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Cumulative impact of forthcoming regulatory proposals on the economics of farming – Update 2

December 2006

Update 2 of the supporting document for Partners for Success – a farm regulation and charging strategy

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**Update 2 of the supporting document for Partners for Success – a
farm regulation and charging strategy**

**AGRICULTURAL MARKET ECONOMICS DIVISION
Analysis and CAP Reform Directorate
7 December 2006**

CUMULATIVE IMPACT OF FORTHCOMING REGULATORY PROPOSALS ON THE ECONOMICS OF FARMING

1. EXECUTIVE SUMMARY

Introduction

1.1. This note is the second update of one element of the economic evidence base for Defra's Farming Regulation and Charging Strategy. It summarises the results of preliminary work assessing the likely economic impacts of recent and forthcoming farming-specific regulation and charging proposals on the farming industry in England. The analysis concentrates on measures likely to have significant¹ annual costs over the next decade, and primarily deals with the *compliance* costs of these.

Future regulation and charging proposals in context

1.2. An initial assessment of the cumulative impact of these proposals was built up in 2005. This update reflects any relevant changes to regulatory proposals and data. As in the first update in June 2006, data from the 2004/05 Farm Business Survey has been used throughout. The assessment will continue to be refined as individual measures are developed further.

1.3. There are inevitably great uncertainties in forecasting costs such a long way into the future. Some of the proposals are at a very early stage of development, and many of them will be subject to public consultation on their nature and timing. Their design, as well as costs and benefits, may change as a result of this process. Defra's work on better regulation will also push regulatory costs down.

1.4. We are working on designing policies that achieve our desired outcomes at minimum costs to businesses, both in terms of the financial cost of complying, and the costs of the administrative tasks needed to document compliance.

1.5. Our current focus is on reducing the admin burdens we impose on business. Our updated Simplification Plan, due to be published later this year, sets out how we are planning to reduce admin burdens by 25% by 2010. This reduction is not currently included in this paper.

1.6. **Very preliminary estimates** indicate that, in England, increases in costs could be in the region of £150m per annum by 2015, prior to any adjustment or mitigation. This would equate to a total increase in annual production costs of about 1.5% for the average farm business over the next decade.

1.7. These headline changes in costs are well within the year-on-year variations industry has dealt with previously. Figure 1 illustrates the historic

¹ Proposals have been defined as significant if they are expected to impose annual costs of over £20m for the farming industry in England or over £5m for a particular farming sector.

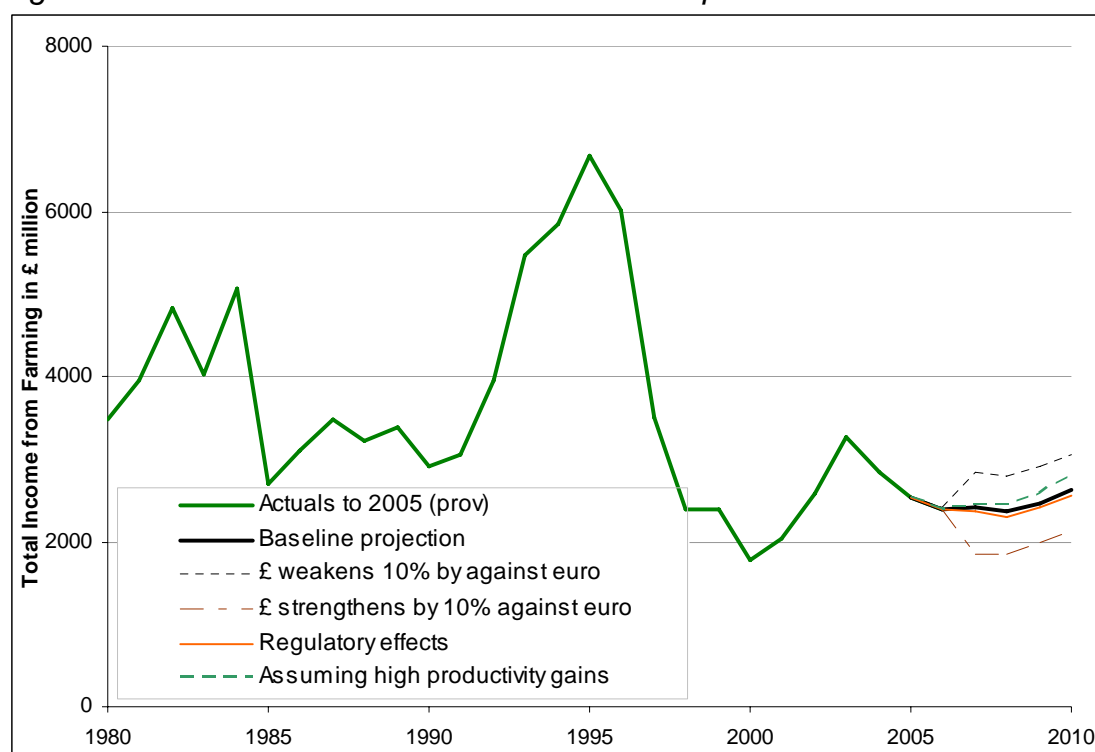
changes in Total Income From Farming (TIFF)², including baseline projections for future income, the effects of typical fluctuations in exchange rates and increased rates of productivity growth. Regulatory effects are barely discernable from the baseline trend and are minimal when compared to potential exchange rate effects.

