef direct payments decoupled in Ireland. Sheep policy and crops and oilseeds policies in all 15 EU Member States as per the MAX scenario. WTO reform as per EU Modalities Paper of January 2003.

Table A 5: Percentage Change from Baseline (MAX Decoupling Scenario)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Percentage change (scenario relative to Baseline)												
Livestock	0.0	0.0	0.0	0.0	0.3	-5.3	-4.4	-2.2	-1.5	-0.9	0.1	0.5	0.6
of which: cattle	0.0	0.0	0.0	0.0	0.4	-6.6	-8.6	-6.6	-4.3	-2.8	-1.3	-0.5	-0.2
pigs	0.0	0.0	0.0	0.0	0.1	-1.3	0.9	0.9	0.3	0.6	1.1	1.0	0.8
sheep and lambs	0.0	0.0	0.0	0.0	0.1	-13.8	5.5	13.9	9.7	7.2	7.8	7.3	6.3
Livestock Products	0.0	0.0	0.0	0.0	-2.2	-1.6	-2.1	-1.0	-2.2	-2.4	-3.1	-4.1	-4.3
of which: milk	0.0	0.0	0.0	0.0	-2.3	-1.7	-2.1	-1.1	-2.3	-2.4	-3.2	-4.2	-4.4
Crops	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.7	0.9	0.9	0.7	0.2	-0.7
of which: cereals	0.0	0.0	0.0	0.0	0.0	0.1	-2.0	-2.9	-3.2	-3.3	-3.6	-3.9	-4.0
root crops	0.0	0.0	0.0	0.0	-0.2	2.0	4.8	6.6	7.7	7.8	6.6	3.8	-1.8
forage plants	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3
Goods output at producer prices	0.0	0.0	0.0	0.0	-0.6	-2.9	-2.5	-1.2	-1.1	-0.9	-0.7	-0.9	-1.2
Agricultural services	0.0	0.0	0.0	0.0	-0.2	-1.1	-2.0	-2.2	-1.6	-1.1	-0.9	-0.8	-0.9
Subsidies less taxes on products	0.0	0.0	0.0	0.0	3.1	5.4	7.5	3.6	4.0	4.3	4.6	4.8	5.1
Agricultural output at basic prices	0.0	0.0	0.0	0.0	0.0	-1.4	-0.7	-0.4	-0.2	0.0	0.2	0.1	0.0
Intermediate consumption	0.0	0.0	0.0	0.0	0.0	-1.5	-3.9	-5.6	-6.4	-6.8	-7.2	-7.6	-8.1
of which: feeding stuffs	0.0	0.0	0.0	0.0	0.0	-1.4	-4.3	-6.1	-7.2	-7.9	-8.5	-9.3	-9.9
fertilizers	0.0	0.0	0.0	0.0	-0.2	-5.0	-8.2	-9.7	-10.3	-10.8	-11.2	-11.7	-12.2
energy	0.0	0.0	0.0	0.0	0.0	-0.3	-1.3	-5.4	-6.6	-7.3	-7.6	-7.9	-8.3
forage plants	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3
agricultural services	0.0	0.0	0.0	0.0	-0.2	-1.1	-2.0	-2.2	-1.6	-1.1	-0.9	-0.8	-0.9
Gross value added at basic prices	0.0	0.0	0.0	0.0	0.1	-1.3	3.0	5.4	6.5	7.4	8.2	8.4	8.6
Fixed capital consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net value added basic prices	0.0	0.0	0.0	0.0	0.1	-1.8	3.9	7.1	8.4	9.6	10.6	10.9	11.2
Subsidies less taxes on production	0.0	0.0	0.0	0.0	3.8	3.7	3.5	3.3	3.3	3.3	3.3	3.4	3.6
Factor income	0.0	0.0	0.0	0.0	1.2	-0.1	3.8	6.0	6.9	7.8	8.5	8.7	9.0
Compensation of employees	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operating surplus	0.0	0.0	0.0	0.0	1.3	-0.2	4.3	6.8	7.9	8.8	9.7	10.1	10.4

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

Table A 6: Percentage Change from Baseline (MIN Decoupling Scenario)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Percentage change (scenario relative to Baseline)												
Livestock	0.0	0.0	0.0	0.0	0.3	-0.3	-0.3	-2.3	-0.7	0.0	0.5	1.1	1.6
of which: cattle	0.0	0.0	0.0	0.0	0.4	-0.4	-0.3	-2.7	-1.8	-1.2	-0.2	0.9	1.7
pigs	0.0	0.0	0.0	0.0	0.1	-0.4	-0.5	-0.8	0.3	0.4	0.1	0.3	0.4
sheep and lambs	0.0	0.0	0.0	0.0	0.1	-0.3	-0.4	-6.1	3.5	7.7	6.5	6.1	6.1
Livestock Products	0.0	0.0	0.0	0.0	-2.2	-1.7	-2.1	-1.1	-2.3	-2.4	-3.1	-4.1	-4.3
of which: milk	0.0	0.0	0.0	0.0	-2.3	-1.7	-2.2	-1.1	-2.3	-2.5	-3.2	-4.2	-4.5
Crops	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.1	0.1	0.3	0.3	0.3	0.2
of which: cereals	0.0	0.0	0.0	0.0	0.0	-1.1	-1.2	-0.5	0.2	0.9	1.1	0.9	1.0
root crops	0.0	0.0	0.0	0.0	0.0	-0.1	-0.3	0.2	0.9	1.2	1.4	1.1	0.5
forage plants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Goods output at producer prices	0.0	0.0	0.0	0.0	-0.6	-0.7	-0.8	-1.4	-1.0	-0.6	-0.6	-0.6	-0.5
Agricultural services	0.0	0.0	0.0	0.0	-0.2	-0.4	-0.7	-1.0	-1.1	-1.0	-0.7	-0.6	-0.6
Subsidies less taxes on products	0.0	0.0	0.0	0.0	1.6	5.5	7.6	3.7	3.9	4.0	4.1	4.2	4.4
Agricultural output at basic prices	0.0	0.0	0.0	0.0	-0.2	0.3	0.7	-0.4	-0.1	0.2	0.2	0.2	0.4
Intermediate consumption	0.0	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.6	-0.9	-1.1	-1.3	-1.5	-1.5
of which: feeding stuffs	0.0	0.0	0.0	0.0	0.0	-0.6	-0.7	-0.5	-0.5	-0.7	-1.0	-1.3	-1.4
fertilizers	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.9	-1.5	-1.8	-2.1	-2.2	-2.2
Energy	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.3	-0.6	-0.8	-1.0	-1.2
forage plants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
agricultural services	0.0	0.0	0.0	0.0	-0.2	-0.4	-0.7	-1.0	-1.1	-1.0	-0.7	-0.6	-0.6
Gross value added at basic prices	0.0	0.0	0.0	0.0	-0.4	1.0	1.9	-0.2	0.8	1.7	2.0	2.3	2.7
Fixed capital consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net value added at basic prices	0.0	0.0	0.0	0.0	-0.5	1.4	2.5	-0.3	1.1	2.3	2.7	3.0	3.6
Subsidies less taxes on production	0.0	0.0	0.0	0.0	2.1	2.7	2.5	2.4	2.4	2.4	2.4	2.5	2.7
Factor income	0.0	0.0	0.0	0.0	0.2	1.7	2.5	0.5	1.5	2.3	2.6	2.9	3.3
Compensation of employees	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operating surplus	0.0	0.0	0.0	0.0	0.2	2.0	2.8	0.6	1.7	2.6	3.0	3.3	3.9

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

Table A 7: Percentage Change from Baseline (MAX* Decoupling Scenario)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Percentage change (scenario relative to Baseline)												
Livestock	0.0	0.0	0.0	0.0	0.3	-5.3	-4.2	-2.0	-1.1	-0.3	0.8	1.4	1.6
of which: cattle	0.0	0.0	0.0	0.0	0.4	-6.4	-8.0	-5.7	-3.2	-1.5	0.2	1.2	1.6
pigs	0.0	0.0	0.0	0.0	0.1	-1.3	0.9	0.9	0.3	0.6	1.1	1.0	0.8
sheep and lambs	0.0	0.0	0.0	0.0	0.1	-14.7	3.6	12.0	7.5	5.2	6.1	5.9	5.2
Livestock Products	0.0	0.0	0.0	0.0	-2.2	-1.6	-2.2	-1.0	-2.2	-2.4	-3.1	-4.1	-4.3
of which: milk	0.0	0.0	0.0	0.0	-2.3	-1.7	-2.1	-1.1	-2.3	-2.4	-3.2	-4.2	-4.4
Crops	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.7	0.9	0.9	0.7	0.1	-0.7
of which: cereals	0.0	0.0	0.0	0.0	0.0	0.1	-2.0	-2.9	-3.2	-3.3	-3.6	-3.9	-4.0
root crops	0.0	0.0	0.0	0.0	-0.2	2.0	4.8	6.6	7.7	7.8	6.6	3.7	-2.0
forage plants	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3
Goods output at producer prices	0.0	0.0	0.0	0.0	-0.6	-2.9	-2.5	-1.1	-1.0	-0.6	-0.4	-0.5	-0.7
Agricultural services	0.0	0.0	0.0	0.0	-0.2	-1.1	-2.0	-2.1	-1.5	-0.9	-0.7	-0.5	-0.5
Subsidies less taxes on products	0.0	0.0	0.0	0.0	3.2	5.4	7.5	3.4	3.4	3.6	3.9	4.2	4.4
Agricultural output at basic prices	0.0	0.0	0.0	0.0	0.0	-1.4	-0.6	-0.3	-0.2	0.1	0.4	0.3	0.2
Intermediate consumption	0.0	0.0	0.0	0.0	0.0	-1.4	-3.7	-5.2	-5.8	-6.0	-6.2	-6.5	-6.7
of which: feeding stuffs	0.0	0.0	0.0	0.0	0.0	-1.4	-4.0	-5.5	-6.4	-6.8	-7.2	-7.8	-8.1
fertilizers	0.0	0.0	0.0	0.0	-0.2	-4.9	-7.8	-9.0	-9.5	-9.7	-9.9	-10.1	-10.5
Energy	0.0	0.0	0.0	0.0	0.0	-0.3	-1.2	-5.0	-6.0	-6.5	-6.5	-6.6	-6.8
forage plants	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3
agricultural services	0.0	0.0	0.0	0.0	-0.2	-1.1	-2.0	-2.1	-1.5	-0.9	-0.7	-0.5	-0.5
Gross value added at basic prices	0.0	0.0	0.0	0.0	0.1	-1.3	2.9	5.1	5.9	6.8	7.5	7.7	7.8
Fixed capital consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net value added at basic prices	0.0	0.0	0.0	0.0	0.2	-1.7	3.8	6.7	7.7	8.8	9.8	10.0	10.2
Subsidies less taxes on production	0.0	0.0	0.0	0.0	3.8	3.7	3.5	3.3	3.3	3.3	3.3	3.4	3.6
Factor income	0.0	0.0	0.0	0.0	1.2	-0.1	3.7	5.7	6.4	7.2	7.9	8.1	8.2
Compensation of employees	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operating surplus	0.0	0.0	0.0	0.0	1.3	-0.2	4.2	6.4	7.3	8.2	9.0	9.3	9.6

Source: FAPRI-Ireland Partnership Model (2003).
Historical data, CSO.

Background notes to the Output, Input and Income Table

Introduction	The historical estimates and projections are based on a new methodology arising from the revision of the System of National Accounts in 1995.
National farm	The concept of the "National farm" has been dropped. With this change, certain transactions between farms and between different enterprises within the same farm are now valued as both output and intermediate consumption.
Basic prices	Output is now valued added at basic prices. The basic price corresponds to the producer (ex-farm) price plus any subsidies directly linked to a product minus any taxes on products. VAT is excluded. Subsidies and taxes linked to production are not included in output.
Forage plants	The production of forage plants is now valued as a part of output. Silage and hay are the main items in this category. These items are also treated as intermediate consumption with minor exceptions such as sales of straw to racing stables.
Agricultural services	Activities performed by agricultural contractors directly related to the production of agricultural products (e.g. harvesting) are an integral part of agriculture. The value of such work is included as output and also as intermediate consumption.
Fixed capital consumption	This relates to foreseeable wear and tear and obsolescence of fixed capital goods. It is calculated on the basis of the probable economic life of the asset. It is not calculated for breeding livestock or for non-produced assets such as land.
Compensation of employees	This includes remuneration in cash and in kind. It does not include the remuneration of work undertaken by the farmer or by non-salaried family farm members.
Operating surplus	This indicator is an approximation for the income indicator used under the old agricultural accounts methodology. It is calculated before deductions for interest payments on borrowed capital and before deductions for land annuities and for rent paid by farmers to landowners for the use of their land.
Land rental	This mainly corresponds to rents paid by farmers to the landowners. Land annuity payments as well as rentals for under and over one year are included.
Interest paid	This concerns interest payable on a capital loan granted to finance agricultural activity.
Entrepreneurial income	This is before payment by farmers of taxes on income.

Source: Adapted from the CSO Output, Input and Income In Agriculture Release (2003)

Appendix II. Baseline Commodity Projections

Baseline

EU-15 cereal supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Soft wheat and durum														
							thousand hectares							
Area harvested	17,134	17,946	16,785	17,947	17,910	17,851	17,859	17,871	17,929	17,993	18,062	18,118	18,170	18,210
							tonnes per hectare							
Yield	5.69	5.87	5.48	5.82	5.75	5.85	5.95	6.04	6.13	6.22	6.32	6.41	6.50	6.59
							million tonnes							
Production	97.44	105.33	91.96	104.37	102.98	104.40	106.18	107.97	109.93	112.00	114.09	116.12	118.12	120.07
Beginning stocks	17.39	14.09	14.14	13.98	14.24	14.37	14.62	15.07	15.70	16.58	17.60	18.65	19.65	20.64
Imports	26.87	28.31	31.92	34.12	34.77	34.81	34.97	34.95	34.73	34.48	34.27	34.08	33.91	33.73
Total supply	141.70	147.73	138.01	152.47	151.99	153.58	155.76	157.99	160.36	163.06	165.97	168.85	171.68	174.44
Domestic use	84.28	90.68	90.67	97.11	96.41	97.46	98.76	99.77	100.53	101.30	102.16	103.05	103.94	104.79
Feed	36.84	42.38	42.30	47.45	46.74	47.50	48.49	49.25	49.76	50.29	50.92	51.57	52.23	52.82
Other	47.43	48.30	48.37	49.66	49.67	49.96	50.27	50.52	50.76	51.01	51.25	51.47	51.72	51.97
Exports	43.85	43.06	33.36	41.12	41.21	41.50	41.93	42.53	43.25	44.16	45.15	46.16	47.10	48.03
Ending stocks	14.09	14.14	13.98	14.24	14.37	14.62	15.07	15.70	16.58	17.60	18.65	19.65	20.64	21.62
Loss, statistical disc.	-0.51	-0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net exports	16.98	14.75	1.44	7.00	6.43	6.69	6.97	7.58	8.52	9.68	10.88	12.07	13.19	14.31
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Soft wheat	119.6	119.9	123.0	113.0	117.7	117.3	114.8	112.9	111.8	110.6	109.6	108.8	107.9	107.0
Durum wheat	159.1	149.7	172.6	173.9	156.8	160.9	159.4	159.5	158.4	159.0	159.2	160.4	160.4	159.2
Barley, maize, and rye														
							thousand hectares							
Area harvested	16,071	16,123	16,499	16,050	16,114	16,232	16,276	16,338	16,267	16,190	16,107	16,034	15,971	15,920
							tonnes per hectare							
Yield	5.70	5.90	5.75	5.81	5.89	5.94	6.00	6.06	6.13	6.20	6.26	6.33	6.40	6.46
							million tonnes							
Production	91.67	95.16	94.83	93.29	94.88	96.43	97.68	98.95	99.68	100.34	100.88	101.48	102.15	102.87
Beginning stocks	24.68	17.76	19.02	20.52	22.07	21.75	21.89	22.42	23.36	24.35	25.38	26.35	27.26	28.23
Imports	22.50	23.66	25.27	19.83	20.63	20.68	20.99	21.24	21.52	21.70	21.92	22.17	22.47	22.71
Total supply	138.84	136.58	139.12	133.64	137.58	138.85	140.56	142.62	144.56	146.39	148.18	150.00	151.89	153.80
Domestic use	82.61	84.05	88.92	86.01	87.65	88.27	89.18	90.05	90.70	91.23	91.79	92.35	92.92	93.43
Feed	63.44	64.28	65.19	62.49	63.97	64.53	65.35	66.14	66.74	67.22	67.74	68.28	68.82	69.30
Other	19.17	19.77	23.72	23.52	23.68	23.74	23.83	23.91	23.96	24.01	24.05	24.07	24.10	24.13
Exports	38.58	33.55	29.69	25.56	28.19	28.69	28.95	29.20	29.49	29.76	30.03	30.36	30.72	31.05
Ending stocks	17.76	19.02	20.52	22.07	21.75	21.89	22.42	23.36	24.35	25.38	26.35	27.26	28.23	29.30
Net exports	16.08	9.89	4.42	5.73	7.55	8.01	7.95	7.95	7.97	8.06	8.11	8.19	8.25	8.34
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Barley	113.1	112.6	111.9	102.3	110.8	110.4	108.3	105.8	104.4	103.0	102.0	101.1	100.4	99.5
Maize	138.5	139.5	136.8	132.1	133.2	133.3	131.1	129.1	127.0	125.5	124.5	123.8	122.8	121.6
Rye	104.9	105.3	99.2	93.5	96.7	97.0	97.3	97.4	97.5	97.4	97.3	97.2	97.1	97.0

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

Irish all wheat supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
							thousand hectares							
Area harvested	68	84	84	98	82	82	82	81	81	82	82	82	82	81
							tonnes per hectare							
Yield	8.77	9.47	10.24	9.13	8.59	8.71	8.72	8.87	8.98	9.08	9.19	9.30	9.28	9.26
							million tonnes							
Production	0.60	0.80	0.86	0.89	0.70	0.71	0.71	0.72	0.73	0.75	0.76	0.76	0.76	0.75
Beginning stocks	0.04	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Imports	0.82	0.64	0.85	0.96	0.81	0.82	0.85	0.86	0.87	0.87	0.88	0.89	0.92	0.94
Total supply	1.45	1.47	1.77	1.92	1.53	1.58	1.59	1.61	1.63	1.64	1.66	1.68	1.70	1.72
Domestic use	1.24	1.19	1.56	1.72	1.32	1.38	1.40	1.41	1.43	1.45	1.47	1.49	1.51	1.53
Feed	0.81	0.74	0.92	1.09	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Other	0.43	0.44	0.65	0.64	0.41	0.47	0.48	0.50	0.51	0.53	0.55	0.56	0.58	0.60
Exports	0.18	0.22	0.14	0.19	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Ending stocks	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Loss, statistical disc.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feed wheat price							Jan.-Dec. average							
euro/tonne	107.9	105.4	117.8	99.5	102.2	102.1	100.5	98.4	97.2	96.0	95.1	94.3	93.7	92.9
IR£/tonne	85.0	83.0	92.8	78.4	80.5	80.4	79.1	77.5	76.5	75.6	74.9	74.3	73.8	73.1

Source: FAPRI-Ireland Partnership Model (2003).

Irish barley and maize supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Barley														
							thousand hectares							
Area harvested	192	181	182	176	182	181	181	181	181	180	180	180	180	180
							tonnes per hectare							
Yield	6.67	7.18	7.02	5.47	7.01	7.03	7.06	7.08	7.09	7.12	7.14	7.16	7.16	7.16
							million tonnes							
Production	1.28	1.30	1.28	0.96	1.27	1.27	1.28	1.28	1.29	1.28	1.29	1.29	1.29	1.29
Beginning stocks	0.15	0.18	0.14	0.00	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Imports	0.04	0.03	0.06	0.26	0.16	0.16	0.17	0.17	0.18	0.19	0.20	0.20	0.21	0.22
Total supply	1.47	1.51	1.48	1.22	1.55	1.57	1.58	1.59	1.61	1.61	1.62	1.63	1.64	1.65
Domestic use	1.19	1.17	1.19	1.33	1.34	1.35	1.37	1.39	1.40	1.42	1.44	1.46	1.47	1.49
Feed	0.86	0.86	0.97	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Other	0.33	0.31	0.21	0.35	0.36	0.37	0.38	0.39	0.41	0.42	0.43	0.45	0.46	0.48
Exports	0.11	0.21	0.22	0.07	0.08	0.08	0.07	0.07	0.06	0.05	0.04	0.04	0.03	0.02
Ending stocks	0.18	0.14	0.08	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Market prices							euro per tonne, Jan.-Dec. average							
Feed barley	102.8	102.1	103.7	88.1	98.3	98.3	96.6	94.6	93.4	92.2	91.3	90.5	89.8	89.1
Malt barley	123.1	113.1	121.5	105.8	116.1	116.1	114.4	112.4	111.1	110.0	109.0	108.2	107.6	106.8
							Irish pounds per tonne, Jan.-Dec. average							
Feed barley	81.0	80.4	81.7	69.4	77.5	77.4	76.1	74.5	73.5	72.6	71.9	71.3	70.8	70.1
Malt barley	97.0	89.1	95.7	83.4	91.5	91.4	90.1	88.5	87.5	86.6	85.9	85.3	84.8	84.1
Maize for grain														
							million tonnes							
Production	0.10	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Beginning stocks	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Imports	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Total supply	0.39	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Domestic use	0.31	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Feed	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Other	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Exports	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ending stocks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

EU-15 Cattle

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	82.92	82.74	81.33	80.36	78.69	78.31	77.81	77.33	76.82	76.29	75.71	75.14	74.60	74.12
Dairy cows	21.49	21.11	20.40	20.15	19.52	19.35	19.12	18.98	18.82	18.66	18.44	18.23	18.02	17.82
Suckler cows	11.83	12.05	12.12	12.00	11.85	11.81	11.85	11.88	11.84	11.81	11.79	11.79	11.81	11.85
Suckler cow quota	11.37	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82
Cattle slaughter	27.87	26.93	25.85	26.47	26.09	26.23	26.25	26.35	26.19	26.06	25.83	25.62	25.41	25.22
							kilograms per head							
Slaughter weight	275.4	274.9	279.1	280.7	280.8	281.9	282.2	281.8	281.8	282.0	282.3	282.7	283.1	283.5
France							million head							
Beginning inventories	20.06	20.22	20.09	20.28	19.73	19.26	18.89	18.61	18.37	18.16	17.96	17.79	17.63	17.51
Dairy cows	4.43	4.42	4.15	4.19	4.13	4.09	4.04	4.02	3.99	3.97	3.92	3.88	3.85	3.81
Suckler cows	4.04	4.07	4.21	4.20	4.08	4.07	4.08	4.09	4.08	4.07	4.05	4.05	4.05	4.07
Suckler cow quota	3.89	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78
Cattle slaughter	5.72	5.48	5.58	5.94	5.73	5.58	5.48	5.42	5.36	5.32	5.25	5.19	5.14	5.10
							kilograms per head							
Slaughter weight	281.1	278.9	280.7	280.3	277.5	277.1	276.1	274.7	273.9	273.5	273.4	273.3	273.3	273.4
Germany							million head							
Beginning inventories	14.94	14.66	14.57	14.23	13.70	13.36	13.08	12.86	12.67	12.52	12.36	12.21	12.08	11.95
Dairy cows	4.83	4.71	4.56	4.47	4.37	4.30	4.24	4.20	4.16	4.12	4.06	4.01	3.96	3.91
Suckler cows	0.75	0.79	0.82	0.80	0.76	0.74	0.74	0.74	0.74	0.74	0.75	0.75	0.76	0.77
Suckler cow quota	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Cattle slaughter	4.56	4.29	4.36	4.33	4.11	3.99	3.87	3.81	3.74	3.71	3.65	3.60	3.56	3.51
							kilograms per head							
Slaughter weight	301.3	304.2	312.5	300.4	304.8	305.9	306.0	305.4	305.5	305.6	306.1	306.6	307.1	307.6
Italy							million head							
Beginning inventories	7.32	7.36	7.40	7.40	7.26	6.92	6.74	6.59	6.47	6.37	6.29	6.21	6.15	6.10
Dairy cows	2.12	2.13	2.17	2.17	1.91	1.97	1.95	1.92	1.90	1.87	1.84	1.82	1.79	1.77
Suckler cows	0.69	0.71	0.65	0.63	0.60	0.57	0.55	0.53	0.52	0.52	0.51	0.52	0.52	0.52
Suckler cow quota	0.79	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Cattle slaughter	4.51	4.43	4.26	4.27	4.26	4.13	4.05	3.97	3.91	3.86	3.81	3.77	3.74	3.71
							kilograms per head							
Slaughter weight	256.3	259.0	265.3	260.1	262.5	261.9	261.5	260.8	260.9	261.0	261.5	261.9	262.5	263.1
UK							million head							
Beginning inventories	11.24	11.28	10.88	10.16	10.39	10.73	10.89	10.94	10.94	10.91	10.86	10.80	10.75	10.71
Dairy cows	2.47	2.44	2.34	2.20	2.24	2.19	2.18	2.17	2.16	2.15	2.13	2.11	2.09	2.08
Suckler cows	1.93	1.91	1.78	1.67	1.69	1.68	1.69	1.68	1.67	1.66	1.65	1.65	1.65	1.65
Suckler cow quota	1.81	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Cattle slaughter	2.29	2.43	2.17	2.28	2.11	2.43	2.68	2.90	2.91	2.90	2.89	2.87	2.85	2.84
							kilograms per head							
Slaughter weight	295.7	291.1	301.1	303.3	302.4	303.3	303.1	302.1	302.8	303.3	303.9	304.4	305.1	305.6