1.8. By way of additional comparison, the reduction in TIFF likely to be caused by the expected additional cost of regulation is equivalent to just a:

- 1p per € change in the exchange rate;
- or a 1% reduction in commodity prices;
- or a 5% rise in the oil price.

1.9. At the aggregate level, the farming industry makes productivity gains from year to year. On the basis of historic trends in productivity, it is reasonable to assume that the annual cost increases expected via regulation will be broadly equal to the savings expected via productivity growth.

Figure 1: UK income trends in real terms at 2005 prices



Source: [Defra Farming and Food brief](#)

Impacts on the economics of agricultural production

1.10. Even if it is assumed that the additional costs of compliance with regulation would be met entirely by the farmer, regulation is likely to have a minimal impact on all farming sectors with the exception of **pigs and poultry**,

² Analysis of regulatory impacts for farmers in England has been scaled to compare with TIFF which is a UK-level measure.

which have increases in costs of around 3% or more. The **dairy** and **grazing livestock** sectors, in particular grazing livestock farms in Less Favoured Areas will be more affected than the arable sector, with increases in costs of around 2%.

1.11. Around 14% of production from the **pig** sector is likely to become unprofitable as a result of compliance with the Integrated Pollution Prevention and Control (IPPC) Directive and changes to the Nitrate Vulnerable Zones (NVZ) Action Programme. Profit margins in the pig sector have been small for the past few years and the sector has been contracting. Increased competition and disease risks mean the decline in herd numbers is unlikely to be altogether reversed³, although the national breeding herd has recently increased in size and reduced its production costs due to better animal welfare / husbandry practice. It is too early to say whether this increase is a fluctuation or a sustainable trend, and if not, the sector may find it difficult to adjust to increased regulatory costs arising from compliance with IPPC. Defra is in dialogue with the industry about how to minimise these costs while making sure our objectives are still met.

1.12. IPPC also affects poultry producers, with significant up-front fees and charges as well as on-going compliance costs. The combined effect of IPPC compliance and the EU Meat Chicken Welfare Directive is likely to make an additional 10% of **poultry** production unprofitable. Impacts are currently expected to be more significant for meat chicken production than eggs; however these estimates exclude the potential impact of the EU Laying Hens Directive review. The longer-term outlook for the poultry sector is considered to be broadly positive, with increased domestic demand likely to offset the impact of increased import competition, leading to increases in UK output. Barring unforeseen events, the sector could be relatively well placed to mitigate the increased costs of regulatory compliance.

1.13. Compliance with various environmental regulations will create significant costs for **dairy** farms. However, these costs are likely to be partly offset by gains in revenue from the lifting of the Over Thirty Month rule and the ban on calf exports. The net effect of new regulation and regulatory change is therefore currently expected to have a fairly low impact on the profitability of dairy production.

1.14. These headline figures conceal differential effects at farm-level and, in assuming that farmers bear all such costs, represents a worst-case assessment. In practice, individual farm businesses will attempt to mitigate the costs of regulatory compliance through changes in the scale or type of production, or through changes to farm practice. The actual impact of new regulatory costs may therefore be below our estimates.

Impacts on the economics of farming households

1.15. As well as income from farming, many farming households have additional sources of income and assets which they may use to help support their businesses. These resources, together with the high asset-value of farm

³ A study of long-term trends affecting the farming industry, Oglethorpe D. et al, 2005.

businesses, are likely to contribute to the low levels of indebtedness and the lower rates of bankruptcy and insolvency which are characteristic of the sector (0.1% per annum) when compared to other businesses (0.7%).

1.16. We are currently considering and analysing the data available on farming household incomes: New sets of data on farm household incomes were collected through the Farm Business Survey in 2004/05 and 2005/06, and are currently being considered. In due course, we hope to make a more appropriate comparison with non-farming household incomes than has previously been possible.

2. INTRODUCTION

2.1. This note is an updated version of one element of the economic evidence base for Defra's Farming Regulation and Charging Strategy. It summarises the results of preliminary work assessing the likely economic impacts of recent and forthcoming regulation and charging proposals on the farming industry, concentrating on measures likely to have significant annual costs.