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

EU-15 Pigs

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	125.53	124.47	122.00	122.24	122.67	122.36	123.24	124.40	124.60	124.42	124.70	125.38	126.18	126.82
Sows	13.06	12.63	12.48	12.39	12.29	12.29	12.40	12.43	12.34	12.31	12.32	12.36	12.39	12.41
Pig slaughter	209.02	202.98	200.16	202.02	201.78	202.03	203.92	205.42	205.49	205.55	206.39	207.80	209.22	210.26
							kilograms per head							
Slaughter weight	86.1	86.6	87.5	87.6	88.0	88.3	88.5	88.5	88.7	88.8	89.1	89.2	89.4	89.4
France							million head							
Beginning inventories	15.87	15.99	15.17	15.25	14.49	14.66	14.60	14.62	14.58	14.51	14.52	14.58	14.68	14.77
Sows	1.52	1.47	1.38	1.36	1.35	1.33	1.33	1.32	1.31	1.31	1.31	1.31	1.32	1.32
Pig slaughter	27.22	26.97	26.47	26.55	25.44	25.56	25.52	25.53	25.44	25.38	25.43	25.57	25.74	25.88
							kilograms per head							
Slaughter weight	86.4	85.7	87.5	86.5	86.9	87.1	87.1	86.9	87.0	87.1	87.2	87.2	87.3	87.2
Germany							million head							
Beginning inventories	26.29	26.00	25.77	25.96	26.48	26.14	26.22	26.38	26.32	26.17	26.13	26.18	26.27	26.32
Sows	2.66	2.58	2.53	2.52	2.51	2.49	2.51	2.50	2.48	2.46	2.45	2.46	2.45	2.45
Pig slaughter	44.58	43.24	44.03	44.71	45.47	45.18	45.38	45.54	45.40	45.23	45.23	45.34	45.48	45.54
							kilograms per head							
Slaughter weight	92.0	92.1	92.5	92.2	92.5	92.8	92.8	92.7	92.8	93.0	93.1	93.2	93.3	93.3
Italy							million head							
Beginning inventories	8.32	8.42	8.33	8.41	8.28	8.25	8.35	8.45	8.46	8.45	8.46	8.49	8.52	8.54
Sows	0.71	0.69	0.71	0.73	0.71	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Pig slaughter	12.99	12.92	13.15	13.28	13.20	13.23	13.39	13.51	13.51	13.50	13.53	13.58	13.63	13.66
							kilograms per head							
Slaughter weight	113.0	114.3	115.4	114.2	115.0	115.4	115.5	115.4	115.6	115.9	116.1	116.3	116.5	116.5
UK							million head							
Beginning inventories	7.55	7.04	5.95	5.69	5.33	5.11	5.01	4.98	4.91	4.85	4.85	4.89	4.92	4.94
Sows	0.80	0.75	0.65	0.61	0.58	0.56	0.56	0.55	0.54	0.54	0.54	0.54	0.55	0.55
Pig slaughter	14.73	12.69	10.63	10.56	9.15	8.83	8.70	8.61	8.48	8.43	8.46	8.54	8.60	8.62
							kilograms per head							
Slaughter weight	71.1	72.7	73.5	72.3	74.3	74.8	75.0	75.2	75.5	75.9	76.2	76.5	76.8	77.0

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

EU-15 Sheep

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	98.44	96.36	94.93	90.31	90.63	91.15	91.03	90.51	89.95	89.71	89.52	89.20	88.81	88.44
Ewes	70.21	70.23	69.32	65.42	65.85	66.07	65.78	65.35	64.96	64.87	64.72	64.47	64.20	63.97
Sheep slaughter	69.85	69.68	63.99	66.29	66.60	67.45	67.54	67.13	66.46	66.32	66.28	66.08	65.77	65.54
							kilograms per head							
Slaughter weight	16.2	16.3	17.1	16.5	16.4	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
France							million head							
Beginning inventories	9.55	9.51	9.32	9.24	9.12	8.90	8.73	8.61	8.54	8.51	8.48	8.47	8.45	8.45
Ewes	7.50	7.39	7.31	7.13	7.01	6.82	6.70	6.61	6.56	6.54	6.53	6.51	6.50	6.50
Sheep slaughter	7.28	7.39	7.42	7.35	7.31	7.09	6.92	6.80	6.71	6.68	6.66	6.64	6.62	6.62
							kilograms per head							
Slaughter weight	19.0	19.0	19.1	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.1
Germany							million head							
Beginning inventories	2.28	2.17	2.17	2.12	2.07	2.03	1.99	1.97	1.96	1.96	1.96	1.96	1.97	1.98
Ewes	1.64	1.62	1.61	1.57	1.53	1.49	1.47	1.45	1.45	1.45	1.45	1.45	1.46	1.46
Sheep slaughter	2.17	2.16	2.20	2.15	2.11	2.06	2.01	1.98	1.97	1.96	1.97	1.97	1.97	1.98
										kilograms per head				
Slaughter weight	20.3	20.7	20.6	20.5	20.4	20.4	20.4	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Italy							million head							
Beginning inventories	10.89	11.02	11.09	10.95	10.97	10.92	10.85	10.78	10.73	10.70	10.67	10.64	10.61	10.58
Ewes	8.13	8.23	8.33	8.22	8.25	8.20	8.15	8.11	8.08	8.06	8.04	8.01	7.99	7.97
Sheep slaughter	7.39	7.00	6.66	6.69	6.78	6.76	6.72	6.68	6.63	6.62	6.61	6.59	6.57	6.56
							kilograms per head							
Slaughter weight	9.9	9.9	10.9	10.7	10.6	10.6	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.8
UK							million head							
Beginning inventories	31.08	29.74	27.59	24.43	24.90	25.68	25.90	25.77	25.56	25.51	25.50	25.40	25.23	25.05
Ewes	20.33	19.88	18.51	16.08	16.43	16.82	16.84	16.71	16.58	16.60	16.58	16.50	16.39	16.28
Sheep slaughter	19.12	18.38	12.88	14.99	15.11	16.07	16.40	16.33	16.04	16.01	16.06	16.03	15.90	15.78
							kilograms per head							
Slaughter weight	18.9	19.6	20.7	20.5	20.4	20.3	20.3	20.4	20.4	20.5	20.5	20.5	20.5	20.5

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

Irish livestock supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cattle								million head						
Beginning inventories	6.95	6.56	6.33	6.41	6.34	6.25	6.16	6.08	6.01	5.95	5.89	5.84	5.79	5.75
Dairy cows	1.20	1.17	1.15	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.04	1.03	1.02
Suckler cows	1.20	1.17	1.16	1.16	1.15	1.14	1.13	1.13	1.12	1.11	1.10	1.10	1.09	1.09
Other cattle	4.56	4.22	4.02	4.10	4.06	3.99	3.92	3.86	3.81	3.77	3.74	3.70	3.67	3.64
Calf crop	2.24	2.19	2.16	2.16	2.13	2.12	2.09	2.08	2.06	2.04	2.02	2.00	1.98	1.97
Cattle imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total supply	9.19	8.75	8.49	8.57	8.47	8.37	8.26	8.16	8.07	7.99	7.91	7.84	7.78	7.72
Cattle slaughter	2.13	1.89	1.89	1.78	1.89	1.91	1.88	1.86	1.84	1.82	1.80	1.78	1.77	1.75
Cow slaughter	0.41	0.36	0.37	0.32	0.38	0.37	0.37	0.37	0.36	0.36	0.35	0.35	0.34	0.34
Calf slaughter	0.02	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other slaughter	1.70	1.52	1.52	1.45	1.51	1.54	1.51	1.49	1.47	1.45	1.44	1.43	1.42	1.41
Cattle exports	0.33	0.33	0.06	0.13	0.26	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.20	0.20
Destruction, other loss	0.17	0.20	0.12	0.32	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Ending inventories	6.56	6.33	6.41	6.34	6.25	6.16	6.08	6.01	5.95	5.89	5.84	5.79	5.75	5.71
Suckler cow quota	1.11	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
								kilograms per head						
Slaughter weight	298.6	305.5	224.0	303.0	304.7	305.7	307.1	306.3	305.3	304.9	305.1	305.6	306.2	306.8
Pigs								million head						
Beginning inventories	1.80	1.76	1.73	1.76	1.78	1.84	1.84	1.83	1.85	1.88	1.88	1.85	1.82	1.78
Sows	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Other pigs	1.61	1.58	1.55	1.58	1.60	1.66	1.65	1.65	1.67	1.70	1.70	1.67	1.64	1.60
Pig crop	3.51	3.24	3.33	3.33	3.36	3.32	3.34	3.38	3.38	3.35	3.33	3.31	3.31	3.29
Pig imports	0.20	0.23	0.06	0.10	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.15
Total supply	5.51	5.24	5.13	5.19	5.26	5.28	5.30	5.34	5.37	5.37	5.34	5.31	5.27	5.23
Pig slaughter	3.49	3.14	3.25	3.11	3.13	3.16	3.19	3.20	3.21	3.21	3.21	3.21	3.21	3.21
Pig exports	0.26	0.36	0.13	0.32	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.27	0.27	0.27
Destruction, other loss	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending inventories	1.76	1.73	1.73	1.78	1.84	1.84	1.83	1.85	1.88	1.88	1.85	1.82	1.78	1.75
								kilograms per head						
Slaughter weight	70.3	70.0	72.1	71.5	71.6	71.7	71.6	71.4	71.3	71.3	71.3	71.3	71.2	71.1
	0.77	0.78	0.78	0.79	0.77	0.77	0.77	0.77	0.76	0.77	0.77	0.77	0.77	0.77
Sheep								million head						
Beginning inventories	5.62	5.39	5.06	4.81	4.83	4.72	4.58	4.46	4.36	4.28	4.21	4.13	4.05	3.98
Ewes	4.34	4.18	3.93	3.81	3.73	3.63	3.51	3.41	3.33	3.28	3.23	3.17	3.11	3.06
Other sheep	1.28	1.21	1.12	1.00	1.10	1.08	1.07	1.05	1.03	1.00	0.98	0.96	0.94	0.92
Lamb crop	4.38	4.27	4.01	3.89	3.62	3.52	3.40	3.30	3.23	3.17	3.12	3.06	3.01	2.96
Sheep imports	0.16	0.15	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Total supply	10.16	9.81	9.29	8.96	8.71	8.50	8.25	8.02	7.85	7.73	7.60	7.46	7.33	7.22
Sheep slaughter	4.52	4.12	3.90	3.29	3.66	3.59	3.47	3.35	3.27	3.22	3.18	3.12	3.07	3.02
Sheep exports	0.14	0.14	0.03	0.03	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09
Destruction, other loss	0.11	0.50	0.55	0.81	0.23	0.22	0.22	0.21	0.21	0.20	0.20	0.20	0.19	0.19
Ending inventories	5.39	5.06	4.81	4.83	4.72	4.58	4.46	4.36	4.28	4.21	4.13	4.05	3.98	3.92
								kilograms per head						
Slaughter weight	20.1	20.1	20.0	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

EU-15 meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	7,678	7,403	7,214	7,431	7,326	7,396	7,408	7,425	7,381	7,347	7,293	7,242	7,194	7,151
Non-EU imports	391	385	330	450	458	464	469	473	484	491	498	503	506	508
Domestic use	7,645	7,274	6,788	7,390	7,444	7,386	7,369	7,387	7,382	7,370	7,340	7,300	7,258	7,209
Non-EU exports	872	579	500	530	569	517	507	511	482	468	451	444	442	450
Stock change	-448	-65	257	-39	-228	-42	0	0	0	0	0	0	0	0
Intervention/SPS stocks	117	52	309	270	42	0	0	0	0	0	0	0	0	0
Pig meat														
Production	18,002	17,586	17,519	17,690	17,757	17,845	18,037	18,172	18,217	18,262	18,381	18,538	18,696	18,806
Non-EU imports	67	49	52	50	52	53	54	55	57	58	58	59	59	61
Domestic use	16,345	16,384	16,503	16,540	16,644	16,687	16,826	16,980	17,041	17,091	17,140	17,221	17,310	17,440
Non-EU exports	1,522	1,260	1,082	1,200	1,150	1,213	1,256	1,233	1,229	1,229	1,301	1,375	1,443	1,422
Stock change	202	-8	-15	0	15	-3	9	14	3	0	-1	1	2	5
Poultry meat														
Production	8,756	8,799	9,073	8,972	8,858	8,945	9,043	9,119	9,220	9,328	9,442	9,552	9,663	9,766
Non-EU imports	391	577	732	711	742	748	754	759	764	768	773	778	782	787
Domestic use	8,179	8,456	8,799	8,582	8,602	8,703	8,805	8,884	8,989	9,098	9,212	9,321	9,431	9,532
Non-EU exports	1,012	974	961	1,093	992	987	983	984	987	992	997	1,002	1,008	1,014
Stock change	-44	-53	45	8	6	2	9	10	7	7	6	6	6	6
Sheep meat														
Production	1,131	1,135	1,096	1,091	1,094	1,110	1,112	1,105	1,095	1,093	1,094	1,091	1,087	1,083
Non-EU imports	257	263	252	255	258	258	259	261	264	265	267	269	272	274
Domestic use	1,387	1,400	1,346	1,342	1,349	1,365	1,368	1,363	1,355	1,356	1,358	1,358	1,356	1,355
Non-EU exports	3	4	3	3	3	3	3	3	3	3	3	3	3	3
Stock change	-1	-6	-1	2	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	20.37	19.37	18.00	19.55	19.67	19.49	19.43	19.46	19.43	19.39	19.30	19.18	19.07	18.93
Pig meat	43.56	43.62	43.76	43.75	43.97	44.04	44.37	44.73	44.86	44.96	45.06	45.25	45.47	45.80
Poultry meat	21.80	22.51	23.33	22.70	22.73	22.97	23.22	23.40	23.66	23.93	24.22	24.49	24.77	25.03
Sheep meat	3.70	3.73	3.57	3.55	3.56	3.60	3.61	3.59	3.57	3.57	3.57	3.57	3.56	3.56
Total	89.42	89.24	88.65	89.55	89.93	90.11	90.63	91.19	91.52	91.85	92.15	92.50	92.87	93.32
Premia							euro per head							
Male bovine premium	135.0	160.0	185.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
Suckler cow premium	145.0	163.0	182.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Prices							euro per 100 kilograms							
Young cattle R3	277.0	278.7	236.4	250.5	241.4	251.2	249.2	240.6	238.4	237.2	238.7	240.5	242.7	244.8
Pig meat reference	111.7	141.6	166.8	135.8	139.7	143.0	139.8	134.7	134.0	133.7	133.8	132.9	131.8	129.2
Chicken	124.4	132.7	157.0	137.1	132.8	135.1	133.2	130.7	129.4	128.2	127.4	126.4	125.5	124.5
Sheep meat reference	324.4	357.5	412.7	415.2	384.5	378.0	372.5	369.1	372.2	369.9	367.5	366.3	366.5	364.8
Beef intervention	347.5	324.2	301.3	278.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

Irish meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	637	576	424	540	577	585	578	569	561	555	549	545	541	537
Imports	9	12	16	16	20	20	20	20	20	20	20	20	19	19
Domestic use	64	62	66	68	68	67	66	67	66	66	66	65	65	65
Exports	640	526	366	475	530	539	532	523	515	508	503	499	495	492
Intervention/SPS stocks	0	0	8	0	0	0	0	0	0	0	0	0	0	0
Pig meat														
Production	245	220	239	223	224	227	228	229	229	229	229	229	229	228
Imports	33	32	22	47	33	33	36	40	42	44	45	47	49	51
Domestic use	135	135	135	143	141	143	146	149	151	153	156	159	161	165
Exports	140	120	127	127	116	117	119	120	120	119	119	118	116	114
Ending stocks	4	1	0	0	0	0	0	0	0	0	0	0	0	0
Broiler meat														
Production	88	88	88	94	75	76	77	77	78	79	80	81	81	82
Imports	14	14	26	24	35	37	38	40	42	44	46	48	50	52
Domestic use	87	87	99	100	95	103	105	107	109	112	114	117	119	122
Exports	15	15	15	19	15	9	10	10	11	11	11	12	12	12
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other poultry meat														
Production	44	44	44	38	38	38	39	39	40	40	40	41	41	42
Imports	7	7	13	12	18	18	19	20	21	22	23	24	25	26
Domestic use	27	27	33	25	37	32	34	35	36	38	39	40	42	43
Exports	24	24	24	25	18	24	24	24	24	24	24	24	24	24
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep meat														
Production	91	83	78	66	74	72	70	67	66	65	64	63	62	61
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	34	36	21	29	25	25	26	26	25	25	24	24	23	23
Exports	59	49	59	40	51	49	46	44	43	42	42	41	40	40
Stock change	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	17.08	16.37	17.28	17.65	17.44	16.99	16.78	16.67	16.46	16.24	15.97	15.70	15.44	15.19
Pig meat	36.02	35.65	35.35	37.13	36.33	36.38	36.80	37.23	37.44	37.59	37.76	38.05	38.38	38.80
Broiler meat	23.15	22.92	25.86	25.90	24.43	26.32	26.54	26.73	27.05	27.36	27.68	28.01	28.34	28.66
Other poultry meat	7.32	7.25	8.76	6.36	9.61	8.26	8.52	8.71	8.95	9.20	9.45	9.70	9.95	10.19
Sheep meat	9.07	9.45	5.50	7.40	6.41	6.47	6.47	6.39	6.13	6.02	5.89	5.74	5.55	5.40
Total	92.64	91.65	92.75	94.43	94.23	94.42	95.11	95.72	96.03	96.41	96.75	97.20	97.67	98.24
Market prices							euro per 100 kilograms							
Cattle reference	103.1	114.5	108.4	113.9	109.7	114.4	113.5	109.5	108.6	108.1	108.9	109.9	111.0	112.1
Pig meat	101.6	129.5	147.9	129.5	133.0	135.9	132.0	126.3	125.2	124.5	124.2	122.8	121.3	118.5
Sheep meat reference	250.1	300.4	427.1	357.3	346.6	340.3	335.0	331.7	334.7	332.5	330.2	329.0	329.1	327.5
							euro per pair							
Chicken	2.96	2.92	3.17	3.17	2.73	2.77	2.74	2.69	2.67	2.65	2.63	2.61	2.60	2.58
							Irish pounds per 100 kilograms							
Cattle reference	81.2	90.2	85.4	89.7	86.4	90.1	89.4	86.2	85.5	85.1	85.8	86.5	87.4	88.3
Pig meat	80.0	102.0	116.5	102.0	104.7	107.0	104.0	99.5	98.6	98.0	97.8	96.8	95.6	93.3
Sheep meat reference	196.9	236.6	336.4	281.4	273.0	268.0	263.8	261.3	263.6	261.9	260.0	259.1	259.2	257.9
							Irish pounds per pair							
Chicken	2.33	2.30	2.50	2.50	2.15	2.18	2.15	2.12	2.10	2.08	2.07	2.06	2.04	2.03

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

EU-15 dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	21,111	20,395	20,153	19,517	19,352	19,124	18,975	18,818	18,662	18,436	18,227	18,022	17,822	17,626
							kilograms							
Production/cow	5,752	5,918	6,055	6,272	6,311	6,380	6,446	6,512	6,579	6,649	6,717	6,785	6,852	6,920
Fluid milk							million tonnes							
Cow's milk production	121.42	120.70	122.02	122.40	122.14	122.00	122.31	122.55	122.78	122.58	122.43	122.27	122.12	121.97
Milk quota	117.49	118.67	119.18	119.18	119.18	119.18	119.66	120.14	120.62	120.62	120.62	120.62	120.62	120.62
Other milk production	4.08	3.80	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20	4.21
Fluid consumption	32.98	32.50	32.65	32.79	32.64	32.57	32.67	32.74	32.76	32.63	32.52	32.40	32.29	32.16
Manufacturing use	88.28	87.49	88.88	89.11	89.11	89.09	89.34	89.54	89.77	89.73	89.75	89.76	89.77	89.78
Feed use, net exports	4.23	4.51	4.59	4.61	4.51	4.47	4.43	4.42	4.40	4.38	4.34	4.30	4.27	4.23
Cheese							thousand tonnes							
Production	6,710	6,884	7,180	7,219	7,273	7,326	7,428	7,519	7,611	7,645	7,687	7,727	7,768	7,806
Non-EU imports	142	144	169	133	152	154	156	157	159	161	163	165	167	169
Domestic use	6,498	6,561	6,897	6,931	6,960	7,007	7,103	7,192	7,281	7,320	7,362	7,402	7,444	7,482
Non-EU exports	376	436	447	463	464	472	475	479	484	485	487	489	491	493
Ending stocks	448	479	484	442	443	444	449	455	460	462	462	462	462	462
Butter														
Production	1,886	1,851	1,825	1,870	1,847	1,840	1,828	1,815	1,805	1,803	1,800	1,796	1,793	1,790
Non-EU imports	106	106	115	115	115	115	115	115	115	115	115	115	115	115
Domestic use	1,761	1,771	1,748	1,705	1,725	1,719	1,723	1,725	1,727	1,720	1,714	1,707	1,700	1,693
Non-EU exports	169	185	179	185	207	220	223	217	211	205	204	206	208	211
Ending stocks	128	129	142	237	267	282	279	267	249	241	238	237	237	239
Skim powder														
Production	1,116	1,049	974	1,063	1,018	996	958	920	886	879	869	860	849	841
Non-EU imports	71	75	48	59	57	57	57	57	57	57	57	57	57	57
Domestic use	954	924	835	882	852	846	842	837	830	821	811	801	792	781
Non-EU exports	272	356	140	150	175	182	180	173	160	146	138	132	127	124
Ending stocks	273	117	164	254	302	326	319	285	238	207	184	167	154	146
Whole powder														
Production	902	870	814	836	824	820	821	827	832	830	829	828	827	825
Non-EU imports	8	8	16	16	16	16	16	16	16	16	16	16	16	16
Domestic use	311	341	342	352	350	348	350	350	351	349	347	345	343	341
Non-EU exports	577	576	478	500	489	487	487	492	498	498	499	500	501	501
Ending stocks	71	32	42	42	43	43	44	44	44	44	43	43	42	41
Consumption							kilograms per capita							
Fluid milk	87.89	86.53	86.57	86.75	86.23	85.98	86.16	86.24	86.25	85.85	85.49	85.14	84.81	84.46
Cheese	17.32	17.47	18.29	18.34	18.39	18.49	18.73	18.95	19.17	19.26	19.36	19.45	19.55	19.65
Butter	4.69	4.72	4.63	4.51	4.56	4.54	4.54	4.55	4.55	4.53	4.51	4.48	4.46	4.45
Prices							euro per 100 kilograms							
Milk, 3.7% fat	28.7	29.6	31.5	30.1	29.6	29.8	28.9	28.1	27.3	27.3	27.2	27.2	27.1	27.1
Cheese market	473.5	477.4	493.0	496.3	488.8	491.8	480.1	467.9	456.2	456.0	455.3	454.4	453.6	452.8
Butter market	364.3	363.5	361.2	352.9	341.0	340.6	325.1	309.6	294.6	292.0	289.6	287.2	284.5	281.3
SMP market	207.0	251.1	242.7	204.0	204.7	205.0	197.6	191.0	185.6	187.2	187.8	188.3	188.9	190.1
WMP market	262.5	290.8	271.1	248.7	243.0	243.8	236.1	229.2	222.5	222.6	222.3	222.0	221.7	221.4
Butter intervention	328.2	328.2	328.2	328.2	328.2	328.2	311.8	295.4	279.0	279.0	279.0	279.0	279.0	279.0
SMP intervention	205.5	205.5	205.5	205.5	205.5	205.5	195.2	185.0	174.7	174.7	174.7	174.7	174.7	174.7

Source: FAPRI-Ireland Partnership Model (2003).

Baseline

Irish dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	1,174	1,153	1,148	1,129	1,121	1,106	1,094	1,082	1,070	1,056	1,043	1,030	1,020	1,009
							kilograms							
Production/cow	4,567	4,684	4,854	4,800	4,878	4,928	4,966	5,006	5,047	5,093	5,140	5,187	5,239	5,292
Fluid milk							million tonnes							
Cow's milk Production	5.36	5.40	5.57	5.42	5.47	5.45	5.43	5.41	5.40	5.38	5.36	5.34	5.34	5.34
Milk quota	5.24	5.29	5.37	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Other milk production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluid consumption	0.57	0.54	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.60	0.60	0.61	0.62	0.62
Manufacturing use	4.60	4.67	4.83	4.67	4.72	4.70	4.67	4.65	4.63	4.60	4.58	4.56	4.56	4.55
Feed use, net exports	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17
Cheese							thousand tonnes							
Production	97	96	122	114	115	116	118	119	121	121	123	124	125	127
Imports	15	15	14	13	14	15	17	18	19	21	22	23	24	25
Domestic use	25	25	28	29	31	32	34	36	37	39	41	42	44	46
Exports	85	85	108	98	98	99	100	101	102	103	104	104	105	106
Ending stocks	25	26	26	26	26	26	26	27	27	28	28	28	28	29
Butter														
Production	145	145	141	143	139	138	136	134	132	131	130	129	128	127
Imports	3	3	3	2	1	2	2	4	5	6	7	7	7	7
Domestic use	15	15	15	16	16	16	16	17	17	17	17	18	18	18
Exports	130	120	122	100	130	126	122	120	119	118	118	116	115	114
Ending stocks	48	61	67	97	92	90	90	90	91	92	94	96	98	100
Skim powder														
Production	88	79	78	96	86	83	83	80	78	77	75	74	73	72
Imports	2	2	3	3	3	4	4	4	4	4	5	5	5	5
Domestic use	11	11	10	11	11	11	11	11	11	11	11	11	11	12
Exports	70	125	49	53	96	84	79	74	71	70	68	67	66	65
Ending stocks	89	34	57	92	75	67	64	63	63	63	63	63	63	63
Whole powder														
Production	33	35	33	27	29	29	29	29	29	29	29	29	29	29
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exports	34	36	33	28	30	30	30	30	30	30	30	30	30	30
Ending stocks	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Consumption							kilograms per capita							
Fluid milk	151	142	146	146	146	146	146	146	146	146	146	146	146	147
Cheese	6.67	7.09	7.35	7.61	7.92	8.23	8.57	8.89	9.22	9.52	9.82	10.13	10.45	10.78
Butter	4.00	3.90	4.00	4.06	4.07	4.09	4.12	4.15	4.18	4.20	4.21	4.23	4.24	4.26
Milk price, 3.7% fat														
euro/100 kg	26.67	27.34	28.45	25.89	25.42	25.55	24.65	23.79	23.00	23.06	23.07	23.08	23.08	23.10
IR£/100 kg	21.00	21.53	22.41	20.39	20.02	20.12	19.42	18.74	18.12	18.16	18.17	18.18	18.18	18.20

Source: FAPRI-Ireland Partnership Model (2003).

Appendix III: MAX Scenario Commodity Projections

MAX Scenario

EU-15 cereal supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Soft wheat and durum														
							thousand hectares							
Area harvested	17,134	17,946	16,785	17,947	17,910	17,854	17,636	17,552	17,689	17,775	17,752	17,801	17,865	17,951
							tonnes per hectare							
Yield	5.69	5.87	5.48	5.82	5.75	5.85	6.01	6.09	6.18	6.27	6.36	6.45	6.55	6.64
							million tonnes							
Production	97.44	105.33	91.96	104.37	102.98	104.40	105.93	106.94	109.26	111.41	112.94	114.90	116.95	119.17
Beginning stocks	17.39	14.09	14.14	13.98	14.24	14.37	14.62	15.03	15.40	16.21	17.13	17.93	18.81	19.76
Imports	26.87	28.31	31.92	34.12	34.77	34.82	35.03	35.03	34.83	34.61	34.51	34.33	34.16	33.93
Total supply	141.70	147.73	138.01	152.47	151.99	153.59	155.59	157.00	159.49	162.23	164.58	167.16	169.92	172.86
Domestic use	84.28	90.68	90.67	97.11	96.41	97.46	98.77	99.48	100.41	101.38	102.09	102.90	103.78	104.68
Feed	36.84	42.38	42.30	47.45	46.74	47.50	48.58	49.04	49.69	50.42	50.90	51.49	52.12	52.76
Other	47.43	48.30	48.37	49.66	49.67	49.96	50.19	50.44	50.72	50.96	51.19	51.41	51.66	51.92
Exports	43.85	43.06	33.36	41.12	41.21	41.51	41.78	42.12	42.88	43.72	44.56	45.46	46.38	47.35
Ending stocks	14.09	14.14	13.98	14.24	14.37	14.62	15.03	15.40	16.21	17.13	17.93	18.81	19.76	20.83
Loss, statistical disc.	-0.51	-0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net exports	16.98	14.75	1.44	7.00	6.43	6.69	6.76	7.09	8.05	9.11	10.05	11.12	12.22	13.42
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Soft wheat	119.6	119.9	123.0	113.0	117.7	117.3	114.3	113.3	111.1	110.2	109.6	108.8	107.8	106.7
Durum wheat	159.1	149.7	172.6	173.9	156.8	160.6	176.9	173.4	170.6	170.5	171.6	172.8	172.9	171.6
Barley, maize, and rye														
							thousand hectares							
Area harvested	16,071	16,123	16,499	16,050	16,114	16,230	16,039	16,208	16,072	15,971	15,996	15,939	15,873	15,777
							tonnes per hectare							
Yield	5.70	5.90	5.75	5.81	5.89	5.94	6.02	6.07	6.14	6.22	6.27	6.34	6.40	6.48
							million tonnes							
Production	91.67	95.16	94.83	93.29	94.88	96.42	96.51	98.34	98.75	99.31	100.35	101.02	101.66	102.17
Beginning stocks	24.68	17.76	19.02	20.52	22.07	21.75	21.88	21.23	21.41	21.42	22.10	22.83	23.54	24.21
Imports	22.50	23.66	25.27	19.83	20.63	20.68	21.10	21.41	21.71	21.88	22.06	22.27	22.51	22.77
Total supply	138.84	136.58	139.12	133.64	137.58	138.85	139.50	140.98	141.87	142.60	144.50	146.12	147.70	149.15
Domestic use	82.61	84.05	88.92	86.01	87.65	88.27	89.24	90.24	90.84	90.96	91.76	92.35	92.96	93.39
Feed	63.44	64.28	65.19	62.49	63.97	64.53	65.37	66.27	66.80	67.00	67.70	68.26	68.83	69.25
Other	19.17	19.77	23.72	23.52	23.68	23.74	23.87	23.97	24.04	23.96	24.05	24.09	24.13	24.14
Exports	38.58	33.55	29.69	25.56	28.19	28.69	29.03	29.33	29.60	29.53	29.90	30.21	30.51	30.78
Ending stocks	17.76	19.02	20.52	22.07	21.75	21.88	21.23	21.41	21.42	22.10	22.83	23.54	24.21	24.97
Net exports	16.08	9.89	4.42	5.73	7.55	8.01	7.93	7.92	7.89	7.66	7.85	7.94	8.00	8.01
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Barley	113.1	112.6	111.9	102.3	110.8	110.4	108.4	105.8	104.4	103.3	102.4	101.5	100.6	99.7
Maize	138.5	139.5	136.8	132.1	133.2	133.3	131.6	129.6	127.2	126.0	125.2	124.3	123.3	122.0
Rye	104.9	105.3	99.2	93.5	96.7	97.0	87.9	83.8	79.8	106.2	92.9	90.5	88.5	93.6

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

Irish all wheat supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
							thousand hectares							
Area harvested	68	84	84	98	82	82	82	80	79	80	79	79	79	78
							tonnes per hectare							
Yield	8.77	9.47	10.24	9.13	8.59	8.71	8.72	8.87	8.98	9.08	9.19	9.30	9.28	9.27
							million tonnes							
Production	0.60	0.80	0.86	0.89	0.70	0.71	0.71	0.71	0.71	0.72	0.73	0.74	0.73	0.73
Beginning stocks	0.04	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Imports	0.82	0.64	0.85	0.96	0.81	0.82	0.85	0.87	0.89	0.89	0.91	0.92	0.94	0.97
Total supply	1.45	1.47	1.77	1.92	1.53	1.58	1.59	1.61	1.62	1.64	1.66	1.68	1.70	1.72
Domestic use	1.24	1.19	1.56	1.72	1.32	1.38	1.40	1.41	1.43	1.45	1.47	1.49	1.51	1.53
Feed	0.81	0.74	0.92	1.09	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Other	0.43	0.44	0.65	0.64	0.41	0.47	0.48	0.50	0.51	0.53	0.55	0.56	0.58	0.60
Exports	0.18	0.22	0.14	0.19	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Ending stocks	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Loss, statistical disc.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feed wheat price							Jan.-Dec. average							
euro/tonne	107.9	105.4	117.8	99.5	102.2	102.1	100.6	98.3	97.2	96.3	95.5	94.6	93.8	93.0
IR£/tonne	85.0	83.0	92.8	78.4	80.5	80.4	79.2	77.4	76.5	75.8	75.2	74.5	73.9	73.2

Source: FAPRI-Ireland Partnership Model (2003).

Irish barley and maize supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Barley														
							thousand hectares							
Area harvested	192	181	182	176	182	181	181	177	176	174	174	173	173	173
							tonnes per hectare							
Yield	6.67	7.18	7.02	5.47	7.01	7.03	7.06	7.10	7.13	7.17	7.19	7.21	7.21	7.21
							million tonnes							
Production	1.28	1.30	1.28	0.96	1.27	1.27	1.28	1.26	1.26	1.25	1.25	1.25	1.25	1.25
Beginning stocks	0.15	0.18	0.14	0.00	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Imports	0.04	0.03	0.06	0.26	0.16	0.16	0.17	0.19	0.21	0.23	0.24	0.25	0.27	0.28
Total supply	1.47	1.51	1.48	1.22	1.55	1.57	1.59	1.59	1.60	1.61	1.63	1.64	1.65	1.67
Domestic use	1.19	1.17	1.19	1.33	1.34	1.35	1.37	1.39	1.40	1.42	1.44	1.46	1.47	1.49
Feed	0.86	0.86	0.97	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Other	0.33	0.31	0.21	0.35	0.36	0.37	0.38	0.39	0.41	0.42	0.43	0.45	0.46	0.48
Exports	0.11	0.21	0.22	0.07	0.08	0.08	0.08	0.07	0.06	0.05	0.05	0.05	0.04	0.04
Ending stocks	0.18	0.14	0.08	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Market prices							euro per tonne, Jan.-Dec. average							
Feed barley	102.8	102.1	103.7	88.1	98.3	98.3	96.8	94.5	93.3	92.4	91.7	90.8	90.0	89.2
Malt barley	123.1	113.1	121.5	105.8	116.1	116.1	114.6	112.3	111.1	110.2	109.5	108.6	107.8	107.0
							Irish pounds per tonne, Jan.-Dec. average							
Feed barley	81.0	80.4	81.7	69.4	77.5	77.4	76.2	74.4	73.5	72.8	72.2	71.5	70.9	70.2
Malt barley	97.0	89.1	95.7	83.4	91.5	91.4	90.2	88.4	87.5	86.8	86.2	85.5	84.9	84.2
Maize for grain														
							million tonnes							
Production	0.10	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Beginning stocks	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Imports	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Total supply	0.39	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Domestic use	0.31	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Feed	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Other	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Exports	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ending stocks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

EU-15 Cattle

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	82.92	82.74	81.33	80.36	78.69	78.31	77.87	76.67	75.35	74.08	72.96	71.97	71.16	70.50
Dairy cows	21.49	21.11	20.40	20.15	19.52	19.35	19.15	18.95	18.80	18.64	18.46	18.25	18.05	17.85
Suckler cows	11.83	12.05	12.12	12.00	11.85	11.81	11.90	11.26	10.85	10.60	10.47	10.43	10.45	10.51
Suckler cow quota	11.37	10.82	10.82	10.82	10.82	11.01	11.01	11.01	11.01	11.01	11.01	11.01	11.01	11.01
Cattle slaughter	27.87	26.93	25.85	26.47	26.09	26.19	26.92	26.53	26.03	25.54	25.15	24.77	24.46	24.22
							kilograms per head							
Slaughter weight	275.4	274.9	279.1	280.7	280.8	281.9	281.9	281.6	282.0	282.3	282.6	283.1	283.5	283.9
France							million head							
Beginning inventories	20.06	20.22	20.09	20.28	19.73	19.26	18.89	18.44	17.94	17.47	17.05	16.69	16.40	16.17
Dairy cows	4.43	4.42	4.15	4.19	4.13	4.09	4.05	4.01	3.99	3.96	3.93	3.89	3.85	3.81
Suckler cows	4.04	4.07	4.21	4.20	4.08	4.07	4.09	3.88	3.73	3.64	3.59	3.57	3.58	3.60
Suckler cow quota	3.89	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78
Cattle slaughter	5.72	5.48	5.58	5.94	5.73	5.58	5.62	5.47	5.32	5.18	5.06	4.95	4.86	4.80
							kilograms per head							
Slaughter weight	281.1	278.9	280.7	280.3	277.5	277.2	276.7	275.5	274.6	273.5	272.7	272.1	271.6	271.3
Germany							million head							
Beginning inventories	14.94	14.66	14.57	14.23	13.70	13.36	13.08	12.82	12.59	12.39	12.21	12.05	11.90	11.77
Dairy cows	4.83	4.71	4.56	4.47	4.37	4.30	4.24	4.19	4.15	4.11	4.07	4.01	3.96	3.92
Suckler cows	0.75	0.79	0.82	0.80	0.76	0.74	0.74	0.71	0.69	0.68	0.68	0.68	0.69	0.70
Suckler cow quota	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Cattle slaughter	4.56	4.29	4.36	4.33	4.11	3.98	3.91	3.81	3.73	3.66	3.61	3.55	3.50	3.46
							kilograms per head							
Slaughter weight	301.3	304.2	312.5	300.4	304.8	306.0	305.0	305.4	306.0	306.6	307.3	308.1	308.8	309.5
Italy							million head							
Beginning inventories	7.32	7.36	7.40	7.40	7.26	6.92	6.74	6.57	6.42	6.29	6.18	6.10	6.04	5.99
Dairy cows	2.12	2.13	2.17	2.17	1.91	1.97	1.95	1.92	1.90	1.87	1.84	1.82	1.79	1.77
Suckler cows	0.69	0.71	0.65	0.63	0.60	0.57	0.55	0.51	0.49	0.48	0.47	0.48	0.48	0.49
Suckler cow quota	0.79	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Cattle slaughter	4.51	4.43	4.26	4.27	4.26	4.13	4.06	3.98	3.90	3.83	3.77	3.73	3.69	3.66
							kilograms per head							
Slaughter weight	256.3	259.0	265.3	260.1	262.5	261.9	260.5	260.7	261.3	261.9	262.6	263.3	264.1	264.8
UK							million head							
Beginning inventories	11.24	11.28	10.88	10.16	10.39	10.73	10.89	10.84	10.68	10.50	10.34	10.21	10.11	10.03
Dairy cows	2.47	2.44	2.34	2.20	2.24	2.19	2.18	2.16	2.15	2.14	2.13	2.11	2.09	2.08
Suckler cows	1.93	1.91	1.78	1.67	1.69	1.68	1.69	1.57	1.48	1.43	1.40	1.39	1.39	1.39
Suckler cow quota	1.81	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Cattle slaughter	2.29	2.43	2.17	2.28	2.11	2.42	2.76	2.95	2.89	2.82	2.76	2.71	2.67	2.65
							kilograms per head							
Slaughter weight	295.7	291.1	301.1	303.3	302.4	303.4	301.8	302.0	303.4	304.4	305.2	306.1	306.9	307.6

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

EU-15 Pigs

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	125.53	124.47	122.00	122.24	122.67	122.36	123.25	124.19	124.36	124.66	125.19	125.78	126.60	127.37
Sows	13.06	12.63	12.48	12.39	12.29	12.29	12.40	12.39	12.34	12.36	12.36	12.40	12.44	12.47
Pig slaughter	209.02	202.98	200.16	202.02	201.78	202.03	203.82	204.99	205.38	206.17	207.19	208.50	210.03	211.24
							kilograms per head							
Slaughter weight	86.1	86.6	87.5	87.6	88.0	88.3	88.4	88.5	88.7	88.9	89.1	89.2	89.4	89.5
France							million head							
Beginning inventories	15.87	15.99	15.17	15.25	14.49	14.66	14.60	14.60	14.55	14.54	14.58	14.64	14.74	14.85
Sows	1.52	1.47	1.38	1.36	1.35	1.33	1.33	1.32	1.31	1.31	1.31	1.32	1.32	1.33
Pig slaughter	27.22	26.97	26.47	26.55	25.44	25.56	25.51	25.48	25.42	25.45	25.53	25.67	25.86	26.02
							kilograms per head							
Slaughter weight	86.4	85.7	87.5	86.5	86.9	87.1	87.0	87.0	87.1	87.1	87.2	87.3	87.3	87.2
Germany							million head							
Beginning inventories	26.29	26.00	25.77	25.96	26.48	26.14	26.23	26.34	26.28	26.24	26.25	26.28	26.36	26.44
Sows	2.66	2.58	2.53	2.52	2.51	2.49	2.51	2.50	2.48	2.47	2.46	2.46	2.46	2.46
Pig slaughter	44.58	43.24	44.03	44.71	45.47	45.18	45.37	45.46	45.38	45.36	45.40	45.49	45.64	45.73
							kilograms per head							
Slaughter weight	92.0	92.1	92.5	92.2	92.5	92.8	92.7	92.8	92.9	93.0	93.2	93.3	93.4	93.3
Italy							million head							
Beginning inventories	8.32	8.42	8.33	8.41	8.28	8.25	8.36	8.43	8.44	8.46	8.48	8.51	8.54	8.57
Sows	0.71	0.69	0.71	0.73	0.71	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Pig slaughter	12.99	12.92	13.15	13.28	13.20	13.23	13.39	13.48	13.50	13.53	13.57	13.61	13.67	13.71
							kilograms per head							
Slaughter weight	113.0	114.3	115.4	114.2	115.0	115.5	115.4	115.5	115.7	115.9	116.2	116.4	116.6	116.6
UK							million head							
Beginning inventories	7.55	7.04	5.95	5.69	5.33	5.11	5.01	4.96	4.89	4.87	4.89	4.92	4.95	4.98
Sows	0.80	0.75	0.65	0.61	0.58	0.56	0.56	0.55	0.54	0.54	0.54	0.55	0.55	0.55
Pig slaughter	14.73	12.69	10.63	10.56	9.15	8.83	8.70	8.58	8.48	8.48	8.53	8.59	8.66	8.70
							kilograms per head							
Slaughter weight	71.1	72.7	73.5	72.3	74.3	74.8	74.9	75.2	75.6	75.9	76.2	76.6	76.8	77.0

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

EU-15 Sheep

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15								million head						
Beginning inventories	98.44	96.36	94.93	90.31	90.63	91.15	91.04	86.15	83.97	84.90	84.98	84.40	84.09	83.88
Ewes	70.21	70.23	69.32	65.42	65.85	66.07	65.79	61.37	60.92	61.94	61.63	61.18	61.05	60.91
Sheep slaughter	69.85	69.68	63.99	66.29	66.60	67.44	71.05	64.36	61.07	62.81	63.12	62.43	62.20	62.18
								kilograms per head						
Slaughter weight	16.2	16.3	17.1	16.5	16.4	16.5	16.4	16.5	16.5	16.5	16.5	16.6	16.6	16.6
France								million head						
Beginning inventories	9.55	9.51	9.32	9.24	9.12	8.90	8.73	8.23	8.12	8.24	8.25	8.22	8.23	8.24
Ewes	7.50	7.39	7.31	7.13	7.01	6.82	6.70	6.26	6.24	6.36	6.34	6.32	6.33	6.34
Sheep slaughter	7.28	7.39	7.42	7.35	7.31	7.09	7.23	6.49	6.25	6.46	6.49	6.43	6.44	6.46
								kilograms per head						
Slaughter weight	19.0	19.0	19.1	19.0	19.0	19.0	18.9	19.1	19.2	19.1	19.1	19.2	19.2	19.2
Germany								million head						
Beginning inventories	2.28	2.17	2.17	2.12	2.07	2.03	1.99	1.87	1.84	1.87	1.87	1.87	1.88	1.89
Ewes	1.64	1.62	1.61	1.57	1.53	1.49	1.47	1.37	1.36	1.39	1.39	1.39	1.40	1.40
Sheep slaughter	2.17	2.16	2.20	2.15	2.11	2.06	2.08	1.89	1.83	1.88	1.89	1.88	1.89	1.90
										kilograms per head				
Slaughter weight	20.3	20.7	20.6	20.5	20.4	20.4	20.4	20.5	20.7	20.6	20.6	20.6	20.7	20.7
Italy								million head						
Beginning inventories	10.89	11.02	11.09	10.95	10.97	10.92	10.85	10.41	10.20	10.24	10.23	10.18	10.16	10.16
Ewes	8.13	8.23	8.33	8.22	8.25	8.20	8.16	7.76	7.70	7.76	7.73	7.70	7.69	7.68
Sheep slaughter	7.39	7.00	6.66	6.69	6.78	6.76	7.05	6.58	6.30	6.39	6.40	6.35	6.33	6.34
								kilograms per head						
Slaughter weight	9.9	9.9	10.9	10.7	10.6	10.6	10.6	10.7	10.8	10.7	10.8	10.8	10.8	10.8
UK								million head						
Beginning inventories	31.08	29.74	27.59	24.43	24.90	25.68	25.90	24.11	23.11	23.52	23.69	23.51	23.38	23.27
Ewes	20.33	19.88	18.51	16.08	16.43	16.82	16.84	15.24	15.07	15.50	15.46	15.32	15.27	15.19
Sheep slaughter	19.12	18.38	12.88	14.99	15.11	16.06	17.70	15.29	13.83	14.47	14.75	14.55	14.46	14.43
								kilograms per head						
Slaughter weight	18.9	19.6	20.7	20.5	20.4	20.3	20.2	20.4	20.6	20.6	20.6	20.6	20.6	20.6

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

Irish livestock supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cattle								million head						
Beginning inventories	6.95	6.56	6.33	6.41	6.34	6.25	6.16	5.82	5.65	5.53	5.45	5.38	5.32	5.26
Dairy cows	1.20	1.17	1.15	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.04	1.03	1.02
Suckler cows	1.20	1.17	1.16	1.16	1.15	1.14	1.13	1.02	0.97	0.95	0.93	0.92	0.91	0.90
Other cattle	4.56	4.22	4.02	4.10	4.06	3.99	3.92	3.71	3.59	3.51	3.46	3.42	3.38	3.35
Calf crop	2.24	2.19	2.16	2.16	2.13	2.12	2.10	1.97	1.92	1.89	1.86	1.83	1.81	1.79
Cattle imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total supply	9.19	8.75	8.49	8.57	8.47	8.37	8.26	7.79	7.57	7.42	7.31	7.22	7.14	7.06
Cattle slaughter	2.13	1.89	1.89	1.78	1.89	1.91	2.14	1.88	1.80	1.73	1.70	1.68	1.66	1.64
Cow slaughter	0.41	0.36	0.37	0.32	0.38	0.37	0.63	0.44	0.39	0.36	0.35	0.34	0.33	0.33
Calf slaughter	0.02	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other slaughter	1.70	1.52	1.52	1.45	1.51	1.54	1.50	1.44	1.40	1.37	1.35	1.33	1.32	1.30
Cattle exports	0.33	0.33	0.06	0.13	0.26	0.23	0.24	0.21	0.19	0.18	0.17	0.17	0.16	0.16
Destruction, other loss	0.17	0.20	0.12	0.32	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05
Ending inventories	6.56	6.33	6.41	6.34	6.25	6.16	5.82	5.65	5.53	5.45	5.38	5.32	5.26	5.22
Suckler cow quota	1.11	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
								kilograms per head						
Slaughter weight	298.6	305.5	224.0	303.0	304.7	305.8	305.7	299.9	300.7	301.6	302.9	304.1	305.4	306.3
Pigs								million head						
Beginning inventories	1.80	1.76	1.73	1.76	1.78	1.84	1.84	1.83	1.85	1.87	1.87	1.85	1.82	1.78
Sows	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Other pigs	1.61	1.58	1.55	1.58	1.60	1.66	1.65	1.65	1.67	1.69	1.69	1.67	1.64	1.61
Pig crop	3.51	3.24	3.33	3.33	3.36	3.32	3.34	3.38	3.38	3.35	3.34	3.32	3.31	3.30
Pig imports	0.20	0.23	0.06	0.10	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.15
Total supply	5.51	5.24	5.13	5.19	5.26	5.28	5.30	5.34	5.36	5.36	5.34	5.31	5.27	5.23
Pig slaughter	3.49	3.14	3.25	3.11	3.13	3.16	3.19	3.20	3.21	3.22	3.22	3.22	3.22	3.21
Pig exports	0.26	0.36	0.13	0.32	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.27	0.27
Destruction, other loss	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending inventories	1.76	1.73	1.73	1.78	1.84	1.84	1.83	1.85	1.87	1.87	1.85	1.82	1.78	1.75
								kilograms per head						
Slaughter weight	70.3	70.0	72.1	71.5	71.6	71.7	71.5	71.4	71.4	71.3	71.3	71.3	71.3	71.1
	0.77	0.78	0.78	0.79	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Sheep								million head						
Beginning inventories	5.62	5.39	5.06	4.81	4.83	4.72	4.58	4.35	4.26	4.23	4.10	3.98	3.89	3.80
Ewes	4.34	4.18	3.93	3.81	3.73	3.63	3.51	3.30	3.24	3.24	3.12	3.02	2.95	2.90
Other sheep	1.28	1.21	1.12	1.00	1.10	1.08	1.07	1.05	1.02	1.00	0.98	0.96	0.93	0.91
Lamb crop	4.38	4.27	4.01	3.89	3.62	3.52	3.40	3.20	3.14	3.14	3.03	2.93	2.86	2.80
Sheep imports	0.16	0.15	0.22	0.27	0.27	0.27	0.27	0.26	0.27	0.27	0.27	0.27	0.27	0.27
Total supply	10.16	9.81	9.29	8.96	8.71	8.50	8.25	7.81	7.68	7.64	7.40	7.17	7.02	6.88
Sheep slaughter	4.52	4.12	3.90	3.29	3.66	3.59	3.57	3.25	3.15	3.24	3.13	3.01	2.94	2.90
Sheep exports	0.14	0.14	0.03	0.03	0.11	0.11	0.11	0.09	0.09	0.09	0.09	0.09	0.08	0.08
Destruction, other loss	0.11	0.50	0.55	0.81	0.23	0.22	0.22	0.21	0.20	0.20	0.19	0.19	0.18	0.18
Ending inventories	5.39	5.06	4.81	4.83	4.72	4.58	4.35	4.26	4.23	4.10	3.98	3.89	3.80	3.72
								kilograms per head						
Slaughter weight	20.1	20.1	20.0	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

EU-15 meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	7,678	7,403	7,214	7,431	7,326	7,383	7,591	7,471	7,340	7,208	7,107	7,011	6,935	6,875
Non-EU imports	391	385	330	450	458	465	457	471	488	501	510	518	524	526
Domestic use	7,645	7,274	6,788	7,390	7,444	7,380	7,436	7,417	7,373	7,306	7,251	7,192	7,135	7,077
Non-EU exports	872	579	500	530	569	510	611	526	454	403	366	338	324	325
Stock change	-448	-65	257	-39	-228	-42	0	0	0	0	0	0	0	0
Intervention/SPS stocks	117	52	309	270	42	0	0	0	0	0	0	0	0	0
Pig meat														
Production	18,002	17,586	17,519	17,690	17,757	17,846	18,015	18,142	18,222	18,321	18,453	18,608	18,775	18,899
Non-EU imports	67	49	52	50	52	53	54	55	57	58	58	59	59	61
Domestic use	16,345	16,384	16,503	16,540	16,644	16,689	16,797	16,959	17,052	17,146	17,210	17,292	17,390	17,531
Non-EU exports	1,522	1,260	1,082	1,200	1,150	1,213	1,259	1,230	1,226	1,230	1,302	1,375	1,443	1,424
Stock change	202	-8	-15	0	15	-3	13	8	1	2	0	0	2	6
Poultry meat														
Production	8,756	8,799	9,073	8,972	8,858	8,946	9,010	9,118	9,250	9,363	9,480	9,602	9,720	9,825
Non-EU imports	391	577	732	711	742	748	753	759	764	768	773	778	782	787
Domestic use	8,179	8,456	8,799	8,582	8,602	8,705	8,768	8,887	9,021	9,134	9,252	9,373	9,489	9,593
Non-EU exports	1,012	974	961	1,093	992	987	985	983	986	991	996	1,001	1,007	1,013
Stock change	-44	-53	45	8	6	2	11	7	6	7	6	6	6	6
Sheep meat														
Production	1,131	1,135	1,096	1,091	1,094	1,110	1,166	1,061	1,010	1,038	1,044	1,034	1,031	1,031
Non-EU imports	257	263	252	255	258	258	249	269	280	276	277	281	283	284
Domestic use	1,387	1,400	1,346	1,342	1,349	1,365	1,412	1,326	1,287	1,311	1,318	1,312	1,311	1,312
Non-EU exports	3	4	3	3	3	3	3	3	3	3	3	3	3	3
Stock change	-1	-6	-1	2	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	20.37	19.37	18.00	19.55	19.67	19.48	19.61	19.54	19.41	19.22	19.06	18.90	18.74	18.58
Pig meat	43.56	43.62	43.76	43.75	43.97	44.05	44.29	44.68	44.89	45.11	45.25	45.44	45.68	46.04
Poultry meat	21.80	22.51	23.33	22.70	22.73	22.98	23.12	23.41	23.75	24.03	24.32	24.63	24.93	25.19
Sheep meat	3.70	3.73	3.57	3.55	3.56	3.60	3.72	3.49	3.39	3.45	3.47	3.45	3.44	3.45
Total	89.42	89.24	88.65	89.55	89.93	90.11	90.74	91.13	91.43	91.80	92.10	92.41	92.79	93.26
Premia							euro per head							
Male bovine premium	135.0	160.0	185.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
Suckler cow premium	145.0	163.0	182.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Prices							euro per 100 kilograms							
Young cattle R3	277.0	278.7	236.4	250.5	241.4	252.0	237.9	238.7	242.7	247.3	252.2	257.7	262.3	265.5
Pig meat reference	111.7	141.6	166.8	135.8	139.7	143.1	138.3	135.8	135.4	134.1	134.2	133.9	132.8	130.0
Chicken	124.4	132.7	157.0	137.1	132.8	135.1	132.2	131.3	130.2	128.9	128.2	127.5	126.7	125.5
Sheep meat reference	324.4	357.5	412.7	415.2	384.5	378.3	334.3	400.3	437.4	412.8	406.9	413.1	413.1	409.1
Beef intervention	347.5	324.2	301.3	278.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

Irish meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	637	576	424	540	577	585	654	564	540	522	516	511	506	502
Imports	9	12	16	16	20	20	20	20	20	20	19	19	19	19
Domestic use	64	62	66	68	68	67	68	67	66	65	64	64	63	62
Exports	640	526	366	475	530	539	607	517	494	476	471	466	462	458
Intervention/SPS stocks	0	0	8	0	0	0	0	0	0	0	0	0	0	0
Pig meat														
Production	245	220	239	223	224	227	228	229	229	229	229	229	229	229
Imports	33	32	22	47	33	33	36	40	41	44	45	47	48	50
Domestic use	135	135	135	143	141	143	144	149	153	155	158	161	164	167
Exports	140	120	127	127	116	117	120	119	117	117	117	115	114	112
Ending stocks	4	1	0	0	0	0	0	0	0	0	0	0	0	0
Broiler meat														
Production	88	88	88	94	75	76	77	78	78	79	80	81	81	82
Imports	14	14	26	24	35	37	38	40	43	44	46	49	51	53
Domestic use	87	87	99	100	95	103	104	107	110	112	115	118	120	123
Exports	15	15	15	19	15	9	10	10	11	11	11	12	12	12
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other poultry meat														
Production	44	44	44	38	38	38	39	39	40	40	40	41	41	42
Imports	7	7	13	12	18	18	19	20	21	22	23	24	25	26
Domestic use	27	27	33	25	37	32	33	35	37	38	39	41	42	44
Exports	24	24	24	25	18	24	24	24	24	24	24	24	24	24
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep meat														
Production	91	83	78	66	74	72	72	65	63	65	63	61	59	58
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	34	36	21	29	25	25	30	22	18	20	20	19	19	19
Exports	59	49	59	40	51	49	44	45	47	47	45	43	42	41
Stock change	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	17.08	16.37	17.28	17.65	17.44	16.97	17.11	16.75	16.38	15.97	15.61	15.26	14.95	14.67
Pig meat	36.02	35.65	35.35	37.13	36.33	36.39	36.38	37.38	37.94	38.08	38.26	38.61	38.96	39.38
Broiler meat	23.15	22.92	25.86	25.90	24.43	26.32	26.32	26.86	27.31	27.55	27.87	28.23	28.57	28.88
Other poultry meat	7.32	7.25	8.76	6.36	9.61	8.27	8.42	8.74	9.09	9.30	9.54	9.81	10.07	10.31
Sheep meat	9.07	9.45	5.50	7.40	6.41	6.46	7.49	5.57	4.48	4.96	4.95	4.65	4.50	4.43
Total	92.64	91.65	92.75	94.43	94.23	94.40	95.73	95.30	95.19	95.86	96.23	96.57	97.05	97.67
Market prices							euro per 100 kilograms							
Cattle reference	103.1	114.5	108.4	113.9	109.7	114.8	107.2	108.6	110.9	113.5	116.1	118.9	121.3	123.0
Pig meat	101.6	129.5	147.9	129.5	133.0	136.0	130.5	127.4	126.6	124.9	124.6	123.9	122.4	119.2
Sheep meat reference	250.1	300.4	427.1	357.3	346.6	340.6	298.0	361.9	397.8	374.0	368.3	374.3	374.3	370.4
							euro per pair							
Chicken	2.96	2.92	3.17	3.17	2.73	2.77	2.72	2.70	2.68	2.66	2.64	2.63	2.62	2.59
							Irish pounds per 100 kilograms							
Cattle reference	81.2	90.2	85.4	89.7	86.4	90.4	84.4	85.6	87.4	89.4	91.4	93.7	95.5	96.8
Pig meat	80.0	102.0	116.5	102.0	104.7	107.1	102.7	100.4	99.7	98.4	98.1	97.6	96.4	93.9
Sheep meat reference	196.9	236.6	336.4	281.4	273.0	268.3	234.7	285.0	313.3	294.6	290.1	294.8	294.8	291.7
							Irish pounds per pair							
Chicken	2.33	2.30	2.50	2.50	2.15	2.18	2.14	2.13	2.11	2.09	2.08	2.07	2.06	2.04

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

EU-15 dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	21,111	20,395	20,153	19,517	19,352	19,150	18,948	18,804	18,637	18,464	18,251	18,050	17,853	17,652
							kilograms							
Production/cow	5,752	5,918	6,055	6,272	6,311	6,373	6,432	6,495	6,566	6,640	6,707	6,771	6,834	6,902
Fluid milk							million tonnes							
Cow's milk production	121.42	120.70	122.02	122.40	122.14	122.05	121.86	122.13	122.37	122.60	122.41	122.22	122.01	121.83
Milk quota	117.49	118.67	119.18	119.18	119.18	119.30	119.30	119.83	120.31	120.79	120.79	120.79	120.79	120.79
Other milk production	4.08	3.80	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20	4.21
Fluid consumption	32.98	32.50	32.65	32.79	32.64	32.68	32.74	32.84	32.84	32.78	32.68	32.60	32.55	32.44
Manufacturing use	88.28	87.49	88.88	89.11	89.11	89.03	88.82	89.02	89.28	89.60	89.55	89.48	89.37	89.34
Feed use, net exports	4.23	4.51	4.59	4.61	4.51	4.47	4.44	4.42	4.41	4.39	4.36	4.32	4.29	4.26
Cheese							thousand tonnes							
Production	6,710	6,884	7,180	7,219	7,273	7,358	7,444	7,535	7,600	7,647	7,677	7,717	7,758	7,795
Non-EU imports	142	144	169	133	152	154	155	157	159	160	162	164	165	167
Domestic use	6,498	6,561	6,897	6,931	6,960	7,033	7,118	7,217	7,298	7,361	7,408	7,462	7,521	7,564
Non-EU exports	376	436	447	463	464	475	477	468	456	443	430	418	401	398
Ending stocks	448	479	484	442	443	446	451	457	462	465	467	468	469	469
Butter														
Production	1,886	1,851	1,825	1,870	1,847	1,823	1,794	1,782	1,784	1,796	1,794	1,797	1,801	1,797
Non-EU imports	106	106	115	115	115	115	115	115	115	115	115	115	115	115
Domestic use	1,761	1,771	1,748	1,705	1,725	1,722	1,727	1,737	1,744	1,741	1,734	1,729	1,724	1,717
Non-EU exports	169	185	179	185	207	214	203	189	179	177	177	182	188	192
Ending stocks	128	129	142	237	267	270	249	221	197	190	188	190	193	196
Skim powder														
Production	1,116	1,049	974	1,063	1,018	960	898	861	853	865	857	857	859	848
Non-EU imports	71	75	48	59	57	57	57	57	57	57	57	57	57	57
Domestic use	954	924	835	882	852	851	845	834	818	809	801	792	785	776
Non-EU exports	272	356	140	150	175	176	158	140	126	121	119	122	127	127
Ending stocks	273	117	164	254	302	292	244	186	152	143	137	137	142	145
Whole powder														
Production	902	870	814	836	824	825	825	833	837	838	837	808	770	768
Non-EU imports	8	8	16	16	16	16	16	16	16	16	16	16	16	16
Domestic use	311	341	342	352	350	350	350	351	351	350	348	348	348	347
Non-EU exports	577	576	478	500	489	490	491	498	502	504	505	476	438	438
Ending stocks	71	32	42	42	43	44	44	44	44	44	43	43	43	42
Consumption							kilograms per capita							
Fluid milk	87.89	86.53	86.57	86.75	86.23	86.25	86.34	86.53	86.45	86.23	85.91	85.68	85.50	85.18
Cheese	17.32	17.47	18.29	18.34	18.39	18.56	18.77	19.01	19.21	19.37	19.48	19.61	19.76	19.86
Butter	4.69	4.72	4.63	4.51	4.56	4.55	4.55	4.58	4.59	4.58	4.56	4.54	4.53	4.51
Prices							euro per 100 kilograms							
Milk, 3.7% fat	28.7	29.6	31.5	30.1	29.6	29.3	28.6	27.6	27.0	26.6	26.6	26.3	26.0	25.9
Cheese market	473.5	477.4	493.0	496.3	488.8	485.2	476.6	462.1	452.5	447.0	445.4	441.8	437.3	435.8
Butter market	364.3	363.5	361.2	352.9	341.0	332.8	316.2	294.0	277.4	272.1	269.8	266.0	261.4	258.6
SMP market	207.0	251.1	242.7	204.0	204.7	199.0	193.9	190.2	190.7	190.6	190.9	190.2	189.1	189.1
WMP market	262.5	290.8	271.1	248.7	243.0	239.9	234.4	226.4	221.1	218.4	217.9	213.4	207.5	206.8
Butter intervention	328.2	328.2	328.2	328.2	328.2	305.2	282.3	259.3	246.2	246.2	246.2	246.2	246.2	246.2
SMP intervention	205.5	205.5	205.5	205.5	205.5	195.2	185.0	174.7	174.7	174.7	174.7	174.7	174.7	174.7

Source: FAPRI-Ireland Partnership Model (2003).

MAX Scenario

Irish dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	1,174	1,153	1,148	1,129	1,121	1,107	1,095	1,082	1,070	1,057	1,044	1,031	1,021	1,011
							kilograms							
Production/cow	4,567	4,684	4,854	4,800	4,878	4,923	4,963	5,003	5,046	5,090	5,136	5,183	5,233	5,286
Fluid milk							million tonnes							
Cow's milk Production	5.36	5.40	5.57	5.42	5.47	5.45	5.43	5.42	5.40	5.38	5.36	5.35	5.34	5.34
Milk quota	5.24	5.29	5.37	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Other milk production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluid consumption	0.57	0.54	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.60	0.60	0.61	0.62	0.62
Manufacturing use	4.60	4.67	4.83	4.67	4.72	4.69	4.67	4.65	4.63	4.60	4.58	4.56	4.55	4.55
Feed use, net exports	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17
Cheese							thousand tonnes							
Production	97	96	122	114	115	117	119	120	121	121	122	124	125	127
Imports	15	15	14	13	14	15	16	18	19	21	22	23	25	26
Domestic use	25	25	28	29	31	32	34	36	37	39	41	42	44	46
Exports	85	85	108	98	98	99	101	102	102	103	104	104	105	106
Ending stocks	25	26	26	26	26	26	26	27	27	28	28	28	29	29
Butter														
Production	145	145	141	143	139	137	135	133	132	131	130	129	128	127
Imports	3	3	3	2	1	3	3	5	7	7	7	7	7	7
Domestic use	15	15	15	16	16	16	16	17	17	17	17	18	18	18
Exports	130	120	122	100	130	129	125	123	121	118	117	115	114	113
Ending stocks	48	61	67	97	92	87	83	82	82	85	87	90	93	95
Skim powder														
Production	88	79	78	96	86	81	82	80	79	77	76	74	73	71
Imports	2	2	3	3	3	4	4	4	4	4	5	5	5	5
Domestic use	11	11	10	11	11	11	11	11	11	11	11	11	11	11
Exports	70	125	49	53	96	82	78	74	72	71	69	68	66	65
Ending stocks	89	34	57	92	75	67	64	63	63	63	63	63	63	63
Whole powder														
Production	33	35	33	27	29	29	29	29	29	29	29	29	28	28
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exports	34	36	33	28	30	30	30	30	30	30	30	30	29	29
Ending stocks	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Consumption							kilograms per capita							
Fluid milk	151	142	146	146	146	146	146	146	146	146	146	146	147	147
Cheese	6.67	7.09	7.35	7.61	7.92	8.24	8.58	8.91	9.23	9.54	9.84	10.17	10.49	10.82
Butter	4.00	3.90	4.00	4.06	4.07	4.09	4.13	4.17	4.20	4.22	4.23	4.25	4.27	4.28
Milk price, 3.7% fat														
euro/100 kg	26.67	27.34	28.45	25.89	25.42	24.97	24.24	23.30	22.76	22.54	22.52	22.36	22.15	22.11
IR£/100 kg	21.00	21.53	22.41	20.39	20.02	19.67	19.09	18.35	17.93	17.75	17.73	17.61	17.44	17.41

Source: FAPRI-Ireland Partnership Model (2003).

Appendix III: MIN Scenario Commodity Projections

MIN Scenario

EU-15 cereal supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Soft wheat and durum														
							thousand hectares							
Area harvested	17,134	17,946	16,785	17,947	17,910	17,854	17,979	17,826	17,686	17,814	17,835	17,862	17,919	17,996
							tonnes per hectare							
Yield	5.69	5.87	5.48	5.82	5.75	5.85	5.95	6.04	6.18	6.26	6.35	6.45	6.54	6.63
							million tonnes							
Production	97.44	105.33	91.96	104.37	102.98	104.40	107.00	107.76	109.25	111.57	113.32	115.13	117.17	119.34
Beginning stocks	17.39	14.09	14.14	13.98	14.24	14.37	14.62	15.30	15.75	16.35	17.27	18.13	18.96	19.89
Imports	26.87	28.31	31.92	34.12	34.77	34.82	34.97	34.97	34.85	34.57	34.45	34.31	34.14	33.92
Total supply	141.70	147.73	138.01	152.47	151.99	153.59	156.59	158.03	159.85	162.49	165.03	167.57	170.26	173.15
Domestic use	84.28	90.68	90.67	97.11	96.41	97.46	99.01	99.65	100.47	101.39	102.18	102.99	103.86	104.74
Feed	36.84	42.38	42.30	47.45	46.74	47.50	48.69	49.12	49.76	50.43	50.98	51.57	52.19	52.81
Other	47.43	48.30	48.37	49.66	49.67	49.96	50.32	50.53	50.71	50.97	51.20	51.43	51.67	51.93
Exports	43.85	43.06	33.36	41.12	41.21	41.51	42.29	42.63	43.03	43.84	44.72	45.61	46.51	47.47
Ending stocks	14.09	14.14	13.98	14.24	14.37	14.62	15.30	15.75	16.35	17.27	18.13	18.96	19.89	20.94
Loss, statistical disc.	-0.51	-0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net exports	16.98	14.75	1.44	7.00	6.43	6.69	7.31	7.65	8.18	9.26	10.27	11.30	12.37	13.56
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Soft wheat	119.6	119.9	123.0	113.0	117.7	117.3	112.4	112.2	111.2	110.0	109.4	108.7	107.7	106.6
Durum wheat	159.1	149.7	172.6	173.9	156.8	160.6	160.3	160.7	172.2	169.9	169.4	170.2	170.6	169.3
Barley, maize, and rye														
							thousand hectares							
Area harvested	16,071	16,123	16,499	16,050	16,114	16,230	16,136	16,324	16,094	15,971	15,966	15,942	15,879	15,793
							tonnes per hectare							
Yield	5.70	5.90	5.75	5.81	5.89	5.94	6.01	6.06	6.14	6.22	6.27	6.33	6.40	6.47
							million tonnes							
Production	91.67	95.16	94.83	93.29	94.88	96.42	96.99	98.91	98.79	99.26	100.16	100.99	101.66	102.22
Beginning stocks	24.68	17.76	19.02	20.52	22.07	21.75	21.88	21.58	22.05	21.95	22.40	23.05	23.69	24.34
Imports	22.50	23.66	25.27	19.83	20.63	20.68	21.09	21.43	21.71	21.87	22.04	22.26	22.49	22.75
Total supply	138.84	136.58	139.12	133.64	137.58	138.85	139.97	141.91	142.55	143.08	144.60	146.30	147.83	149.31
Domestic use	82.61	84.05	88.92	86.01	87.65	88.27	89.32	90.46	90.98	91.09	91.68	92.39	92.98	93.42
Feed	63.44	64.28	65.19	62.49	63.97	64.53	65.41	66.45	66.93	67.09	67.64	68.29	68.85	69.27
Other	19.17	19.77	23.72	23.52	23.68	23.74	23.92	24.01	24.05	23.99	24.04	24.10	24.13	24.15
Exports	38.58	33.55	29.69	25.56	28.19	28.69	29.07	29.40	29.62	29.59	29.85	30.21	30.49	30.78
Ending stocks	17.76	19.02	20.52	22.07	21.75	21.88	21.58	22.05	21.95	22.40	23.05	23.69	24.34	25.10
Net exports	16.08	9.89	4.42	5.73	7.55	8.01	7.98	7.97	7.91	7.72	7.81	7.95	8.00	8.03
							percent							
Set-aside rate	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Market prices							euro per tonne, Jan.-Dec.							
Barley	113.1	112.6	111.9	102.3	110.8	110.4	107.1	104.7	104.0	103.0	102.2	101.4	100.4	99.6
Maize	138.5	139.5	136.8	132.1	133.2	133.3	129.9	128.0	127.4	125.9	125.1	124.3	123.2	121.9
Rye	104.9	105.3	99.2	93.5	96.7	97.0	87.9	83.6	79.7	100.7	96.1	89.7	88.5	92.2

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

Irish all wheat supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
							thousand hectares							
Area harvested	68	84	84	98	82	82	82	81	81	83	83	83	83	82
							tonnes per hectare							
Yield	8.77	9.47	10.24	9.13	8.59	8.71	8.72	8.86	8.96	9.06	9.17	9.29	9.28	9.26
							million tonnes							
Production	0.60	0.80	0.86	0.89	0.70	0.71	0.71	0.72	0.73	0.75	0.76	0.77	0.77	0.76
Beginning stocks	0.04	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Imports	0.82	0.64	0.85	0.96	0.81	0.82	0.85	0.86	0.87	0.87	0.88	0.88	0.91	0.93
Total supply	1.45	1.47	1.77	1.92	1.53	1.58	1.59	1.61	1.63	1.65	1.66	1.68	1.70	1.72
Domestic use	1.24	1.19	1.56	1.72	1.32	1.38	1.40	1.42	1.43	1.45	1.47	1.49	1.51	1.53
Feed	0.81	0.74	0.92	1.09	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Other	0.43	0.44	0.65	0.64	0.41	0.47	0.48	0.50	0.51	0.53	0.55	0.56	0.58	0.60
Exports	0.18	0.22	0.14	0.19	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Ending stocks	0.03	0.06	0.06	0.01	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Loss, statistical disc.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feed wheat price							Jan.-Dec. average							
euro/tonne	107.9	105.4	117.8	99.5	102.2	102.1	99.4	97.3	96.7	95.8	95.1	94.3	93.5	92.8
IR£/tonne	85.0	83.0	92.8	78.4	80.5	80.4	78.3	76.6	76.2	75.4	74.9	74.3	73.6	73.0

Source: FAPRI-Ireland Partnership Model (2003).

Irish barley and maize supply and utilisation

	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13
Barley														
							thousand hectares							
Area harvested	192	181	182	176	182	181	181	181	182	181	182	182	182	183
							tonnes per hectare							
Yield	6.67	7.18	7.02	5.47	7.01	7.03	7.05	7.07	7.09	7.11	7.13	7.14	7.14	7.14
							million tonnes							
Production	1.28	1.30	1.28	0.96	1.27	1.27	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.30
Beginning stocks	0.15	0.18	0.14	0.00	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Imports	0.04	0.03	0.06	0.26	0.16	0.16	0.17	0.18	0.19	0.21	0.22	0.23	0.24	0.25
Total supply	1.47	1.51	1.48	1.22	1.55	1.57	1.59	1.61	1.62	1.64	1.65	1.67	1.69	1.70
Domestic use	1.19	1.17	1.19	1.33	1.34	1.35	1.37	1.39	1.40	1.42	1.44	1.46	1.47	1.49
Feed	0.86	0.86	0.97	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Other	0.33	0.31	0.21	0.35	0.36	0.37	0.38	0.40	0.41	0.42	0.43	0.45	0.46	0.48
Exports	0.11	0.21	0.22	0.07	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07
Ending stocks	0.18	0.14	0.08	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Market prices							euro per tonne, Jan.-Dec. average							
Feed barley	102.8	102.1	103.7	88.1	98.3	98.3	95.6	93.5	92.9	92.0	91.3	90.5	89.7	88.9
Malt barley	123.1	113.1	121.5	105.8	116.1	116.1	113.4	111.3	110.7	109.8	109.1	108.3	107.5	106.7
							Irish pounds per tonne, Jan.-Dec. average							
Feed barley	81.0	80.4	81.7	69.4	77.5	77.4	75.3	73.6	73.2	72.4	71.9	71.3	70.6	70.0
Malt barley	97.0	89.1	95.7	83.4	91.5	91.4	89.3	87.6	87.2	86.4	85.9	85.3	84.6	84.0
Maize for grain														
							million tonnes							
Production	0.10	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Beginning stocks	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Imports	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Total supply	0.39	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Domestic use	0.31	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Feed	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Other	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Exports	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ending stocks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

EU-15 Cattle

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	82.92	82.74	81.33	80.36	78.69	78.31	77.87	77.41	76.94	76.18	75.26	74.32	73.47	72.74
Dairy cows	21.49	21.11	20.40	20.15	19.52	19.35	19.15	18.94	18.80	18.64	18.46	18.25	18.05	17.85
Suckler cows	11.83	12.05	12.12	12.00	11.85	11.81	11.90	11.96	11.93	11.60	11.38	11.26	11.20	11.21
Suckler cow quota	11.37	10.82	10.82	10.82	10.82	11.01	11.01	11.01	11.01	11.01	11.01	11.01	11.01	11.01
Cattle slaughter	27.87	26.93	25.85	26.47	26.09	26.19	26.28	26.35	26.43	26.17	25.85	25.48	25.15	24.87
							kilograms per head							
Slaughter weight	275.4	274.9	279.1	280.7	280.8	281.9	282.3	281.8	281.7	282.0	282.4	282.8	283.3	283.8
France							million head							
Beginning inventories	20.06	20.22	20.09	20.28	19.73	19.26	18.89	18.60	18.36	18.05	17.72	17.39	17.10	16.86
Dairy cows	4.43	4.42	4.15	4.19	4.13	4.09	4.05	4.01	3.99	3.96	3.93	3.89	3.85	3.81
Suckler cows	4.04	4.07	4.21	4.20	4.08	4.07	4.09	4.09	4.07	3.94	3.85	3.80	3.78	3.78
Suckler cow quota	3.89	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78
Cattle slaughter	5.72	5.48	5.58	5.94	5.73	5.58	5.49	5.42	5.43	5.33	5.23	5.13	5.03	4.96
							kilograms per head							
Slaughter weight	281.1	278.9	280.7	280.3	277.5	277.2	276.2	274.8	274.5	273.9	273.4	273.0	272.6	272.4
Germany							million head							
Beginning inventories	14.94	14.66	14.57	14.23	13.70	13.36	13.08	12.85	12.66	12.48	12.31	12.14	11.99	11.85
Dairy cows	4.83	4.71	4.56	4.47	4.37	4.30	4.24	4.19	4.15	4.11	4.07	4.01	3.96	3.92
Suckler cows	0.75	0.79	0.82	0.80	0.76	0.74	0.74	0.74	0.74	0.73	0.71	0.71	0.71	0.72
Suckler cow quota	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Cattle slaughter	4.56	4.29	4.36	4.33	4.11	3.98	3.89	3.80	3.76	3.70	3.65	3.59	3.53	3.49
							kilograms per head							
Slaughter weight	301.3	304.2	312.5	300.4	304.8	306.0	306.1	305.5	305.1	305.5	306.1	306.8	307.6	308.3
Italy							million head							
Beginning inventories	7.32	7.36	7.40	7.40	7.26	6.92	6.74	6.59	6.47	6.35	6.23	6.13	6.05	5.98
Dairy cows	2.12	2.13	2.17	2.17	1.91	1.97	1.95	1.92	1.90	1.87	1.84	1.82	1.79	1.77
Suckler cows	0.69	0.71	0.65	0.63	0.60	0.57	0.55	0.53	0.52	0.50	0.48	0.48	0.48	0.48
Suckler cow quota	0.79	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Cattle slaughter	4.51	4.43	4.26	4.27	4.26	4.13	4.05	3.97	3.93	3.87	3.80	3.75	3.70	3.66
							kilograms per head							
Slaughter weight	256.3	259.0	265.3	260.1	262.5	261.9	261.5	260.8	260.4	260.9	261.5	262.1	262.8	263.5
UK							million head							
Beginning inventories	11.24	11.28	10.88	10.16	10.39	10.73	10.89	10.95	10.94	10.87	10.75	10.64	10.53	10.45
Dairy cows	2.47	2.44	2.34	2.20	2.24	2.19	2.18	2.16	2.15	2.14	2.13	2.11	2.09	2.08
Suckler cows	1.93	1.91	1.78	1.67	1.69	1.68	1.69	1.69	1.67	1.61	1.57	1.55	1.54	1.53
Suckler cow quota	1.81	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Cattle slaughter	2.29	2.43	2.17	2.28	2.11	2.42	2.68	2.90	2.94	2.92	2.89	2.84	2.80	2.77
							kilograms per head							
Slaughter weight	295.7	291.1	301.1	303.3	302.4	303.4	303.2	302.2	302.3	303.2	303.9	304.7	305.6	306.4

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

EU-15 Pigs

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	125.53	124.47	122.00	122.24	122.67	122.36	123.25	124.48	124.72	124.35	124.59	125.46	126.33	126.98
Sows	13.06	12.63	12.48	12.39	12.29	12.29	12.40	12.45	12.35	12.28	12.32	12.38	12.41	12.43
Pig slaughter	209.02	202.98	200.16	202.02	201.78	202.03	203.98	205.60	205.58	205.36	206.31	207.99	209.49	210.56
							kilograms per head							
Slaughter weight	86.1	86.6	87.5	87.6	88.0	88.3	88.5	88.5	88.6	88.9	89.1	89.2	89.4	89.5
France							million head							
Beginning inventories	15.87	15.99	15.17	15.25	14.49	14.66	14.60	14.63	14.59	14.51	14.50	14.59	14.70	14.79
Sows	1.52	1.47	1.38	1.36	1.35	1.33	1.33	1.33	1.31	1.30	1.31	1.31	1.32	1.32
Pig slaughter	27.22	26.97	26.47	26.55	25.44	25.56	25.53	25.56	25.45	25.36	25.42	25.60	25.78	25.93
							kilograms per head							
Slaughter weight	86.4	85.7	87.5	86.5	86.9	87.1	87.1	86.9	86.9	87.1	87.2	87.2	87.3	87.2
Germany							million head							
Beginning inventories	26.29	26.00	25.77	25.96	26.48	26.14	26.23	26.40	26.36	26.17	26.12	26.21	26.32	26.37
Sows	2.66	2.58	2.53	2.52	2.51	2.49	2.51	2.51	2.48	2.46	2.46	2.46	2.46	2.45
Pig slaughter	44.58	43.24	44.03	44.71	45.47	45.18	45.39	45.59	45.43	45.21	45.22	45.40	45.55	45.61
							kilograms per head							
Slaughter weight	92.0	92.1	92.5	92.2	92.5	92.8	92.9	92.7	92.8	93.0	93.2	93.3	93.3	93.3
Italy							million head							
Beginning inventories	8.32	8.42	8.33	8.41	8.28	8.25	8.36	8.45	8.47	8.44	8.44	8.48	8.52	8.54
Sows	0.71	0.69	0.71	0.73	0.71	0.72	0.73	0.73	0.73	0.72	0.73	0.73	0.73	0.73
Pig slaughter	12.99	12.92	13.15	13.28	13.20	13.23	13.40	13.52	13.52	13.49	13.51	13.58	13.63	13.67
							kilograms per head							
Slaughter weight	113.0	114.3	115.4	114.2	115.0	115.5	115.5	115.4	115.5	115.9	116.2	116.3	116.5	116.6
UK							million head							
Beginning inventories	7.55	7.04	5.95	5.69	5.33	5.11	5.01	4.98	4.92	4.85	4.85	4.90	4.94	4.96
Sows	0.80	0.75	0.65	0.61	0.58	0.56	0.56	0.56	0.54	0.54	0.54	0.55	0.55	0.55
Pig slaughter	14.73	12.69	10.63	10.56	9.15	8.83	8.71	8.63	8.49	8.42	8.46	8.56	8.62	8.65
							kilograms per head							
Slaughter weight	71.1	72.7	73.5	72.3	74.3	74.8	75.0	75.1	75.5	75.9	76.3	76.5	76.8	77.0

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

EU-15 Sheep

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-15							million head							
Beginning inventories	98.44	96.36	94.93	90.31	90.63	91.15	91.04	90.52	89.88	87.58	86.83	86.96	86.64	86.23
Ewes	70.21	70.23	69.32	65.42	65.85	66.07	65.79	65.35	64.89	62.95	62.94	63.07	62.73	62.48
Sheep slaughter	69.85	69.68	63.99	66.29	66.60	67.44	67.55	67.21	68.05	64.80	63.97	64.47	64.22	63.87
							kilograms per head							
Slaughter weight	16.2	16.3	17.1	16.5	16.4	16.5	16.5	16.5	16.4	16.5	16.5	16.5	16.6	16.6
France							million head							
Beginning inventories	9.55	9.51	9.32	9.24	9.12	8.90	8.73	8.61	8.52	8.32	8.30	8.34	8.34	8.34
Ewes	7.50	7.39	7.31	7.13	7.01	6.82	6.70	6.61	6.55	6.37	6.39	6.42	6.42	6.41
Sheep slaughter	7.28	7.39	7.42	7.35	7.31	7.09	6.92	6.80	6.83	6.51	6.47	6.54	6.54	6.53
							kilograms per head							
Slaughter weight	19.0	19.0	19.1	19.0	19.0	19.0	19.0	19.0	19.0	19.1	19.1	19.1	19.1	19.1
Germany							million head							
Beginning inventories	2.28	2.17	2.17	2.12	2.07	2.03	1.99	1.97	1.96	1.91	1.91	1.93	1.93	1.94
Ewes	1.64	1.62	1.61	1.57	1.53	1.49	1.47	1.46	1.45	1.41	1.42	1.43	1.43	1.44
Sheep slaughter	2.17	2.16	2.20	2.15	2.11	2.06	2.01	1.98	2.00	1.92	1.91	1.93	1.94	1.94
										kilograms per head				
Slaughter weight	20.3	20.7	20.6	20.5	20.4	20.4	20.5	20.5	20.4	20.5	20.6	20.6	20.6	20.6
Italy							million head							
Beginning inventories	10.89	11.02	11.09	10.95	10.97	10.92	10.85	10.78	10.71	10.49	10.40	10.39	10.36	10.33
Ewes	8.13	8.23	8.33	8.22	8.25	8.20	8.16	8.10	8.06	7.87	7.85	7.85	7.82	7.80
Sheep slaughter	7.39	7.00	6.66	6.69	6.78	6.76	6.73	6.69	6.78	6.55	6.45	6.46	6.45	6.43
							kilograms per head							
Slaughter weight	9.9	9.9	10.9	10.7	10.6	10.6	10.7	10.7	10.7	10.7	10.7	10.7	10.8	10.8
UK							million head							
Beginning inventories	31.08	29.74	27.59	24.43	24.90	25.68	25.90	25.81	25.59	24.80	24.53	24.62	24.52	24.33
Ewes	20.33	19.88	18.51	16.08	16.43	16.82	16.84	16.74	16.60	15.96	16.00	16.07	15.94	15.84
Sheep slaughter	19.12	18.38	12.88	14.99	15.11	16.06	16.38	16.36	16.64	15.50	15.20	15.43	15.36	15.21
							kilograms per head							
Slaughter weight	18.9	19.6	20.7	20.5	20.4	20.3	20.3	20.4	20.4	20.5	20.5	20.5	20.6	20.6

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

Irish livestock supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cattle								million head						
Beginning inventories	6.95	6.56	6.33	6.41	6.34	6.25	6.16	6.08	6.01	5.92	5.85	5.78	5.72	5.67
Dairy cows	1.20	1.17	1.15	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.04	1.03	1.02
Suckler cows	1.20	1.17	1.16	1.16	1.15	1.14	1.13	1.13	1.12	1.10	1.08	1.07	1.06	1.05
Other cattle	4.56	4.22	4.02	4.10	4.06	3.99	3.92	3.86	3.81	3.76	3.71	3.66	3.63	3.59
Calf crop	2.24	2.19	2.16	2.16	2.13	2.12	2.10	2.08	2.06	2.03	2.00	1.97	1.95	1.94
Cattle imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total supply	9.19	8.75	8.49	8.57	8.47	8.37	8.26	8.16	8.07	7.95	7.85	7.75	7.67	7.61
Cattle slaughter	2.13	1.89	1.89	1.78	1.89	1.91	1.88	1.86	1.86	1.83	1.80	1.78	1.75	1.73
Cow slaughter	0.41	0.36	0.37	0.32	0.38	0.37	0.37	0.37	0.39	0.37	0.36	0.35	0.34	0.33
Calf slaughter	0.02	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other slaughter	1.70	1.52	1.52	1.45	1.51	1.54	1.51	1.49	1.47	1.45	1.44	1.42	1.41	1.39
Cattle exports	0.33	0.33	0.06	0.13	0.26	0.23	0.23	0.23	0.22	0.22	0.21	0.20	0.20	0.19
Destruction, other loss	0.17	0.20	0.12	0.32	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Ending inventories	6.56	6.33	6.41	6.34	6.25	6.16	6.08	6.01	5.92	5.85	5.78	5.72	5.67	5.63
Suckler cow quota	1.11	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
								kilograms per head						
Slaughter weight	298.6	305.5	224.0	303.0	304.7	305.8	307.0	306.2	304.8	304.0	304.4	305.2	306.3	307.4
Pigs								million head						
Beginning inventories	1.80	1.76	1.73	1.76	1.78	1.84	1.84	1.83	1.86	1.88	1.88	1.86	1.82	1.79
Sows	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Other pigs	1.61	1.58	1.55	1.58	1.60	1.66	1.65	1.65	1.67	1.70	1.70	1.68	1.64	1.61
Pig crop	3.51	3.24	3.33	3.33	3.36	3.32	3.34	3.38	3.39	3.36	3.33	3.31	3.31	3.30
Pig imports	0.20	0.23	0.06	0.10	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.15
Total supply	5.51	5.24	5.13	5.19	5.26	5.28	5.30	5.34	5.38	5.38	5.35	5.31	5.27	5.23
Pig slaughter	3.49	3.14	3.25	3.11	3.13	3.16	3.19	3.21	3.21	3.21	3.21	3.22	3.21	3.21
Pig exports	0.26	0.36	0.13	0.32	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.27	0.27	0.27
Destruction, other loss	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending inventories	1.76	1.73	1.73	1.78	1.84	1.84	1.83	1.86	1.88	1.88	1.86	1.82	1.79	1.75
								kilograms per head						
Slaughter weight	70.3	70.0	72.1	71.5	71.6	71.7	71.6	71.4	71.3	71.4	71.3	71.3	71.2	71.1
	0.77	0.78	0.78	0.79	0.77	0.77	0.77	0.77	0.76	0.76	0.77	0.77	0.77	0.77
Sheep								million head						
Beginning inventories	5.62	5.39	5.06	4.81	4.83	4.72	4.58	4.46	4.35	4.23	4.21	4.16	4.07	3.99
Ewes	4.34	4.18	3.93	3.81	3.73	3.63	3.51	3.41	3.33	3.23	3.23	3.20	3.13	3.06
Other sheep	1.28	1.21	1.12	1.00	1.10	1.08	1.07	1.05	1.03	1.01	0.98	0.96	0.94	0.92
Lamb crop	4.38	4.27	4.01	3.89	3.62	3.52	3.40	3.30	3.22	3.12	3.12	3.10	3.03	2.96
Sheep imports	0.16	0.15	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Total supply	10.16	9.81	9.29	8.96	8.71	8.50	8.25	8.02	7.84	7.62	7.60	7.53	7.37	7.22
Sheep slaughter	4.52	4.12	3.90	3.29	3.66	3.59	3.47	3.36	3.30	3.12	3.15	3.17	3.10	3.03
Sheep exports	0.14	0.14	0.03	0.03	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09
Destruction, other loss	0.11	0.50	0.55	0.81	0.23	0.22	0.22	0.21	0.21	0.20	0.20	0.20	0.19	0.19
Ending inventories	5.39	5.06	4.81	4.83	4.72	4.58	4.46	4.35	4.23	4.21	4.16	4.07	3.99	3.91
								kilograms per head						
Slaughter weight	20.1	20.1	20.0	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

EU-15 meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	7,678	7,403	7,214	7,431	7,326	7,383	7,418	7,426	7,447	7,381	7,299	7,207	7,125	7,057
Non-EU imports	391	385	330	450	458	465	468	473	479	489	498	505	511	514
Domestic use	7,645	7,274	6,788	7,390	7,444	7,380	7,371	7,386	7,409	7,390	7,348	7,285	7,225	7,164
Non-EU exports	872	579	500	530	569	510	515	513	516	480	450	427	411	407
Stock change	-448	-65	257	-39	-228	-42	0	0	0	0	0	0	0	0
Intervention/SPS stocks	117	52	309	270	42	0	0	0	0	0	0	0	0	0
Pig meat														
Production	18,002	17,586	17,519	17,690	17,757	17,846	18,046	18,187	18,217	18,250	18,378	18,556	18,721	18,837
Non-EU imports	67	49	52	50	52	53	54	55	57	58	58	59	59	61
Domestic use	16,345	16,384	16,503	16,540	16,644	16,689	16,832	16,992	17,038	17,082	17,139	17,238	17,335	17,470
Non-EU exports	1,522	1,260	1,082	1,200	1,150	1,213	1,257	1,235	1,232	1,228	1,299	1,375	1,444	1,423
Stock change	202	-8	-15	0	15	-3	10	15	4	-3	-2	2	2	5
Poultry meat														
Production	8,756	8,799	9,073	8,972	8,858	8,946	9,053	9,125	9,206	9,328	9,450	9,563	9,679	9,789
Non-EU imports	391	577	732	711	742	748	753	759	763	768	773	778	782	787
Domestic use	8,179	8,456	8,799	8,582	8,602	8,705	8,812	8,888	8,973	9,100	9,222	9,332	9,448	9,555
Non-EU exports	1,012	974	961	1,093	992	987	984	985	988	991	996	1,002	1,008	1,014
Stock change	-44	-53	45	8	6	2	11	10	7	5	5	6	6	6
Sheep meat														
Production	1,131	1,135	1,096	1,091	1,094	1,110	1,112	1,106	1,119	1,069	1,057	1,067	1,063	1,058
Non-EU imports	257	263	252	255	258	258	259	260	259	269	274	274	276	279
Domestic use	1,387	1,400	1,346	1,342	1,349	1,365	1,368	1,363	1,375	1,336	1,328	1,337	1,337	1,334
Non-EU exports	3	4	3	3	3	3	3	3	3	3	3	3	3	3
Stock change	-1	-6	-1	2	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	20.37	19.37	18.00	19.55	19.67	19.48	19.44	19.46	19.50	19.44	19.32	19.14	18.98	18.81
Pig meat	43.56	43.62	43.76	43.75	43.97	44.05	44.38	44.77	44.85	44.94	45.06	45.30	45.54	45.88
Poultry meat	21.80	22.51	23.33	22.70	22.73	22.98	23.24	23.42	23.62	23.94	24.24	24.52	24.82	25.09
Sheep meat	3.70	3.73	3.57	3.55	3.56	3.60	3.61	3.59	3.62	3.51	3.49	3.51	3.51	3.50
Total	89.42	89.24	88.65	89.55	89.93	90.11	90.66	91.23	91.60	91.83	92.11	92.48	92.85	93.29
Premia							euro per head							
Male bovine premium	135.0	160.0	185.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
Suckler cow premium	145.0	163.0	182.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Prices							euro per 100 kilograms							
Young cattle R3	277.0	278.7	236.4	250.5	241.4	252.0	248.3	240.1	233.5	235.4	239.0	243.3	248.0	251.9
Pig meat reference	111.7	141.6	166.8	135.8	139.7	143.1	139.3	134.1	133.0	134.0	134.4	133.1	132.1	129.6
Chicken	124.4	132.7	157.0	137.1	132.8	135.1	132.5	130.2	128.7	128.3	127.7	126.7	125.9	124.9
Sheep meat reference	324.4	357.5	412.7	415.2	384.5	378.3	371.8	367.6	353.9	386.4	393.4	384.3	384.6	384.7
Beef intervention	347.5	324.2	301.3	278.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0	156.0

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

Irish meat supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Beef and veal							thousand tonnes							
Production	637	576	424	540	577	585	579	570	566	557	549	542	537	532
Imports	9	12	16	16	20	20	20	20	20	20	20	20	19	19
Domestic use	64	62	66	68	68	67	66	67	67	67	66	65	64	64
Exports	640	526	366	475	530	539	532	523	520	510	503	496	491	488
Intervention/SPS stocks	0	0	8	0	0	0	0	0	0	0	0	0	0	0
Pig meat														
Production	245	220	239	223	224	227	228	229	229	229	229	229	229	228
Imports	33	32	22	47	33	33	36	40	42	43	45	47	49	51
Domestic use	135	135	135	143	141	143	146	149	151	154	156	159	162	166
Exports	140	120	127	127	116	117	119	120	121	119	118	117	115	113
Ending stocks	4	1	0	0	0	0	0	0	0	0	0	0	0	0
Broiler meat														
Production	88	88	88	94	75	76	77	78	78	79	80	81	81	82
Imports	14	14	26	24	35	37	38	40	41	44	46	48	50	52
Domestic use	87	87	99	100	95	103	105	107	109	112	115	117	120	122
Exports	15	15	15	19	15	9	10	10	11	11	11	12	12	12
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other poultry meat														
Production	44	44	44	38	38	38	39	39	40	40	40	41	41	42
Imports	7	7	13	12	18	18	19	20	21	22	23	24	25	26
Domestic use	27	27	33	25	37	32	34	35	36	38	39	41	42	44
Exports	24	24	24	25	18	24	24	24	24	24	24	24	24	24
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep meat														
Production	91	83	78	66	74	72	70	68	67	63	63	64	62	61
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	34	36	21	29	25	25	26	26	27	23	22	22	22	21
Exports	59	49	59	40	51	49	46	44	42	42	44	44	43	42
Stock change	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption							kilograms per capita, cwe							
Beef and veal	17.08	16.37	17.28	17.65	17.44	16.97	16.79	16.67	16.57	16.31	15.98	15.64	15.32	15.02
Pig meat	36.02	35.65	35.35	37.13	36.33	36.39	36.82	37.26	37.29	37.67	37.92	38.22	38.57	39.02
Broiler meat	23.15	22.92	25.86	25.90	24.43	26.32	26.55	26.73	26.95	27.42	27.77	28.08	28.42	28.75
Other poultry meat	7.32	7.25	8.76	6.36	9.61	8.27	8.52	8.71	8.92	9.22	9.50	9.73	9.99	10.24
Sheep meat	9.07	9.45	5.50	7.40	6.41	6.46	6.49	6.42	6.60	5.61	5.27	5.32	5.14	4.96
Total	92.64	91.65	92.75	94.43	94.23	94.40	95.18	95.78	96.32	96.22	96.44	96.98	97.44	97.99
Market prices							euro per 100 kilograms							
Cattle reference	103.1	114.5	108.4	113.9	109.7	114.8	113.1	109.2	106.1	107.2	109.1	111.3	113.7	115.7
Pig meat	101.6	129.5	147.9	129.5	133.0	136.0	131.5	125.7	124.1	124.8	124.8	123.1	121.7	118.9
Sheep meat reference	250.1	300.4	427.1	357.3	346.6	340.6	334.3	330.3	317.0	348.5	355.2	346.4	346.7	346.8
							euro per pair							
Chicken	2.96	2.92	3.17	3.17	2.73	2.77	2.72	2.68	2.65	2.65	2.63	2.62	2.60	2.58
							Irish pounds per 100 kilograms							
Cattle reference	81.2	90.2	85.4	89.7	86.4	90.4	89.1	86.0	83.6	84.4	85.9	87.7	89.5	91.1
Pig meat	80.0	102.0	116.5	102.0	104.7	107.1	103.5	99.0	97.8	98.3	98.3	96.9	95.8	93.6
Sheep meat reference	196.9	236.6	336.4	281.4	273.0	268.3	263.2	260.1	249.6	274.5	279.8	272.8	273.0	273.1
							Irish pounds per pair							
Chicken	2.33	2.30	2.50	2.50	2.15	2.18	2.14	2.11	2.09	2.08	2.08	2.06	2.05	2.03

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

EU-15 dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	21,111	20,395	20,153	19,517	19,352	19,150	18,943	18,803	18,639	18,463	18,251	18,050	17,853	17,652
							kilograms							
Production/cow	5,752	5,918	6,055	6,272	6,311	6,373	6,434	6,497	6,566	6,640	6,707	6,771	6,835	6,902
Fluid milk							million tonnes							
Cow's milk production	121.42	120.70	122.02	122.40	122.14	122.05	121.88	122.16	122.38	122.60	122.41	122.22	122.02	121.83
Milk quota	117.49	118.67	119.18	119.18	119.18	119.30	119.30	119.83	120.31	120.79	120.79	120.79	120.79	120.79
Other milk production	4.08	3.80	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20	4.21
Fluid consumption	32.98	32.50	32.65	32.79	32.64	32.68	32.74	32.85	32.84	32.78	32.68	32.61	32.55	32.44
Manufacturing use	88.28	87.49	88.88	89.11	89.11	89.03	88.84	89.04	89.28	89.60	89.56	89.48	89.38	89.35
Feed use, net exports	4.23	4.51	4.59	4.61	4.51	4.47	4.44	4.42	4.41	4.39	4.36	4.32	4.29	4.26
Cheese							thousand tonnes							
Production	6,710	6,884	7,180	7,219	7,273	7,358	7,445	7,536	7,601	7,647	7,677	7,717	7,758	7,795
Non-EU imports	142	144	169	133	152	154	155	157	159	160	162	164	165	167
Domestic use	6,498	6,561	6,897	6,931	6,960	7,033	7,119	7,219	7,299	7,362	7,408	7,462	7,521	7,564
Non-EU exports	376	436	447	463	464	475	477	468	456	443	430	418	401	398
Ending stocks	448	479	484	442	443	446	451	457	462	466	467	468	469	469
Butter														
Production	1,886	1,851	1,825	1,870	1,847	1,823	1,795	1,783	1,784	1,796	1,794	1,797	1,801	1,797
Non-EU imports	106	106	115	115	115	115	115	115	115	115	115	115	115	115
Domestic use	1,761	1,771	1,748	1,705	1,725	1,722	1,727	1,737	1,744	1,741	1,734	1,729	1,724	1,717
Non-EU exports	169	185	179	185	207	214	203	189	179	177	177	182	188	192
Ending stocks	128	129	142	237	267	270	250	221	197	191	189	190	193	196
Skim powder														
Production	1,116	1,049	974	1,063	1,018	960	898	862	853	865	858	858	859	849
Non-EU imports	71	75	48	59	57	57	57	57	57	57	57	57	57	57
Domestic use	954	924	835	882	852	851	845	834	818	810	801	792	785	776
Non-EU exports	272	356	140	150	175	176	158	141	126	121	119	122	127	127
Ending stocks	273	117	164	254	302	292	244	187	153	144	138	138	143	145
Whole powder														
Production	902	870	814	836	824	825	826	834	837	838	837	808	770	768
Non-EU imports	8	8	16	16	16	16	16	16	16	16	16	16	16	16
Domestic use	311	341	342	352	350	350	350	351	351	350	348	348	348	347
Non-EU exports	577	576	478	500	489	490	491	498	502	504	505	476	438	438
Ending stocks	71	32	42	42	43	44	44	44	44	44	43	43	43	42
Consumption							kilograms per capita							
Fluid milk	87.89	86.53	86.57	86.75	86.23	86.25	86.34	86.54	86.46	86.24	85.91	85.68	85.50	85.18
Cheese	17.32	17.47	18.29	18.34	18.39	18.56	18.77	19.02	19.21	19.37	19.48	19.61	19.76	19.86
Butter	4.69	4.72	4.63	4.51	4.56	4.55	4.55	4.58	4.59	4.58	4.56	4.54	4.53	4.51
Prices							euro per 100 kilograms							
Milk, 3.7% fat	28.7	29.6	31.5	30.1	29.6	29.3	28.6	27.6	27.0	26.6	26.5	26.3	26.0	25.9
Cheese market	473.5	477.4	493.0	496.3	488.8	485.2	476.4	461.8	452.4	446.9	445.3	441.7	437.3	435.7
Butter market	364.3	363.5	361.2	352.9	341.0	332.8	316.1	293.8	277.3	272.0	269.8	265.9	261.4	258.6
SMP market	207.0	251.1	242.7	204.0	204.7	199.0	193.8	190.1	190.6	190.6	190.9	190.2	189.0	189.1
WMP market	262.5	290.8	271.1	248.7	243.0	239.9	234.3	226.3	221.1	218.3	217.9	213.3	207.4	206.7
Butter intervention	328.2	328.2	328.2	328.2	328.2	305.2	282.3	259.3	246.2	246.2	246.2	246.2	246.2	246.2
SMP intervention	205.5	205.5	205.5	205.5	205.5	195.2	185.0	174.7	174.7	174.7	174.7	174.7	174.7	174.7

Source: FAPRI-Ireland Partnership Model (2003).

MIN Scenario

Irish dairy supply and utilisation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
							thousand head, end of year							
Dairy cows	1,174	1,153	1,148	1,129	1,121	1,107	1,095	1,082	1,070	1,057	1,044	1,031	1,021	1,011
							kilograms							
Production/cow	4,567	4,684	4,854	4,800	4,878	4,923	4,964	5,003	5,046	5,090	5,136	5,183	5,233	5,286
Fluid milk							million tonnes							
Cow's milk Production	5.36	5.40	5.57	5.42	5.47	5.45	5.43	5.42	5.40	5.38	5.36	5.35	5.34	5.34
Milk quota	5.24	5.29	5.37	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
Other milk production	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluid consumption	0.57	0.54	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.60	0.60	0.61	0.62	0.62
Manufacturing use	4.60	4.67	4.83	4.67	4.72	4.69	4.67	4.65	4.63	4.60	4.58	4.56	4.55	4.55
Feed use, net exports	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17
Cheese							thousand tonnes							
Production	97	96	122	114	115	117	119	120	121	121	122	124	125	127
Imports	15	15	14	13	14	15	16	18	19	21	22	23	25	26
Domestic use	25	25	28	29	31	32	34	36	37	39	41	42	44	46
Exports	85	85	108	98	98	99	101	102	102	103	104	104	105	106
Ending stocks	25	26	26	26	26	26	26	27	27	28	28	28	29	29
Butter														
Production	145	145	141	143	139	137	135	133	132	131	130	129	128	127
Imports	3	3	3	2	1	3	3	5	6	7	7	7	7	7
Domestic use	15	15	15	16	16	16	16	17	17	17	17	18	18	18
Exports	130	120	122	100	130	129	125	123	121	118	117	115	114	113
Ending stocks	48	61	67	97	92	87	83	82	83	85	87	90	93	95
Skim powder														
Production	88	79	78	96	86	81	82	80	79	77	76	74	73	71
Imports	2	2	3	3	3	4	4	4	4	4	5	5	5	5
Domestic use	11	11	10	11	11	11	11	11	11	11	11	11	11	11
Exports	70	125	49	53	96	82	78	74	72	71	69	68	66	65
Ending stocks	89	34	57	92	75	67	64	63	63	63	63	63	63	63
Whole powder														
Production	33	35	33	27	29	29	29	29	29	29	29	29	28	28
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exports	34	36	33	28	30	30	30	30	30	30	30	30	29	29
Ending stocks	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Consumption							kilograms per capita							
Fluid milk	151	142	146	146	146	146	146	146	146	146	146	146	147	147
Cheese	6.67	7.09	7.35	7.61	7.92	8.24	8.58	8.91	9.23	9.54	9.85	10.17	10.49	10.82
Butter	4.00	3.90	4.00	4.06	4.07	4.09	4.13	4.17	4.20	4.22	4.23	4.25	4.27	4.28
Milk price, 3.7% fat														
euro/100 kg	26.67	27.34	28.45	25.89	25.42	24.97	24.23	23.28	22.75	22.54	22.51	22.36	22.14	22.11
IR£/100 kg	21.00	21.53	22.41	20.39	20.02	19.67	19.08	18.33	17.92	17.75	17.73	17.61	17.44	17.41

Source: FAPRI-Ireland Partnership Model (2003).

Appendix IV MAX* Scenario Commodity Projections

MAX* Scenario

Irish livestock supply and utilisation

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Cattle									million head					
Beginning inventories	6.88	6.95	6.56	6.33	6.41	6.34	6.25	6.16	5.83	5.68	5.58	5.51	5.45	5.40
Dairy cows	1.20	1.20	1.17	1.15	1.15	1.13	1.12	1.11	1.09	1.08	1.07	1.06	1.04	1.03
Suckler cows	1.16	1.20	1.17	1.16	1.16	1.15	1.14	1.13	1.02	0.99	0.96	0.95	0.94	0.94
Other cattle	4.52	4.56	4.22	4.02	4.10	4.06	3.99	3.92	3.71	3.61	3.54	3.50	3.46	3.43
Calf crop	2.21	2.24	2.19	2.16	2.16	2.13	2.12	2.10	1.98	1.93	1.90	1.88	1.86	1.84
Cattle imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total supply	9.09	9.19	8.75	8.49	8.57	8.47	8.37	8.26	7.82	7.62	7.48	7.39	7.31	7.24
Cattle slaughter	1.92	2.13	1.89	1.89	1.78	1.89	1.91	2.12	1.87	1.79	1.73	1.71	1.69	1.67
Cow slaughter	0.39	0.41	0.36	0.37	0.32	0.38	0.37	0.62	0.43	0.38	0.35	0.34	0.34	0.33
Calf slaughter	0.01	0.02	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other slaughter	1.52	1.70	1.52	1.52	1.45	1.51	1.54	1.50	1.44	1.40	1.37	1.36	1.35	1.33
Cattle exports	0.12	0.33	0.33	0.06	0.13	0.26	0.23	0.24	0.21	0.19	0.18	0.18	0.17	0.17
Destruction, other loss	0.10	0.17	0.20	0.12	0.32	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05
Ending inventories	6.95	6.56	6.33	6.41	6.34	6.25	6.16	5.83	5.68	5.58	5.51	5.45	5.40	5.35
Suckler cow quota	1.11	1.11	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
									kilograms per head					
Slaughter weight	304.9	298.6	305.5	224.0	303.0	304.7	305.8	305.8	300.2	301.2	302.2	303.6	304.9	306.2
Pigs									million head					
Beginning inventories	1.72	1.80	1.76	1.73	1.76	1.78	1.84	1.84	1.83	1.85	1.87	1.87	1.85	1.82
Sows	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Other pigs	1.53	1.61	1.58	1.55	1.58	1.60	1.66	1.65	1.65	1.67	1.69	1.69	1.67	1.64
Pig crop	3.66	3.51	3.24	3.33	3.33	3.36	3.32	3.34	3.38	3.38	3.35	3.34	3.32	3.31
Pig imports	0.18	0.20	0.23	0.06	0.10	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14
Total supply	5.56	5.51	5.24	5.13	5.19	5.26	5.28	5.30	5.34	5.36	5.36	5.34	5.31	5.27
Pig slaughter	3.39	3.49	3.14	3.25	3.11	3.13	3.16	3.19	3.20	3.21	3.22	3.22	3.22	3.22
Pig exports	0.40	0.26	0.36	0.13	0.32	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.27
Destruction, other loss	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending inventories	1.73	1.76	1.73	1.73	1.78	1.84	1.84	1.83	1.85	1.87	1.87	1.85	1.82	1.78
									kilograms per head					
Slaughter weight	71.1	70.3	70.0	72.1	71.5	71.6	71.7	71.5	71.4	71.4	71.3	71.3	71.3	71.3
	0.78	0.77	0.78	0.78	0.79	0.77	0.77	0.77	0.75	0.76	0.76	0.76	0.76	0.76
Sheep									million head					
Beginning inventories	5.63	5.62	5.39	5.06	4.81	4.83	4.72	4.58	4.28	4.19	4.16	4.03	3.92	3.84
Ewes	4.37	4.34	4.18	3.93	3.81	3.73	3.63	3.51	3.23	3.17	3.16	3.06	2.97	2.91
Other sheep	1.26	1.28	1.21	1.12	1.00	1.10	1.08	1.07	1.06	1.02	0.99	0.98	0.95	0.92
Lamb crop	4.41	4.38	4.27	4.01	3.89	3.62	3.52	3.40	3.13	3.07	3.07	2.96	2.87	2.82
Sheep imports	0.16	0.16	0.15	0.22	0.27	0.27	0.27	0.27	0.25	0.27	0.27	0.27	0.27	0.27
Total supply	10.20	10.16	9.81	9.29	8.96	8.71	8.50	8.25	7.67	7.53	7.49	7.26	7.06	6.92
Sheep slaughter	4.33	4.52	4.12	3.90	3.29	3.66	3.59	3.64	3.19	3.09	3.17	3.07	2.95	2.90
Sheep exports	0.14	0.14	0.14	0.03	0.03	0.11	0.11	0.11	0.09	0.09	0.09	0.09	0.08	0.08
Destruction, other loss	0.12	0.11	0.50	0.55	0.81	0.23	0.22	0.22	0.20	0.20	0.20	0.19	0.19	0.18
Ending inventories	5.62	5.39	5.06	4.81	4.83	4.72	4.58	4.28	4.19	4.16	4.03	3.92	3.84	3.76
									kilograms per head					
Slaughter weight	20.6	20.1	20.1	20.0	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1

Source: FAPRI-Ireland Partnership Model (2003).

MAX* Scenario

Irish meat supply and utilisation

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Beef and veal								thousand tonnes						
Production	586	637	576	424	540	577	585	649	562	539	523	518	514	511
Imports	14	9	12	16	16	20	20	20	20	20	20	19	19	19
Domestic use	67	64	62	66	68	68	67	68	67	66	65	64	64	63
Exports	518	640	526	366	475	530	539	602	515	493	477	473	470	467
Intervention/SPS stocks	58	0	0	8	0	0	0	0	0	0	0	0	0	0
Pig meat														
Production	241	245	220	239	223	224	227	228	229	229	229	229	229	229
Imports	32	33	32	22	47	33	33	36	40	41	44	45	47	48
Domestic use	137	135	135	135	143	141	143	144	150	153	155	158	161	164
Exports	137	140	120	127	127	116	117	120	119	117	117	117	115	114
Ending stocks	1	4	1	0	0	0	0	0	0	0	0	0	0	0
Broiler meat														
Production	84	88	88	88	94	75	76	77	78	78	79	80	81	81
Imports	16	14	14	26	24	35	37	37	40	43	44	46	49	51
Domestic use	86	87	87	99	100	95	103	104	107	110	112	115	118	120
Exports	14	15	15	15	19	15	9	10	10	11	11	11	12	12
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other poultry meat														
Production	42	44	44	44	38	38	38	39	39	40	40	40	41	41
Imports	8	7	7	13	12	18	18	19	20	21	22	23	24	25
Domestic use	29	27	27	33	25	37	32	33	35	37	38	39	41	42
Exports	21	24	24	24	25	18	24	24	24	24	24	24	24	24
Ending stocks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep meat														
Production	89	91	83	78	66	74	72	73	64	62	64	62	59	58
Imports	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Domestic use	30	34	36	21	29	25	25	30	22	18	20	20	19	19
Exports	55	59	49	59	40	51	49	45	44	46	46	43	42	41
Stock change	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption								kilograms per capita, cwe						
Beef and veal	18.07	17.08	16.37	17.28	17.65	17.44	16.97	17.10	16.74	16.38	15.97	15.61	15.27	14.97
Pig meat	36.95	36.02	35.65	35.35	37.13	36.33	36.39	36.38	37.39	37.95	38.08	38.26	38.60	38.95
Broiler meat	23.30	23.15	22.92	25.86	25.90	24.43	26.32	26.32	26.87	27.31	27.55	27.87	28.23	28.57
Other poultry meat	7.72	7.32	7.25	8.76	6.36	9.61	8.27	8.42	8.74	9.09	9.30	9.54	9.81	10.07
Sheep meat	8.09	9.07	9.45	5.50	7.40	6.41	6.46	7.51	5.53	4.46	4.95	4.95	4.65	4.49
Total	94.13	92.64	91.65	92.75	94.43	94.23	94.40	95.74	95.28	95.18	95.86	96.23	96.57	97.05
Market prices								euro per 100 kilograms						
Cattle reference	n.a.	103.1	114.5	108.4	113.9	109.7	114.8	107.4	108.7	110.9	113.4	115.9	118.7	121.0
Pig meat	n.a.	101.6	129.5	147.9	129.5	133.0	136.0	130.5	127.5	126.6	124.9	124.6	123.9	122.3
Sheep meat reference	n.a.	250.1	300.4	427.1	357.3	346.6	340.6	297.1	363.6	398.7	374.2	368.6	374.5	374.4
								euro per pair						
Chicken	n.a.	2.96	2.92	3.17	3.17	2.73	2.77	2.72	2.70	2.68	2.66	2.64	2.63	2.62
								Irish pounds per 100 kilograms						
Cattle reference	86.7	81.2	90.2	85.4	89.7	86.4	90.4	84.6	85.6	87.4	89.3	91.3	93.5	95.3
Pig meat	90.0	80.0	102.0	116.5	102.0	104.7	107.1	102.8	100.4	99.7	98.3	98.1	97.6	96.4
Sheep meat reference	212.8	196.9	236.6	336.4	281.4	273.0	268.3	234.0	286.3	314.0	294.7	290.3	295.0	294.9
								Irish pounds per pair						
Chicken	2.46	2.33	2.30	2.50	2.50	2.15	2.18	2.14	2.13	2.11	2.09	2.08	2.07	2.06

Source: FAPRI-Ireland Partnership Model (2003).

2 The Impact of the Luxembourg Agreement on Irish Farms

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Introduction

This analysis focuses on the effect of the various decoupling options included in the Luxemburg Agreement of the CAP for farms in Ireland. In the initial section of this paper, the effect of three decoupling options on the Single Farm Payment is discussed. The three scenarios analysed are the MAX, MAX* and MIN options examined at an aggregate level in Part 1 of this report.

- Full decoupling of all beef payments, ewe premiums and arable aid payments across all Member States in the EU15 (MAX Decoupling).
- Partial decoupling of the slaughter premium, suckler cow premium, ewe premiums and arable aid payments across all Member States in the EU15 (MIN Decoupling).
- Full Decoupling of beef payments in 14 EU Member States. Full coupling of the slaughter premium in Ireland with all other beef payments decoupled in Ireland. Sheep policy and crops and oilseeds payments in all 15 EU Member States as per the MAX scenario (MAX* Decoupling).

The second section of this part of the report examines the impact of MAX* on total farm income. Total farm income earned on Irish cattle and dairy farms in the MAX* scenario is compared to income earned in MAX and the implications of coupling the slaughter premium to production are discussed. Section three analyses the impact of two decoupling options for the dairy sector. The options involve decoupling the dairy premium from 2005 or 2008. A Summary of the main findings concludes the paper.

2.1 Data and Methods

The analysis is conducted utilising National Farm Survey (NFS) data for the year 2000[1] starting with all dairy, cattle and sheep farms that participated in the survey. The dataset includes 1,040 observations that are weighted to represent 117,243 farms, approximately 95 per cent of the farming population in the year 2000. During the course of the analysis, some outliers were excluded. Data on resources such as land, labour, animal numbers and crops planted are available for each farm as is financial data on prices received, quantity and cost of inputs along with the value of overhead costs. The total dataset includes 162 variables for 1,040 observations.

The effect of changing prices and costs on farm activities and incomes is projected. The analysis process begins by initially estimating the effect of the projected prices, costs and policy changes, as presented in Part 1 of this report, on the profitability of the various enterprises operated on each farm in the base year. The likely response of each farmer to the changing profitability of the various enterprises is simulated. The process of simulation uses a number of techniques. The highest possible income for each farm is calculated using a simple multi-period linear programming model. Given the quantity and quality of land and labour available on each farm, the most profitable farm plan is identified and the associated level of income is calculated. Maximum farm income is used to estimate the rate of exit of producers from dairy production and milk quota is reallocated according to the method employed in the milk quota restructuring scheme. The linear programming model is also used to estimate how cattle and dairy farmers are likely to respond to policy change and the resulting effect on farm income.

[1] The year 2000 was chosen as it was indicated by Department of Agriculture officials that 2001 was an atypical year due to the de-stocking of a number of farms as a consequence of the Foot and Mouth outbreak.

2.2 Implications for the Single Farm Payment

The initial effect of these scenarios can be analysed in terms of the implications for the Single Farm Payment (SFP). The MAX scenario will provide the highest SFP because all payments are included in its calculation. For some farms, the SFP may be lower in the other scenarios depending on their activities in the reference period. Table 2-1 presents the SFP for various systems in the MAX scenario for 2005. The percentage of farmers experiencing a reduction in their SFP in MAX* and MIN relative to MAX is also presented. Average reductions in SFP for both scenarios are presented in the last two columns.

Table 2-1: Single Farm Payments for Three Scenarios in 2005*

Farm System	Avg SFP MAX €	Farms Affected MAX* %	Farms Affected MIN %	Reduction MAX* %	Reduction MIN %
Dairy	10,852	60	63	-8	-6
Dairy and Other	17,310	81	89	-9	-14
Cattle Rearing	10,513	40	98	-3	-57
Cattle Other	14,346	71	85	-10	-25
Sheep	9,877	38	52	-3	-30
Total	12,309	56	81	-7	-20

** - SFP includes dairy compensation of 2.5c/ltr*
Source: FAPRI-Ireland Farm Level Model (2003)

Table 2-1 shows average SFP for each farming system in the National Farm Survey (NFS) in the MAX scenario for 2005. SFP varies from €17,310 for the dairy and other system down to €9,877 for the sheep specialist farms with an average across all farms of €12,309.

According to NFS data, 56 per cent of farms would experience a reduction in their SFP in the MAX* scenario relative to the MAX scenario, while the equivalent figure for the MIN scenario is 81 per cent. In other words, fewer farmers are affected by the coupling of just the slaughter premium relative to the coupling of the suckler cow premium and some of the slaughter premium. The variation in SFP between MAX* and MIN is substantial. For example, just 40 per cent of cattle rearing farms are affected by MAX* but 98 per cent are affected by MIN. The difference between the two scenarios for the specialist dairy farms is negligible with just 3 per cent more farms experiencing a reduction in the SFP due to MIN.

The percentage reduction in the SFP for the two scenarios relative to MAX is also presented. The average reduction across all farms in MAX* is 7 per cent while it is 20 per cent for MIN. The variation between systems again is significant. In the MIN scenario, 98 per cent of cattle rearing farms would experience a reduction in their SFP of on average 57 per cent. While 85 per cent of 'cattle other' farms would be affected, the average reduction would be 25 per cent. In the same scenario, the average reduction in SFP is just 5 per cent for the specialist dairy farms.

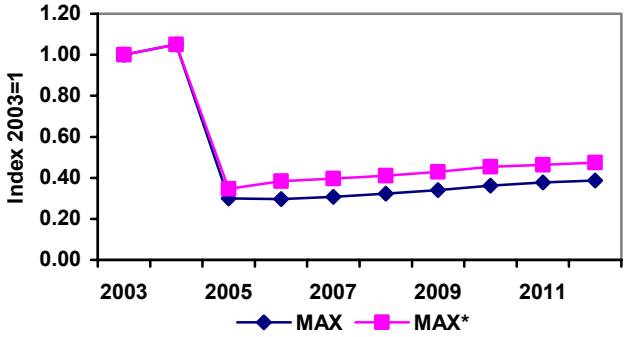
It is clear that both scenarios, MAX* and MIN, affect different proportions of farms in the various systems and the magnitude of the effect also varies greatly. It is evident that both of these scenarios discriminate against certain systems of farms by reducing the SFP and effectively compelling those affected to continue to stock animals to maintain their income while other farms do not have the same obligation. For example, it is very clear that cattle rearing farms are discriminated against by the MIN scenario, where almost all of them experience a reduction in their SFP and the average reduction is almost 60 per cent.

2.3 Implications of the MAX* Scenario for Farm Income

The coupling of certain livestock direct payments to production reduces the SFP as shown above. However, coupling of payments is production inducing and may increase farm output resulting in higher incomes from farming. This section deals with the effect of MAX* on production and as a consequence on total farm income, i.e. income generated from production plus the SFP.

The adult reference beef price is projected to be largely unchanged between MAX and MAX*. However, animals slaughtered in MAX* attract a direct payment of €80 per head. One may think that this would add €80 to the cattle finishing margin but this is not in fact the case. A proportion of the value of the slaughter premium is transmitted back to the value of the store animal, which is the main input into the finishing margin and therefore some of the €80 is lost from the system. A higher store price causes the cattle rearing margin to increase. The value of the slaughter premium is also transmitted back into the value of the calf and this also results in a higher margin for the suckler cow producer.

Figure 2-1: Gross Margin per Hectare for Cattle Finishing in MAX and MAX*

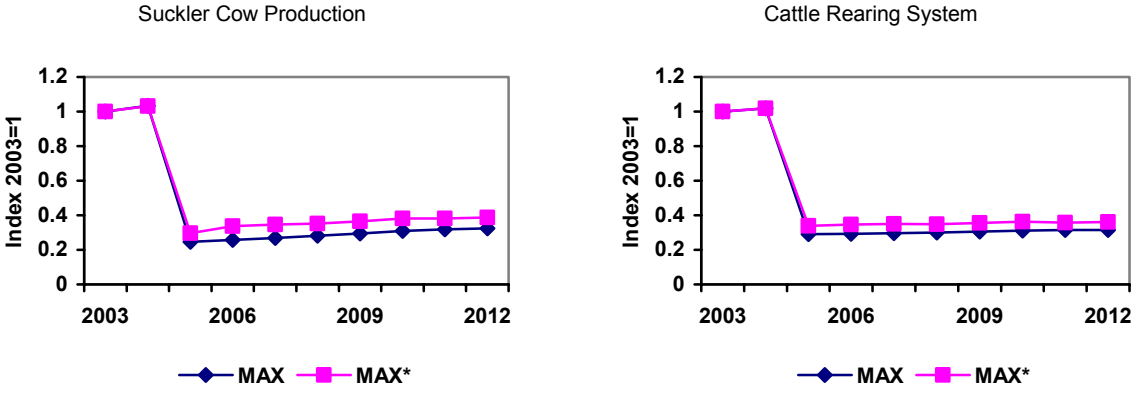


Source: FAPRI-Ireland Farm Level Model (2003)

As can be seen in Figure 2-1, the gross margin per hectare for an average NFS cattle finishing system, i.e. buying stores and selling adult animals for slaughter, falls considerably in 2005 due to decoupling. Margins in 2005 fall 75 per cent below 2003 levels in the MAX scenario because all of the direct payments have been taken out of the margin calculations. Margins fall by 65 per cent in the MAX* scenario because the slaughter premium is still coupled to production. By the end of the projection period, gross margins for cattle finishing are 22 per cent higher in MAX* than in MAX.

Figure 2-2 shows that the gross margins of the suckler cow and store systems benefits from the coupling of the slaughter premium. Again all margins fall considerably in 2005 when direct payments are decoupled. Margins fall less in MAX* because calf and store prices are higher than in MAX because of the coupling of the slaughter premium. Cattle rearing margins are 15 per cent higher due to the coupling of the slaughter premium while suckler cow margins are 20 per cent higher on a per hectare basis.

Figure 2-2: Gross Margin per Ha. for Suckler Cow and Cattle Rearing Systems: MAX and MAX*



Source: FAPRI-Ireland Farm Level Model (2003)

All three systems of production are more profitable when the slaughter premium is coupled and therefore farm income is higher. However, it is important to consider total income as in some cases, the SFP is lower when the premium is coupled. When the slaughter premium is decoupled, cattle finishers retain the full €80 slaughter premium in the form of the SFP but in the MAX* scenario they only retain the proportion of the premium that has not been transmitted back to the earlier stages of

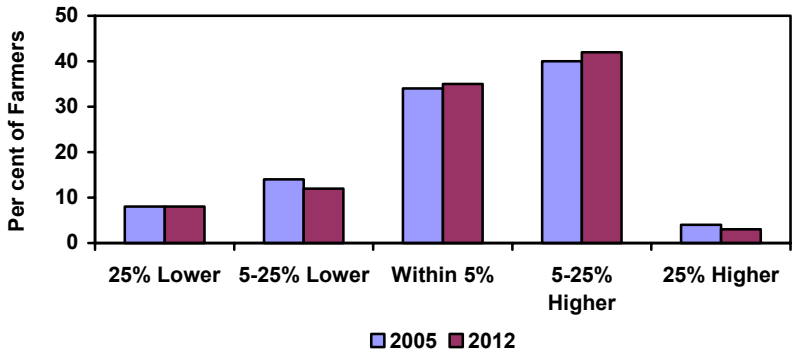
the production system. Therefore total income on farms claiming slaughter premium in the reference period is likely to be lower in MAX* relative to MAX. Farms that did not claim slaughter premiums in the reference period do not suffer a reduction in their SFP in MAX* however, they do enjoy an increase in gross margins through higher calf and store prices.

Coupling of the slaughter premium in MAX*, reduces the SFP on 57 per cent of cattle farms. The proportion is higher for the cattle rearing system with 70 per cent of farms experiencing a reduction in SFP while the figure is 40 per cent in cattle finishing system. All of the 43 per cent of farmers that do not have slaughter premiums included in their SFP will have higher incomes in MAX* than in MAX. These farms retain their full SFP while simultaneously benefiting from higher calf and store prices and having the freedom to slaughter animals and collect additional premium.

When total farm income is considered, 64 per cent of farmers are better off in MAX* than in MAX. All of the farms that did not claim slaughter premium in the reference period are better off due to higher prices, while some of those claiming slaughter premium in the reference period are better off by slaughtering more animals or specialising in earlier stages of production.

Figure 2-3 shows the income effects of MAX* relative to MAX for all cattle farms in 2005 and 2012. Approximately 9 per cent of cattle farms experience a reduction of 25 per cent or more in their income due to the coupling of the slaughter premium, while 12 per cent experience a reduction of between 5 and 25 per cent. On the positive side, 4 per cent of cattle farms experience an increase of 25 per cent or more in MAX* while a total of 44 per cent enjoy an increase of over 5 per cent. A large proportion of cattle farms, approximately 35 per cent, experience little or no change to their farm income in the two scenarios, i.e. incomes are within 5 per cent of each other in both scenarios.

Figure 2-3: Income Effects of MAX* - All Cattle Farms



Source: FAPRI-Ireland Farm Level Model (2003)

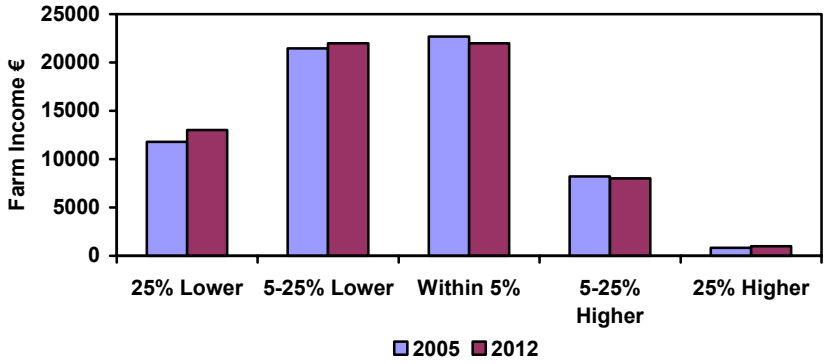
While the MAX* scenario may seem like a panacea with over 40 per cent of farmers having a greater than 5 per cent increase in their incomes, it is important to focus on the farms that are losing income. Projections from the aggregate FAPRI-Ireland model suggest that total sector income is lower in MAX* because the total receipt of slaughter premium for the sector would be at best the same but probably less. Hence, there are some losers in the MAX* scenario and it is not the panacea it may seem.

The majority of farms losing income in MAX* tend to be large, profitable cattle finishing farms. The average income of farms experiencing a reduction in their SFP due to the coupling of slaughter premium is €21,500 before the SFP is reduced. While the income for farms without slaughter premium is €11,500. The majority gain under MAX*, because the losers tend to be larger and more profitable farms. A small reduction in total income for a farm with a large income divided between a number of small farms earning low to negative incomes seems to present a more favourable picture that what actually occurs.

Figure 2-4 shows the average farm incomes before the MAX* changes for each of the percentage change categories outlined in Figure 2-3. Approximately 9 per cent of cattle farms experience a reduction of 25 per cent or more in their income due to the coupling of the slaughter premium, while 12 per cent experience a reduction of between 5 and 25 per cent. On the positive side, 4 per cent of cattle farms experience an increase of 25 per cent or more in MAX* while a total of 44 per cent enjoy

an increase of over 5 per cent. A large proportion of cattle farms, approximately 35 per cent, experience little or no change to their farm income in the two scenarios, i.e. incomes are within 5 per cent of each other in both scenarios.

Figure 2-4: Average Farm Incomes by Percentage Change Category

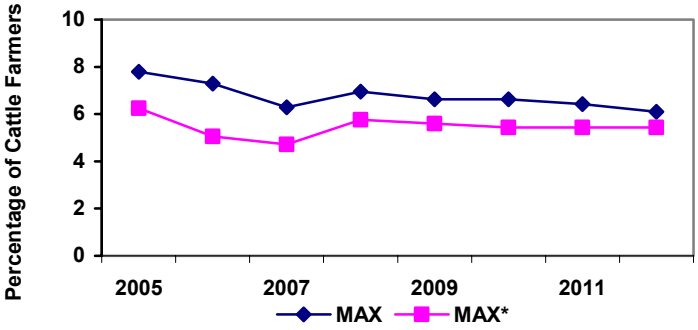


Source: FAPRI-Ireland Farm Level Model (2003)

Approximately 8 per cent of cattle farms would experience a 25 per cent reduction in income or more due to the coupling of the slaughter premium while 4 per cent would experience a similar increase. Figure 2-4 shows that the average income of farms experiencing this large decrease is €12,000 while the average income for those experiencing the increase is just €800. Similarly, average incomes are high on farms that are experiencing an income reduction of 5 to 25 per cent at €22,000 while incomes are much lower at €8,000 for those that are experiencing similar increases. In summary, the majority of farms are marginally better off in MAX* as a reduction in income in large profitable farms is being redistributed to a larger number of less profitable farms.

It is expected that post-decoupling, some farmers will choose to de-stock, allow their land to go fallow and use it only to activate their SFP. Farmers will still incur overhead costs in order to adhere to the cross compliance criteria associated with activating the SFP and to comply with "good farming practice". Therefore, only those farmers that return a negative market gross margin, i.e. direct costs exceed price, are projected to become so called "entitlement farmers". The vast majority of cattle farmers operate at least one enterprise at a gross profit and it is projected that post decoupling, these farmers would specialise in the most profitable enterprise. Figure 2-5 presents projections of the number of entitlement farmers in both scenarios. In MAX, approximately 8 per cent of cattle farmers are projected to farm the entitlement only. This decreases to about 6 per cent by 2012 as prices increase. Fewer farmers are projected to completely de-stock in MAX*, this is because entitlements are lower and cattle prices are higher, therefore fewer farmers return a negative market gross margin.

Figure 2-5: Projections of Entitlement Farmers



Source: FAPRI-Ireland Farm Level Model (2003)

2.3.1 Implications of MAX Scenario for Income on Dairy Farms*

Approximately 68 per cent of dairy farmers experience a decline in their SFP because of the coupling of the slaughter premium. The number of slaughter premium claimed on these affected farms varies from one up to 160, the average number of claims is 27, i.e. a loss of €2,160 in the SFP. If the

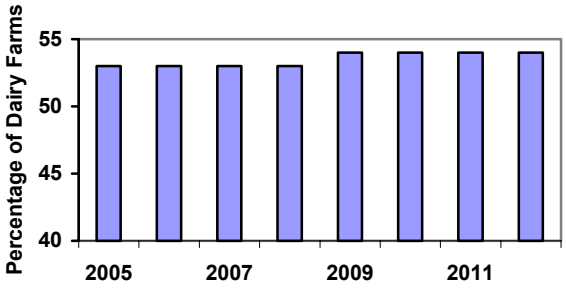
increases in the calf and store prices do not offset this loss and if the number of animals slaughtered does not increase, then these farms will experience a decline in their total farm income in MAX* relative to MAX.

For the 32 per cent of dairy farmers that do not have slaughter premium included in their SFP, farm income will be higher in MAX* than in MAX. They will not suffer any reduction in their SFP but will benefit from higher calf and store prices because the value of the slaughter premium is transmitted back to these prices.

Figure 2-6 presents the percentage of dairy farms with higher income in MAX* relative to MAX. Between 50 and 55 per cent of dairy farmers are better off with MAX* than MAX. As previous figures have shown, 32 per cent of dairy farms are better off because they did not incur any reduction in their SFP but still received increases in calf prices. The loss in the SFP has been offset by the increased value of calf sales on the other 22 per cent of farms. The average number of premium claims for these farmers was just 5, so even a small increase in calf values for a large dairy herd would offset the loss in the SFP.

Once again, MAX* provides a higher income relative to MAX for the majority of active dairy farms. But it should be reiterated that the total value of the sector is less in MAX* because some slaughter premiums are not being claimed and while 55 per cent of dairy farms are gaining by some measure, 45 per cent are losing by more because they had a significant number of slaughter premiums in the reference period.

Figure 2-6: Percentage of Dairy Farms with Higher Incomes under the MAX* Scenario



Source: FAPRI-Ireland Farm Level Model (2003)

2.4 An Examination of Decoupling of Milk Payments in the Dairy Sector

The Luxembourg Agreement of the CAP allowed for the introduction of dairy compensation payments from 2004 onwards. The payments are equivalent to 11.81€/t in 2004, 23.65 €/t in 2005 and 35.5€/t from 2006. This is equivalent to 0.054€/gal in 2004, 0.11€/gal in 2005 and 0.165€/gal from 2006 onwards. It was initially proposed that these payments would be coupled to production up to 2008 and thereafter, the payments would be included in the SFP and decoupled from production. More recently it has emerged that it is also possible to decouple the dairy compensation from 2005. Decoupling in 2005 means that any producer exiting production in that year will still receive the higher rate of compensation of 0.165€/gal in 2006 and onwards on the milk produced in 2005.

This section compares the effect of two decoupling scenarios within the dairy sector DAIRY 05 and DAIRY 08 on Irish dairy farms.

- *DAIRY 05*: full decoupling of the Dairy Premium in 2005
- *DAIRY 08*: full decoupling of the Dairy premium in 2008.

Under the DAIRY 05 scenario, the dairy premium is fully decoupled from production from 2005 onwards. This scenario allows farmers to cease milk production post 2004 while continuing to receive their dairy premium. In contrast, in DAIRY 08 the dairy premium is coupled to the production of milk until the end of 2008.

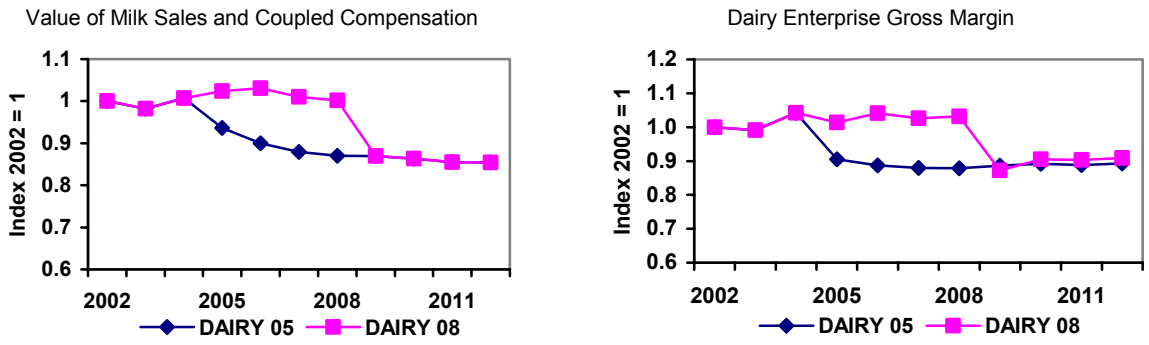
2.4.1 The Effect of Decoupling on Enterprise Profitability

The different decoupling dates in DAIRY 05 and DAIRY 08 change the relative returns to the dairy enterprise. When compensation is coupled to production, it is included in the gross margin estimation of the dairy enterprise. When it becomes decoupled, it is no longer included in the estimation but in the SFP. Hence the differing decoupling dates will affect the "returns" to milking cows. While total farm income may not change in the two scenarios, the "returns" to milking cows will differ, i.e. the coupled returns to milking cows are lower from 2005 to 2008 in DAIRY 05 than in DAIRY 08.

Figure 2-7 compares the value of milk sales and the coupled dairy compensatory payment under the DAIRY 05 and DAIRY 08 scenarios. The dairy premium, which is introduced in 2004, is coupled under both scenarios in its first year. In DAIRY 05, the payment is decoupled from production in 2005 and therefore the value of milk sales decreases in 2005 relative to DAIRY 08, which still contains a coupled compensation payment. This difference in the value of milk sales and coupled compensation continues until 2009, when the dairy payment is decoupled from production in DAIRY 08. By the end of the projection period, there is very little difference between the scenarios, suggesting that a similar price prevails in both cases.

The dairy enterprise gross margin includes the total value of dairy gross output, i.e. milk sales, coupled compensation, calf and cull cow sales and replacement costs less the direct costs. Milk yields per cow are assumed to increase by one per cent per annum with no associated increase in direct costs per animal. The dairy gross margin includes the coupled compensation and therefore the gross margin under the two scenarios follow a similar pattern to the value of milk sales and coupled compensation.

Figure 2-7: Returns to Milk Sales and Gross Margin per Cow



Source: FAPRI-Ireland Farm Level Model (2003)

The dairy gross margin is the same up to 2004. However under DAIRY 05, the gross margin falls by 11 per cent relative to the 08 scenario. However from 2009 onwards, the dairy gross margins of both scenarios are approximately the same. It is evident that there is a significant relative drop in the returns to milking cows in the years 2005 to 2008 in DAIRY 05 scenario. This does not suggest that total farm income is lower in this scenario, but it does indicate that there is less of an incentive to milk cows during this period in DAIRY 05.

The estimation of exits from dairying is based on a profitability analysis. If data were available on the types and number of farms that have exited over the last number of years, it would be possible to develop an econometric model that could estimate the probability of exit for each active producer. However, in the absence of such data, other methods must be used. Anecdotal evidence suggests that dairy farmers cease milk production for mostly personal reasons, such as retirement and lack of a successor, and sometimes for economic reasons. In the absence of verifiable empirical data on these personal reasons, we have assumed that the propensity to cease milk production is solely dependent on profitability. Historical levels of profitability and the rate of exit from dairying are examined to identify a minimum level of profitability below which exit has occurred historically. Maximum dairy enterprise income is projected for each farm using the linear programming model. Producers operating below the minimum level of profitability are projected to exit production. While it may be argued that certain producers will continue a loss making enterprise, it is difficult to account for this in the absence of the appropriate data. However, it is important to stress that the methods used to identify the rate of

exit from dairying is the same in both the baseline and scenario analysis. Therefore the effect of the scenario on the rate of exit from dairying is effectively analysed.

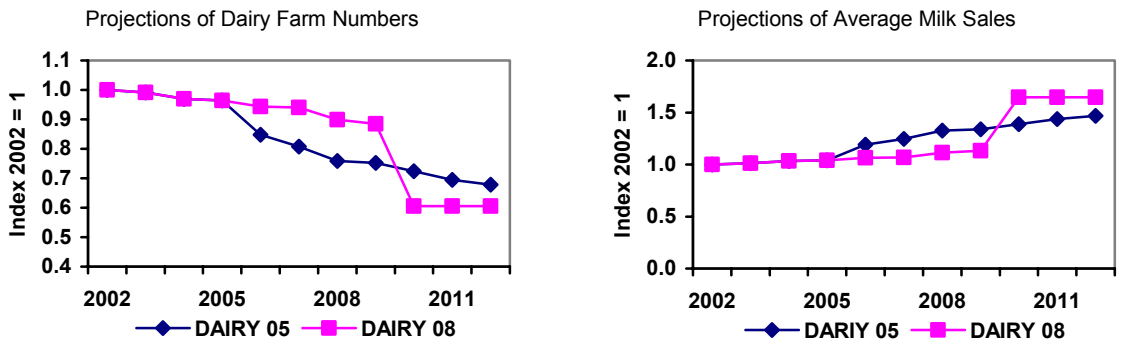
It is assumed that if producers cease milk production, their milk quota will enter the restructuring scheme and be reallocated according to the priority system. The reallocation of quota is ring-fenced and co-operative based. This means that quota belonging to an exiting farmer from Lakeland Creameries, for example, cannot be reallocated to a Dairygold producer. While these regulations are difficult to account for in a national study such as this one, some effort to allow for regional ring-fencing has been made. Each farm in the NFS has a regional code[2], in this study it has been assumed that quota belonging to exiting producers can only be reallocated to other producers in the same region. While the regional representivity of farms in the NFS may be questionable and may not lend itself to accurate regional analysis, it is assumed here that the regional codes are sufficiently representative for the purposes at hand. Maximum farm income for farms that have purchased milk quota is re-estimated.

It is assumed that the restructuring scheme will continue to operate in the future as it does at present. Similar restructuring prices are assumed in the future and the reallocation of restructured quota is also assumed to operate under the priority scheme. The future allocation of restructured milk is assumed to follow a similar pattern to 2002. In 2002, 50 per cent of the milk that entered the restructuring scheme was allocated to the first priority group, i.e. those with quotas less than 44,500 gallons, 35 per cent of the quota was allocated to the second group, those between 44,500 and 66,000 gallons and the last 15 per cent was allocated to those exceeding 66,000 gallons.

Farmers earning a coupled margin per gallon (i.e. milk price plus coupled compensation minus direct costs) less than the minimum profit identified from the profitability analysis are projected to exit the industry. Figure 2-8 presents projections of dairy farm numbers and average milk sales for the period 2002 to 2012.

In DAIRY 05, farm numbers decrease by 25 per cent in the 2002 to 2008 period but by only 11 per cent during the same period in DAIRY 08. However, from 2009 onwards dairy farm numbers are projected to decrease considerably in DAIRY 08 as the dairy premium is no longer coupled to production. Total dairy farm numbers are projected to decrease by 32 per cent in DAIRY 05 and by 39 per cent in DAIRY 08. Based on data from the Department of Agriculture, there were approximately 26,500 dairy farmers in 2002, therefore we project that by 2012 there would be approximately 18,000 dairy farmers in the DARIY 05 scenario and 16,000 farmers in the DAIRY 08 scenario.

Figure 2-8: Projections of Dairy Farm Numbers and Average Milk Sales



Source: FAPRI-Ireland Farm Level Model (2003)

Both scenarios see a considerable increase in average milk sales per farm as a result of the decrease in farm numbers. The projected increase in average milk sales in DAIRY 05 is quite gradual and by 2012, average Milk Sales are 47 per cent higher than the 2002 level, that is approximately 65,000 gallons. In contrast under the DAIRY 08 scenario, the change in milk sales is quite small up to 2009 due to the slower rate of exit. However, from 2009 onwards, average milk sales per farm increase

[2] Regional classifications are based on the NUTS (Nomenclature of Territorial Units) classifications used by Eurostat. A full explanation of NUTS codes are available from the CSO, www.cso.ie.

significantly due to the decrease in farm numbers. By 2012, average milk sales per farm in Dairy 2008 are 65 per cent higher than in 2002, i.e. about 75,000 gallons.

For each active dairy farm, the cost of expansion is estimated. Farms expanded only to the degree to which current land and labour permitted. By 2012, the majority of farms remaining are almost 100 per cent specialised in dairy and replacement production. The NFS does not collect data on housing or milking parlour capacity and therefore it was assumed that the housing and milking parlour capacity was sufficient to cater for the number of cows that could be kept with existing land and labour. Therefore, only the cost of acquiring the quota and the additional cows was factored into the income calculation. The price of restructuring quota is projected to follow the milk price and therefore falls significantly over the projection period. The cost of quota purchase is spread over a seven-year period and deducted from farm income.

The increase in average farm income between the period 2005 and 2010 is greater in DAIRY 05 due to the more gradual structural change occurring within the industry and as a result the increased availability of milk quota. By the end of the projection period the increase in income for active dairy farmers is more than sufficient to negate the effect of inflation on purchasing power. The total increase in income over the projection period is greater in DAIRY 08, however, in this scenario there are fewer farmers supplying a greater volume of milk each. The farms in DAIRY 08 also benefit from buying less costly milk quota, they acquire their quota later in the projection period and the value of quota is projected to decrease over time.

In short, the DAIRY 05 scenario allows more farmers to stay in business and allows those active farmers to achieve sufficient increases in their income in order to allow them to offset the effect of inflation and more than maintain their incomes in real terms. The DAIRY 05 scenario also achieves a more gradual structural change process where retiring and exiting producers have the freedom to exit production anytime from 2005 and still retain their decoupled dairy income. The DAIRY 08 scenario has the advantage of providing a higher income but only to be divided between fewer farmers. This scenario also causes stagnation in the restructuring scheme with the majority of farmers waiting until 2008 to establish their decoupled payment.

2.5 Summary and Concluding Comments

The analysis of the implications for the Single Farm Payment of choosing one of coupling various livestock premiums is discussed in the first section. It is clear that if the MAX* or MIN options are chosen as the future policies then particular groups of farms will be discriminated against. Coupling of certain premiums singles out particular groups of farms and obligates them to retain animals in order to offset the reduction in their Single Farm Payment because of the coupling.

A further exploration of coupling the slaughter premium was presented in part two of this report. The results are clear that significant proportions of the value of the slaughter premium are transmitted back into the store and calf prices. This means that coupling the slaughter premium instantly identifies farms that will have windfall gains, i.e. farms that will not endure any reduction in their Single Farm Payment but will reap the benefits of the coupled payment through higher calf and store prices. Again, coupling of the slaughter premium will discriminate against certain groups of farms. The results of the MAX* scenario seem attractive on one hand as over 40 per cent of cattle farmers have a 5 per cent increase in their income or more, however these figures should not be accepted without further scrutiny of the losers. The main losers are more commercial farms with large profits. While only a small number of farms lose out considerably, this still results in a substantial sum of money that is redistributed across a large number of small farmers. In other words, there are more gainers than losers but on an individual basis, the loss is more substantial than the gain.

The final section of the paper analyses the effects of decoupling the dairy premium at different dates. It is apparent that earlier decoupling results in a more gradual restructuring in the sector and retains more farmers in the long term. While incomes are higher in the later decoupling option, there are 2,000 fewer farmers. The income increases achieved in the early decoupling scenario are more than sufficient to offset the effect of inflation over time.

3 Greenhouse Gas Emissions from Irish Agriculture

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Without the Earth's atmosphere we would live in a world with typical temperatures of – 75° C. The Earth's atmosphere allows much of the Sun's rays of visible light to reach the Earth's surface and heat it. Some of this energy is re-radiated by the Earth's surface in the form of long-wave infrared radiation. Much of this radiation is absorbed by molecules of carbon dioxide (CO_2), other gases and water vapour in the atmosphere and is reflected back as heat to the Earth's surface. The process is referred to as the greenhouse effect since it is similar to the effect caused by the glass in a greenhouse.

Since the industrial revolution the use of fossil fuels (oil, coal and natural gas), has provided power for industry and facilitated the lifestyle of western societies. Due to the use of fossil fuels, levels of atmospheric carbon dioxide have increased and this may augment the greenhouse effect to the point where a change in climate may result. Higher levels of other trace gases such as nitrous oxide (N_20), methane (CH_4) and chlorofluorocarbons (CFCs) may also contribute to a change in climatic conditions. Collectively these gases are referred to as greenhouse gases (GHG). In Ireland agricultural production is a leading contributor of GHG emissions to the atmosphere in the form of methane and nitrous oxide.

While some remain sceptical about the evidence for global warming, a growing number believe that a significant alteration of our climate is possible within this century. Continuing global warming may affect, amongst other things, crop yields and water supply. Furthermore, it may generate the potential for altering the range or number of pests that affect plants as well as diseases that threaten the health of both humans and animals. An increase in global temperatures may cause the melting of polar icecaps that would raise sea levels and inundate low-lying land areas around the world.

Reflecting growing international concern about global warming, the Kyoto Protocol[1] was signed in Japan in 1997. It resulted in specific limitations for GHG emission levels to be achieved by 2010 in countries that are signatories. These targets were set with reference to GHG levels in 1990. Most developed countries must reduce their GHG emissions below the 1990 level to comply with the Protocol. Within the EU, Ireland received a concession, which allows ***an increase*** in its GHG emissions by no more than 13 per cent above the 1990 levels by 2010.

In 2000 the National Climate Change Strategy for Ireland (NCCS) was published. It projected that without policies to contain the level of emissions, Ireland would in fact ***exceed*** its target of 60.74 million tonnes of carbon dioxide equivalent by up to 22 per cent by 2010. [2] In the NCCS, the Department of the Environment set out specific measures to control greenhouse gas emissions.

Relative to other EU member states Ireland is unusual in terms of the percentage contribution made by agriculture to national greenhouse gas emissions. The estimated 35 percent contribution of GHG's by Irish agriculture (Department of the Environment, 1998) reflects both the high degree of agricultural activity and relatively lower levels of other GHG sources (such as heavy industry) in Ireland. The emission of GHG's from agriculture principally comes from animals but is also due to agricultural practices such as the use of fertiliser and manure management practices. It is likely that policy makers will seek to reduce GHG emissions below the levels projected in the NCCS report. In this regard they may consider the cost of reducing emissions from each sector in order to minimise the effect on the overall economy. There is therefore a need to estimate greenhouse gas emissions from the various sectors of the economy, including agriculture.

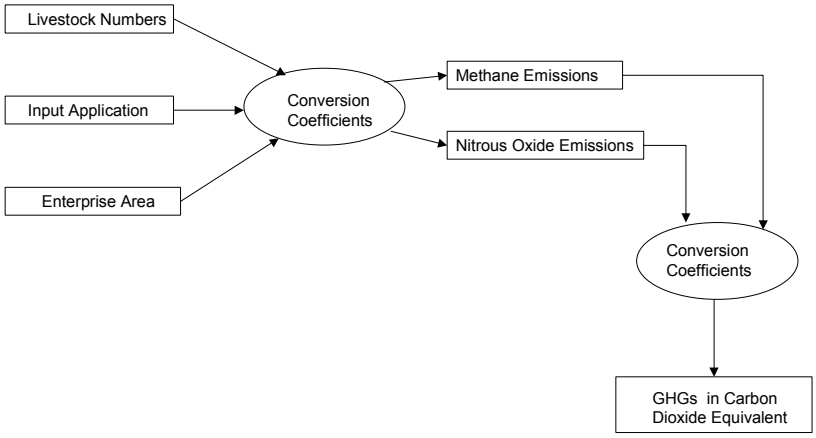
[1] See Bureau of Oceans and International Environmental and Scientific Affairs (1998) for more details.
[2] NCCS p. 12

3.1 Method of Analysis

The projections of commodity outputs and input usage from the FAPRI-Ireland model can be converted into projections of emissions of GHGs using conversion coefficients outlined by the Intergovernmental Panel on Climate Change (IPCC) (1996) and used by the Department of the Environment (1997).

The methodology for the establishment of the GHG inventories was proposed by the IPCC (1996). It was subsequently adopted and adjusted to allow for conditions specific to Ireland by the Department of Environment (1997). The approach essentially involves applying conversion coefficients to agricultural data and calculating the associated emissions of GHGs. Data on livestock numbers, enterprise areas and input applications is obtained from the FAPRI-Ireland model under both the baseline and alternative scenario analyses. The general approach is summarised in Figure 3-1 below.

Figure 3-1: Conversion of Agricultural Outputs to Environmental Emissions



The Kyoto protocol defines the source categories in agriculture for methane and nitrous oxide. The three principal means by which GHGs are produced in Irish agriculture are:

Enteric fermentation

In ruminant animals (e.g. cattle and sheep), feed ferments in the animal as part of the digestion process. This is known as enteric fermentation. Fermentation in the rumen by such animals, results in relatively large methane emissions relative to feed consumption. Pigs and horses are not ruminants and hence emissions from such animals are relatively lower.

Manure management

Livestock manure tends to produce methane. The amount of methane produced depends on the way the manure is managed. To minimise the amount of methane released, conditions must be such that the manure remains in contact with the air. For example manure that remains in paddocks where the animal grazed or which is dried and spread on land produces a low level of methane. However manure that is held as slurry in lagoons, pits or tanks produces a higher level of methane since it is held in anaerobic (oxygen free) conditions. Agriculture accounted for 87 per cent of total methane emissions in Ireland in 1998 and 88 per cent of the methane released originated from enteric fermentation.[3]

Agricultural soil management

Agricultural soil management is a source of methane and nitrous oxide emissions. Nitrous oxide is lost to the atmosphere through the soil nitrogen cycle. However, the application of additional organic or inorganic nitrogen (manure and fertiliser) to the soil can increase the rate of emissions. The rate of emission increases when the nitrogen applied is in excess of what can be absorbed by plants.

[3] NCCS – Executive summary, p. 7

3.1.1 Methane Emission factors from Livestock

Emissions of GHGs from livestock are calculated using the projections of animal numbers from the FAPRI-Ireland model in conjunction with the conversion coefficients or emissions factors produced by the Department of the Environment and the Environmental Protection Agency. Some historical data and projections for emissions differ in this report relative to those produced in previous FAPRI-Ireland publications. See Box 3-1 for more details.

The livestock emission factors are expressed in terms of the amount of methane produced by the animal on an annual basis. These emission factors vary by animal type, not alone because of their differing size and feed consumption, but also because of the manner in which food is digested and the animal manure is subsequently treated. For example ruminants such as cattle produce considerably more methane through enteric fermentation that do pseudo-ruminants of similar size such as horses and mules. Similarly, sheep being ruminants produce considerably more methane than monogastrics (single stomach animals) such as pigs.

Concerning manure management, the nature of production systems tends to favour the management of cattle and pig manure in liquid systems, which facilitate anaerobic respiration and the emission of methane. By contrast sheep are rarely housed and consequently methane emissions from their manure is negligible.

3.1.2 Methane and Nitrous Oxide Emissions factors from Agricultural Soils

The emission of GHGs from agricultural soils varies in accordance with the manner in which the land is managed which in turn depends on the type of crop production system in place. For the purposes of emissions calculations, the IPCC categorises farmland under three uses. Crop land and more intensively farmed grassland have quantities of fertiliser applied to them whereas less intensively farmed grassland may have no fertiliser applied to it. Consequently the levels of methane and nitrous oxide emissions from cropland and more intensively farmed grassland are considerably higher than grassland maintained without fertiliser.

3.2 Conversion of GHG emissions to a Base for Kyoto Protocol Accounting

For measurement purposes, it is not meaningful to add together amounts of methane and nitrous oxide. This is because the global warming potential of the gases differ. It has been estimated that methane is 21 times more effective at trapping heat in the atmosphere than carbon dioxide over a 100-year time period (IPCC, 1996). Similarly nitrous oxide is estimated to be 310 times more effective at trapping heat than carbon dioxide.

For comparison purposes the convention is to present volumes of all such gases in carbon dioxide (CO_2) equivalents. The emission levels of each gas are converted into CO_2 equivalents by applying corresponding “global warming potential” coefficients – multiples of 21 and 310 respectively for units of methane and nitrous oxide. The outlook under the CAP reform policies described and analysed in Paper 1 of this publication will then be examined and GHG emissions will be calculated.

Box 3-1: Central Statistics Office Agriculture Data Revision

Following the 2001 Census of Irish Agriculture the CSO revised its series for a number of livestock categories. These revisions extend back as far as the time of the previous census in 1990.

Concerning the calculation of agriculture GHG emissions, these revisions are important. In particular the historical number of dairy cows in Ireland has been revised downward by almost 10 percent. This also has implications for FAPRI-Ireland’s projected future numbers of dairy cows. Since dairy cows are one of the main contributors to agriculture GHG emissions it follows that this revision has notable implications for the historical and projected level of GHG emissions from Irish agriculture.

FAPRI-Ireland has incorporated the CSO livestock data revisions in this report. Consequently, the GHG projections published here are **not** comparable with those produced in May 2002 and January 2003 by FAPRI-Ireland.

The next section provides a brief review of the baseline results for the agricultural variables used in the generation of GHGs. The consequent Baseline and scenario projections of GHG emissions from Irish agriculture are then presented.

3.3 Irish Agriculture: GHG Projections under Baseline Agriculture Policy

The Baseline projections of agricultural activity used in this section are based on the Baseline (Agenda 2000 and URAA) policies outlined in Paper 1 of this report (Binfield et al., 2003). Projections of GHG's based on these agriculture projections are presented below.

3.3.1 Key Factors Influencing Agriculture Greenhouse Gas Emissions: Baseline Policy

Under Baseline policies, the reduction in dairy cows is projected to continue. It is estimated that by 2012 there will be 1.01 million dairy cows nationally, a reduction of 12 percent on the average 2000 to 2002 level. Dairy cows are by far the largest source of GHGs on a per head basis so this reduction will have a sizable effect of GHG emissions. Emissions of methane from enteric fermentation and manure management from dairy cows are expected to fall by 9,000 tonnes (0.2 Mt CO_2 equivalents) by 2012.

The number of non-dairy cattle is projected to contract to 4.7 million head under Baseline policies, a reduction of almost 10 percent by 2012 relative to the average level for 2000 to 2002. The reduction is a combination of lower numbers of beef cows, heifers, bulls and bullocks. Margins will fall under Agenda 2000 due to declining beef prices and together with an increase in extensification payments this will reduce the incentive for farmers to hold these types of livestock. The effect of this reduction in cattle is a decline in emissions of methane from both enteric fermentation and manure management by 28,000 tonnes (0.6 Mt CO_2 equivalents) by 2012.

Under baseline policy sheep numbers decline by over 20 percent by 2012 relative to the average from 2000 to 2002. This represents a decline of almost 1 million head. By 2012 this will result in methane emissions from sheep declining by approximately 9,000 tonnes (0.2 Mt CO_2 equivalents) relative to the average level for 2000 to 2002.

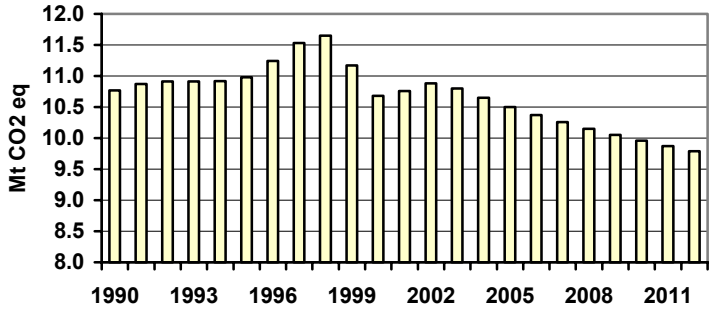
By 2012 under the Baseline, the number of pigs at about 1.75 million head is expected to remain relatively unchanged on the level recorded from 2000 to 2002. Correspondingly, the methane emissions, which mostly arise from manure management, remain unchanged.

The total land area in agricultural use in Ireland will have declined slightly by about 1 percent under Baseline policies by 2012 relative to the average for 2000 to 2002. There will not be a significant change in land use over the period. Although animal numbers are expected to decline, the move toward a more extensive livestock production will mean that the proportion of land devoted to crops, pasture, hay and silage will not change markedly.

3.4 Methane and Nitrous Oxide from Irish Agriculture: Baseline Policy

Figure 3-2 shows the projected path of agriculturally sourced methane emissions under Baseline policies. The projected path is downward and by 2012 methane emissions are 10 percent down relative to the average level recorded from 2000 to 2002. The reduction comes mainly through lower numbers of dairy cows and sheep.

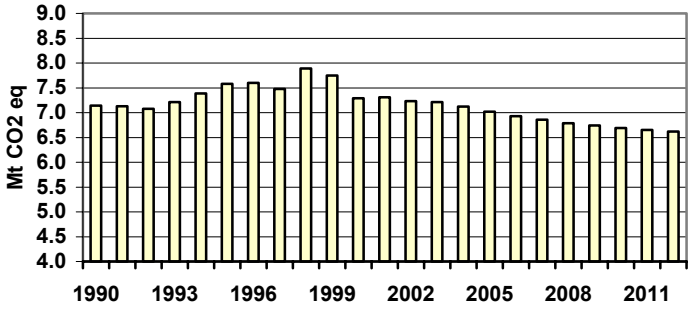
Figure 3-2: Projections of Methane Emissions from Irish Agriculture: Baseline Policy



Note: Totals represent CH_4 emissions (in $C0_2$ equivalents) from Enteric Fermentation and Manure Management
Source: FAPRI-Ireland Partnership model (2003)

Figure 3-3 shows similar projections to 2012 for nitrous oxide due to manure and agricultural soils management. A reduction in nitrous oxide emissions of 9 percent is projected by 2012 relative to the average level for 2000 to 2002.

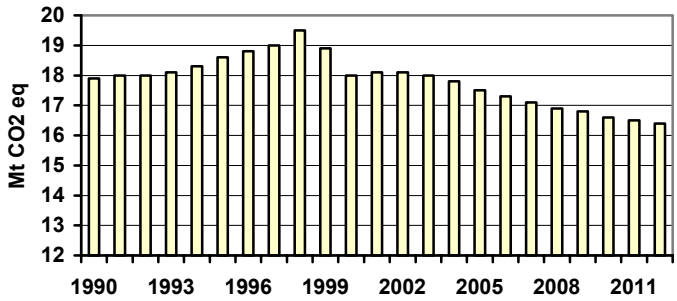
Figure 3-3: Projections of Nitrous Oxide Emissions from Irish Agriculture: Baseline Policy



Note: Totals represent N_2O emissions (in $C0_2$ equivalents) from Manure Management and Agricultural Soils
Source: FAPRI-Ireland Partnership model (2003)

Overall the Baseline projections suggest that if agricultural policies remain unchanged there will be a reduction in overall agricultural activity and consequently GHG emissions are also set to decline. Total greenhouse gas emissions from Irish agriculture are projected to decline by approximately 9 per cent by 2012 relative to the average of 2000 to 2002. The baseline projections for total emissions from agriculture are presented in Figure 3-4.

Figure 3-4: Projections of GHG Emissions from Irish Agriculture: Baseline Policy



Note: Totals represent CH_4 and N_2O (in $C0_2$ equivalents) from Enteric Fermentation Manure Management and Agricultural Soils
Source: FAPRI-Ireland Partnership Model (2003)

Ireland is committed to minimising its rate of increase in GHG emissions to 13 percent above the 1990 level under the terms of the Kyoto Protocol. Relative to the 1990 base year Figure 3-4 shows the reduction in methane and nitrous oxide that occurs by 2012 and also expresses the total reduction in terms of $C0_2$ equivalents. Total emissions decline as the number of dairy cows is projected to fall by 24 per cent over the same period. Given that dairy cows are a significant source of GHG emissions the fall in numbers is the major source of the GHG reduction. Reductions in cattle and sheep number also contribute to the fall in GHG emissions. See Appendix Table A1 for greater detail.

Table 3-1: GHG Emissions from Irish Agriculture 1990 to 2012 : Baseline

Source category		1990	Baseline 2012	% Change
Methane (CH_4)	Gg	512.7	466.2	-9.1
Nitrous oxide (N_20)	Gg	23.0	21.3	-9.0
Total (CO_2 equivalent)*	Mt	17.9	16.4	-9.1

Note: The $C0_2$ equivalent measure represents the change in global warming potential of Methane and Nitrous Oxide
Source: FAPRI-Ireland Partnership Model (2003)

The next section outlines the results of the CAP reform scenario analysis conducted with the FAPRI-Ireland model. The consequent effects on GHG emissions under these alternate policy scenarios are presented.

3.5 Projections of Agricultural Activity: Luxembourg Agreement/EU WTO scenario

Paper 1 in this report sets out the details of the Luxembourg Agreement. A key feature of the Agreement is the options that exist with regard to the degree of decoupling to be pursued in Member States. Since EU Member States have yet to decide among the available options this section of the report examines a number of the possible outcomes depending on the options selected. In all scenarios relating to the Luxembourg Agreement it is assumed that the EU WTO Modalities proposals are in place.

3.5.1 Key Factors Influencing Agriculture Greenhouse Gas Emissions: Luxembourg Agreement /EU WTO scenario

The Luxembourg Agreement is relatively clear with respect to dairy reforms. It is projected that under these reforms milk quotas will continue to be filled in Ireland. Cow numbers will decline at a slightly lower rate than indicated in the Baseline. This is because the Luxembourg Agreement will lead to a reduction in milk prices that is greater than in the Baseline. This slightly impedes the growth in milk yields and as a corollary it also slows the fall in cow numbers. Cross-sectoral effects of the reforms in the beef sector are likely to only marginally affect the rate of decrease in dairy cow numbers.

In beef, full decoupling will for some farmers reduce the incentive to hold animals that previously attracted coupled direct payments. Consequently, under the full decoupling (MAX) scenario and the close to full decoupling (MAX*) scenario (defined in Paper 1), suckler cow numbers are projected to decline 18 percent and 15 percent respectively below Baseline levels by 2012. However, calf supplies from the dairy herd will remain close to Baseline levels so this will moderate the overall reduction in cattle numbers relative to the Baseline. By 2012 under the MAX and MAX* scenarios cattle numbers are projected to be about 9 percent and 7 percent below Baseline levels.

The MIN decoupling option (which keeps the suckler cow and slaughter premia partially coupled) results in a far smaller reduction in suckler cow and cattle numbers generally than with either the MAX or MAX* scenarios. In the MIN scenario, the decline in cattle numbers is just 3 percent below the Baseline level in 2012.

The decoupling of sheep payments leads to a reduction in the number of sheep in Ireland since decoupling renders sheep production unprofitable in some instances. Consequently, under the full decoupling (MAX) scenario and the close to full decoupling (MAX*) scenario, sheep numbers are projected to decline by 5 percent and 6 percent respectively below Baseline levels by 2012. Under the MIN scenario, where 50 percent of the sheep premia remain coupled to production, sheep numbers are relatively unchanged on the Baseline level by 2012.

Relative to the Baseline there are very minor changes in the allocation of farmland to pasture, hay, silage and cereals. Conditions attached to the receipt of the decoupled payments will limit the extent to which land will move between these use categories.

3.6 Projections for Methane and Nitrous Oxide: Luxembourg Agreement/EU WTO scenario

Since cattle and sheep numbers fall appreciably relative to the baseline in the MAX and MAX* scenarios, methane emissions from both enteric fermentation and manure management are expected to decrease by a greater extent than under the Baseline. The decrease in animal numbers relative to the Baseline is more modest in the MIN scenario as is the corresponding fall in methane emissions.

By 2012, methane emissions decline by 16 percent and 15 percent respectively relative to 1990 levels under the MAX and MAX* scenarios. By contract the decline in methane emissions over the corresponding period is just 11 percent under the MIN scenario.

Across the three options examined nitrous oxide emissions decline by 16 percent and 14 percent respectively in the MAX and MAX* scenarios, but only by 9 percent in the case of the MIN scenario.

In the MIN scenario the smaller reduction in animal numbers, coupled with a smaller reduction in fertiliser input leads to this lesser decrease in nitrous oxide emissions.

Emissions levels under the three Luxembourg Agreement scenarios for methane, nitrous oxide and GHG equivalent emissions of CO_2 are illustrated in Table 3-2. For the projection period under the three scenario, total GHG emissions from agriculture are expected to decrease by a minimum of 1.8 Mt CO_2 equivalent (MIN scenario) and as much as 2.8 Mt CO_2 equivalent (MAX scenario). By contrast, the Baseline analysis presented earlier, projected a reduction of just 1.3 Mt CO_2 equivalent relative to the 1990 level. Under the Max scenario the 2012 outcome represent a reduction in emissions relative to 1990 levels which is almost 50 percent greater than that projected to occur in the Baseline.

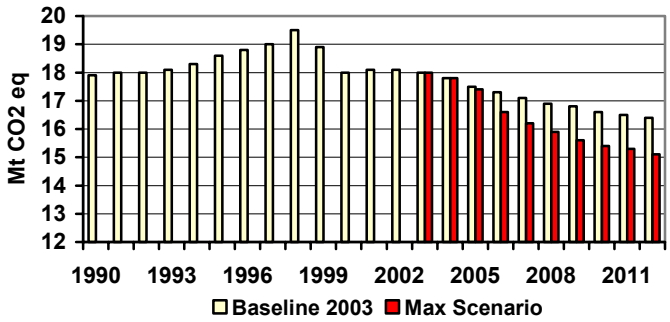
Table 3-2: GHG Emissions from Irish Agriculture 1990 to 2012: Luxembourg Agreement/EU WTO scenario

Source category		1990	2012	% Change
	†	Actual	MIN Scenario	
Methane (CH_4)	Gg	512.7	456.9	-10.9
Nitrous oxide (N_2O)	Gg	23.0	20.9	-9.4
Total (CO_2 equivalent)*	Mt	17.9	16.1	-6.3
			MAX Scenario	
Methane (CH_4)	Gg	512.7	431.6	-15.8
Nitrous oxide (N_2O)	Gg	23.0	19.5	-15.5
Total (CO_2 equivalent)*	Mt	17.9	15.1	-15.7
			MAX* Scenario	
Methane (CH_4)	Gg	512.7	435.6	-15.0
Nitrous oxide (N_2O)	Gg	23.0	19.7	-14.3
Total (CO_2 equivalent)*	Mt	17.9	15.3	-14.8

Note: The CO_2 equivalent measure represents the change in global warming potential of Methane and Nitrous Oxide.
Source: FAPRI-Ireland Partnership Model (2003).
†: *Gg stands for Gigatonne. A Gigatonne (Gg) is equal to one million tonnes.*

In Figure 3-5 GHG emissions projection from Irish agriculture under the Baseline and the MAX scenario in CO_2 equivalent terms are presented. For greater details on the emissions from agriculture under the various reform options see Appendix Table A 2, Table A 3 and Table A 4.

Figure 3-5: Projections of GHG Emissions from Irish Agriculture: Baseline & MAX Scenario



Note: Totals represent CH_4 and N_2O (in CO_2 equivalent) from Enteric Fermentation, Manure Management and Agricultural Soils
Source: FAPRI-Ireland Partnership Model (2003)

3.7 Conclusions

This paper provides projections of one aspect of the environmental impact of the ongoing reform of the government policies affecting the agriculture sector in Ireland. It is found that emissions of greenhouse gases are projected to decline relative to existing levels under Baseline (Agenda 2000) policies and that reforms agreed as part of the Luxembourg Agreement in June 2003 will lead to even further reductions.

Increasing milk yields in the presence of a milk quota and the introduction of decoupled payments will reduce the number of dairy cows, other cattle and sheep in Ireland. These livestock are the three leading contributors to greenhouse gas emissions from Irish agriculture. Consequently as a result of decoupling and ongoing productivity improvements in agriculture, substantial reductions in methane and nitrous oxide emissions are possible.

Among the agricultural policy reform options examined, full decoupling of CAP direct payments produces the largest reduction in greenhouse gas emissions. However, relative to Agenda 2000 agricultural policy, reductions in greenhouse gases are achieved under all the Luxembourg Agreement options examined in this report. Such is the scale of the reduction in emissions that in the case of full decoupling, it is projected that by 2012 emissions from agriculture will decrease to a level 16 percent below that recorded in 1990 under the MAX decoupling option.

Under a minimal (MIN) decoupling option - whereby the sucker cow and slaughter premium remain partially coupled - some of the environmental benefit in term of emissions reductions do not arise, since cattle and sheep numbers are maintained at levels closer to the projected Baseline level in 2012. However the level of reduction is still 6 percent greater than is projected to be achieved by 2012 under Baseline policies.

Estimates in 1998 indicated that agriculture contributed about one third of all Irish greenhouse gas emissions. Consequently, the reduction in agriculture emissions arising out of the Luxembourg Agreement should represents a significant contribution from the agriculture sector in meeting the national Kyoto target of a maximum 13 percent increase in greenhouse gases over 1990 emissions levels.

Further analysis will look at the issue of sequestration of carbon through on farm forestry. This will allow the projection of the *net* contribution of agriculture to greenhouse gas emissions in Ireland.

Acknowledgments

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Table A 1: Projections of GHG emissions from Irish agriculture under Baseline scenario

	unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enteric fermentation														
Cattle	Gg CO_2	8,304	8,360	8,542	8,474	8,352	8,227	8,120	8,027	7,940	7,865	7,795	7,733	7,676
Dairy	Gg CO_2	2,447	2,447	2,447	2,400	2,384	2,371	2,358	2,345	2,331	2,317	2,304	2,293	2,282
Non-dairy	Gg CO_2	5,795	5,842	5,996	5,962	5,867	5,767	5,684	5,611	5,545	5,489	5,436	5,390	5,346
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	1,004	1,020	969	974	951	924	898	879	864	849	833	818	804
Goats	Gg CO_2	1	1	1	1	1	1	1	1	1	1	1	1	2
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	29	29	29	29	29	29	29	29	29	29	29	30	30
Mules	Gg CO_2	2	2	2	2	2	2	2	2	2	2	2	2	2
Swine	Gg CO_2	55	56	56	58	58	58	58	59	59	58	57	56	55
Poultry	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CH4 from ef	Gg CO_2	9,331	9,395	9,500	9,425	9,291	9,151	9,030	8,927	8,831	8,746	8,663	8,589	8,520
Manure management														
Cattle	Gg CO_2	1,143	1,150	1,175	1,166	1,149	1,132	1,117	1,104	1,093	1,082	1,073	1,064	1,056
Dairy	Gg CO_2	389	389	389	382	379	377	375	373	371	368	366	365	363
Non-dairy	Gg CO_2	742	748	767	763	751	738	728	718	710	703	696	690	684
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Mules	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Swine	Gg CO_2	196	200	202	209	208	207	210	213	213	210	206	202	198
Poultry	Gg CO_2	25	24	24	24	24	24	25	25	25	25	26	26	26
Total CH4 from mm	Gg CO_2	1,352	1,361	1,383	1,377	1,362	1,347	1,337	1,329	1,318	1,306	1,294	1,282	1,271
Total CH4	Gg CO_2	10,683	10,756	10,883	10,802	10,653	10,499	10,368	10,256	10,150	10,052	9,957	9,871	9,791
- Anaerobic lagoons	Gg CO_2	4	4	5	4	4	4	4	4	4	4	4	4	4
- Liquid systems	Gg CO_2	48	48	49	49	48	48	48	47	47	47	46	46	45
- Solid storage and dry lot	Gg CO_2	610	614	627	621	613	604	596	589	583	578	573	568	564
Total N2O from mm	Gg CO_2	662	666	680	674	665	656	648	641	634	629	623	618	614
Agricultural soils														
- Direct soil emissions	Gg CO_2	2,902	2,895	2,785	2,790	2,761	2,729	2,701	2,676	2,659	2,645	2,628	2,629	2,632
- Animal production	Gg CO_2	2,822	2,844	2,867	2,847	2,804	2,758	2,718	2,684	2,653	2,626	2,599	2,575	2,553
- Indirect emissions	Gg CO_2	903	906	900	897	886	874	864	856	848	841	834	830	826
Total N20 from ag. Soils	Gg CO_2	6,627	6,645	6,552	6,534	6,451	6,361	6,283	6,215	6,160	6,112	6,062	6,034	6,011
Total N20	Gg CO_2	7,289	7,312	7,232	7,208	7,116	7,017	6,931	6,856	6,795	6,741	6,685	6,652	6,625
Total	**Gg** CO_2	17,973	18,068	18,115	18,010	17,770	17,515	17,298	17,112	16,945	16,793	16,642	16,523	16,416
Total	**Mt** CO_2	**18.0**	**18.1**	**18.1**	**18.0**	**17.8**	**17.5**	**17.3**	**17.1**	**16.9**	**16.8**	**16.6**	**16.5**	**16.4**

Note: Results are presented in $C0_2$ equivalents of Methane and Nitrous Oxide

Source: FAPRI-Ireland Partnership Model (2003).

Table A 2: Projections of GHG emissions from Irish agriculture under MIN/EU WTO scenario

	unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enteric fermentation														
Cattle	Gg CO_2	8,304	8,360	8,542	8,474	8,353	8,226	8,119	8,022	7,908	7,803	7,710	7,634	7,568
Dairy	Gg CO_2	2,447	2,447	2,447	2,355	2,325	2,299	2,273	2,247	2,219	2,192	2,166	2,144	2,122
Non-dairy	Gg CO_2	5,795	5,842	5,996	5,984	5,897	5,803	5,726	5,656	5,574	5,499	5,433	5,380	5,335
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	1,004	1,020	969	974	951	924	898	878	853	848	840	821	803
Goats	Gg CO_2	1	1	1	1	1	1	1	1	1	1	1	1	2
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	29	29	29	29	29	29	29	29	29	29	29	30	30
Mules	Gg CO_2	2	2	2	2	2	2	2	2	2	2	2	2	2
Swine	Gg CO_2	55	56	56	58	58	58	58	59	59	58	57	56	55
Poultry	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CH4 from ef	Gg CO_2	9,331	9,395	9,500	9,402	9,263	9,115	8,987	8,872	8,738	8,630	8,529	8,434	8,349
Manure management														
Cattle	Gg CO_2	1,143	1,150	1,175	1,166	1,149	1,132	1,117	1,104	1,088	1,074	1,061	1,050	1,041
Dairy	Gg CO_2	389	389	389	374	370	365	361	357	353	349	344	341	337
Non-dairy	Gg CO_2	742	748	767	766	755	743	733	724	713	704	695	689	683
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Mules	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Swine	Gg CO_2	196	200	202	209	208	208	210	214	214	210	206	203	199
Poultry	Gg CO_2	25	24	24	24	24	24	25	25	25	25	26	26	26
Total CH4 from mm	Gg CO_2	1,352	1,361	1,383	1,373	1,357	1,340	1,329	1,320	1,305	1,288	1,272	1,258	1,245
Total CH4	Gg CO_2	10,683	10,756	10,883	10,775	10,620	10,455	10,317	10,192	10,043	9,918	9,801	9,692	9,594
- Anaerobic lagoons	Gg CO_2	4	4	5	4	4	4	4	4	4	4	4	4	4
- Liquid systems	Gg CO_2	48	48	49	48	48	47	47	47	47	46	45	45	44
- Solid storage and dry lot	Gg CO_2	610	614	627	621	612	603	595	588	580	572	565	560	555
Total N2O from mm	Gg CO_2	662	666	680	674	665	655	647	639	631	622	615	609	603
Agricultural soils														
- Direct soil emissions	Gg CO_2	2,902	2,895	2,785	2,789	2,758	2,725	2,683	2,645	2,613	2,586	2,559	2,550	2,546
- Animal production	Gg CO_2	2,822	2,844	2,867	2,842	2,798	2,751	2,709	2,672	2,629	2,597	2,567	2,537	2,510
- Indirect emissions	Gg CO_2	903	906	900	896	884	872	860	849	838	828	819	812	806
Total N20 from ag. Soils	Gg CO_2	6,627	6,645	6,552	6,527	6,441	6,348	6,253	6,167	6,080	6,012	5,945	5,899	5,862
Total N20	Gg CO_2	7,289	7,312	7,232	7,201	7,105	7,002	6,899	6,806	6,710	6,634	6,560	6,508	6,465
Total	**Gg** CO_2	17,973	18,068	18,115	17,976	17,725	17,458	17,216	16,999	16,753	16,553	16,361	16,200	16,060
Total	**Mt** CO_2	**18.0**	**18.1**	**18.1**	**18.0**	**17.7**	**17.5**	**17.2**	**17.0**	**16.8**	**16.6**	**16.4**	**16.2**	**16.1**

Note: Results are presented in $C0_2$ equivalents of Methane and Nitrous Oxide

Source: FAPRI-Ireland Partnership Model (2003).

Table A 3: Projections of GHG emissions from Irish agriculture under MAX/EU WTO scenario

	unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enteric fermentation														
Cattle	Gg CO_2	8,304	8,360	8,542	8,474	8,353	8,227	7,771	7,544	7,382	7,278	7,184	7,103	7,028
Dairy	Gg CO_2	2,447	2,447	2,447	2,391	2,361	2,334	2,308	2,282	2,254	2,226	2,199	2,177	2,155
Non-dairy	Gg CO_2	5,795	5,842	5,996	5,966	5,879	5,786	5,414	5,235	5,113	5,038	4,972	4,915	4,863
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	1,004	1,020	969	974	951	924	878	860	854	828	802	784	767
Goats	Gg CO_2	1	1	1	1	1	1	1	1	1	1	1	1	2
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	29	29	29	29	29	29	29	29	29	29	29	30	30
Mules	Gg CO_2	2	2	2	2	2	2	2	2	2	2	2	2	2
Swine	Gg CO_2	55	56	56	58	58	58	58	59	59	58	57	56	55
Poultry	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CH4 from ef	Gg CO_2	9,331	9,395	9,500	9,421	9,281	9,133	8,691	8,468	8,311	8,182	8,063	7,965	7,873
Manure management														
Cattle	Gg CO_2	1,143	1,150	1,175	1,166	1,149	1,132	1,069	1,038	1,016	1,001	988	977	967
Dairy	Gg CO_2	389	389	389	380	375	371	367	363	358	354	350	346	343
Non-dairy	Gg CO_2	742	748	767	764	753	741	693	670	654	645	636	629	622
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Mules	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Swine	Gg CO_2	196	200	202	209	208	208	210	212	212	210	206	202	199
Poultry	Gg CO_2	25	24	24	24	24	24	25	25	25	25	26	26	26
Total CH4 from mm	Gg CO_2	1,352	1,361	1,383	1,376	1,360	1,344	1,295	1,270	1,250	1,234	1,218	1,203	1,190
Total CH4	Gg CO_2	10,683	10,756	10,883	10,797	10,641	10,477	9,986	9,738	9,560	9,416	9,281	9,168	9,062
- Anaerobic lagoons	Gg CO_2	4	4	5	4	4	4	4	4	4	4	4	4	4
- Liquid systems	Gg CO_2	48	48	49	49	48	48	46	46	45	45	44	43	43
- Solid storage and dry lot	Gg CO_2	610	614	627	621	613	603	571	555	543	535	528	523	517
Total N2O from mm	Gg CO_2	662	666	680	674	665	655	621	604	592	584	576	570	564
Agricultural soils														
- Direct soil emissions	Gg CO_2	2,902	2,895	2,785	2,790	2,759	2,628	2,536	2,475	2,440	2,411	2,381	2,366	2,353
- Animal production	Gg CO_2	2,822	2,844	2,867	2,846	2,802	2,754	2,615	2,546	2,499	2,457	2,419	2,388	2,359
- Indirect emissions	Gg CO_2	903	906	900	897	885	862	825	806	792	782	771	763	756
Total N20 from ag. Soils	Gg CO_2	6,627	6,645	6,552	6,533	6,446	6,244	5,976	5,827	5,731	5,650	5,571	5,517	5,467
Total N20	Gg CO_2	7,289	7,312	7,232	7,207	7,111	6,899	6,598	6,431	6,323	6,234	6,147	6,087	6,031
Total	**Gg** CO_2	17,973	18,068	18,115	18,004	17,752	17,376	16,583	16,169	15,883	15,650	15,428	15,255	15,094
Total	**Mt** CO_2	**18.0**	**18.1**	**18.1**	**18.0**	**17.8**	**17.4**	**16.6**	**16.2**	**15.9**	**15.6**	**15.4**	**15.3**	**15.1**

Note: Results are presented in $C0_2$ equivalents of Methane and Nitrous Oxide

Source: FAPRI-Ireland Partnership Model (2003).

Table A 4: Projections of GHG emissions from Irish agriculture under MAX*/EU WTO scenario

	unit	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enteric fermentation														
Cattle	Gg CO_2	8,304	8,360	8,542	8,474	8,353	8,227	7,792	7,585	7,442	7,354	7,275	7,208	7,146
Dairy	Gg CO_2	2,447	2,447	2,447	2,355	2,325	2,299	2,273	2,247	2,219	2,192	2,166	2,144	2,122
Non-dairy	Gg CO_2	5,795	5,842	5,996	5,984	5,897	5,803	5,449	5,287	5,180	5,119	5,066	5,020	4,978
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	1,004	1,020	969	974	951	924	864	844	838	813	790	773	759
Goats	Gg CO_2	1	1	1	1	1	1	1	1	1	1	1	1	2
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	29	29	29	29	29	29	29	29	29	29	29	30	30
Mules	Gg CO_2	2	2	2	2	2	2	2	2	2	2	2	2	2
Swine	Gg CO_2	55	56	56	58	58	58	58	59	59	58	57	56	55
Poultry	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CH4 from ef	Gg CO_2	9,331	9,395	9,500	9,402	9,263	9,115	8,676	8,469	8,328	8,215	8,111	8,026	7,947
Manure management														
Cattle	Gg CO_2	1,143	1,150	1,175	1,166	1,149	1,132	1,072	1,044	1,024	1,012	1,001	992	983
Dairy	Gg CO_2	389	389	389	374	370	366	361	357	353	349	344	341	337
Non-dairy	Gg CO_2	742	748	767	766	755	743	697	677	663	655	648	643	637
Buffalo	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Goats	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Camels	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Horses	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Mules	Gg CO_2	0	0	0	0	0	0	0	0	0	0	0	0	0
Swine	Gg CO_2	196	200	202	209	208	208	210	212	212	210	206	202	199
Poultry	Gg CO_2	25	24	24	24	24	24	25	25	25	25	26	26	26
Total CH4 from mm	Gg CO_2	1,352	1,361	1,383	1,373	1,357	1,341	1,294	1,271	1,253	1,239	1,225	1,212	1,199
Total CH4	Gg CO_2	10,683	10,756	10,883	10,775	10,620	10,456	9,970	9,740	9,581	9,454	9,336	9,238	9,147
- Anaerobic lagoons	Gg CO_2	4	4	5	4	4	4	4	4	4	4	4	4	4
- Liquid systems	Gg CO_2	48	48	49	48	48	47	46	46	45	45	44	44	43
- Solid storage and dry lot	Gg CO_2	610	614	627	621	612	603	572	557	547	540	535	530	525
Total N2O from mm	Gg CO_2	662	666	680	674	665	655	622	607	596	589	583	577	572
Agricultural soils														
- Direct soil emissions	Gg CO_2	2,902	2,895	2,785	2,789	2,758	2,632	2,547	2,492	2,463	2,441	2,416	2,406	2,398
- Animal production	Gg CO_2	2,822	2,844	2,867	2,842	2,798	2,751	2,610	2,545	2,503	2,467	2,433	2,406	2,382
- Indirect emissions	Gg CO_2	903	906	900	896	884	861	826	808	796	787	778	772	766
Total N20 from ag. Soils	Gg CO_2	6,627	6,645	6,552	6,527	6,440	6,244	5,982	5,846	5,763	5,695	5,627	5,584	5,545
Total N20	Gg CO_2	7,289	7,312	7,232	7,201	7,105	6,899	6,605	6,453	6,359	6,284	6,210	6,162	6,117
Total	**Gg** CO_2	17,973	18,068	18,115	17,976	17,725	17,355	16,575	16,193	15,939	15,738	15,546	15,400	15,264
Total	**Mt** CO_2	**18.0**	**18.1**	**18.1**	**18.0**	**17.7**	**17.4**	**16.6**	**16.2**	**15.9**	**15.7**	**15.5**	**15.4**	**15.3**

Note: Results are presented in $C0_2$ equivalents of Methane and Nitrous Oxide

Source: FAPRI-Ireland Partnership Model (2003).