2.2. The current analysis is far from definitive, given the development work which is still required on most proposals ahead of implementation. Analysis of impacts will continue to be refined as each proposal is considered in more detail through the Regulatory Impact Assessment process. This paper reflects our current state of knowledge and can only be a snapshot.

2.3. The paper begins with a summary of the future regulation and charging proposals being considered. An assessment of the impact of these proposals is then presented using the methodology outlined in the 2005 framework paper⁴. This framework sets out a series of indicators for assessing cumulative regulatory impacts, underpinned by the principles of regulatory economics. The indicators assess the impact of regulation on:

- The economic viability of specific agricultural production in the short-term;
- The scope for mitigation of regulatory costs in the longer-term; and
- The economic viability of farming households.

2.4. Annexes provide a fuller discussion of each measure and definitions of terms.

⁴ 'Methodological framework for assessing the cumulative burden of regulation', Defra 2005.

3. THE KEY PROPOSALS

3.1. This paper considers the impact of future regulation and charges on the farming sector over the next decade⁵. The analysis has been limited to major proposals, defined as expected to have either a significant impact on the farming industry (>£20m cost per annum) or a disproportionate effect on a particular farming sector (>£5m). These measures focus on delivering environmental improvements (principally in water and air quality) and raising standards of animal welfare through a mixture of regulation and increased cost-sharing between government and industry.

3.2. A review of changes to existing regulations has also been undertaken and highlighted the significant positive impact of the change to the Over Thirty Month rule, which has been included in this analysis since it does not yet figure in the base data⁶.

3.3. **Very early point estimates** of the aggregate costs and benefits of each of these proposals for farmers in England are given in Table 1. The impact of compliance with regulatory measures has been separated from that associated with charging and cost-sharing schemes. Annual impacts are illustrated for three years in the next decade to highlight the differences in phasing of the various measures. Positive figures indicate cost increases; negative figures represent cost savings to farmers achieved through changes in the Over Thirty Month rule. More details are given in Annex A, and in individual Regulatory Impact Assessments (RIA) for the proposals. Normally, analysis would consider the range of uncertainty for each proposal. Some of these are very wide. An example is the EU Waste Framework Directive, where RIA estimates of annual costs range from £28.6m to £69.8m for England and Wales, depending upon the costs of waste disposal (and assuming no waste is already being disposed of off-farm).

3.4. **Estimates of impact are particularly uncertain at this stage.** Defra's work on better farm regulation has already started and will continue to push regulatory costs down; this is only partly reflected in the figures below. For some proposals the specifics of implementation have yet to be decided, limiting the extent to which impacts can be estimated (e.g. changes to the NVZ Action Programme and the EU Meat Chicken Welfare Directive). Many of them will be subject to public consultation on their nature and timing. Their design, as well as costs and benefits, may change as a result of this process. For other measures, it is difficult to establish how much change will be required given uncertainty about the extent to which farms already meet the requirements of future regulations. Such measures include the IPPC directive and, more significantly, the Water Framework Directive, where cost estimates

⁵ The cross compliance activity required in order to receive the CAP Single Payment isn't in itself classified as regulation and therefore isn't included in this assessment.

⁶ In future updates of this paper, the offsetting effect of the OTMS will not be shown: prices attained for cattle following the lifting of the Over Thirty Month rule will be captured through the profitability data (some analysis of the new Older Cattle Disposal Scheme will remain.) We would therefore expect the total cost of future regulation to appear higher in the next updates than it currently does within the paper.

currently range from £30m to £210m per annum⁷, and are illustrative. New proposals for Catchment Sensitive Farming will be consulted on in the near future, and costings will be revisited to take these into account. In addition, an RIA on water quality standards currently being prepared will help to improve our understanding of the cost implications of these proposals.

3.5. Changes in the assessments of costs since the last update are due to a combination of progress on policy development and impact assessments, and improvements in modelling and data. Details about each regulation can be seen in the Annex.

Table 1: Early estimates of the cost of key regulatory proposals to agriculture prior to adjustment and mitigation, selected years, England

Regulation	Impact on farmers in England		
	2006	2011	2015
Changes to the Over Thirty Months rule	£-24m	£-39m	£-39m
EU Waste Framework & Landfill Tax ⁸	£35m	£38m	£38m
EU Water Framework Directive			£30m
Changes to the NVZ Action Programme	£37m	£37m	£37m
Integrated Pollution Prevention & Control (IPPC) compliance costs		£22m	£22m
EU Emission Standards for Tractors and Non-Road Mobile Machinery	£1m	£8m	£27m
EU Meat Chicken Welfare Directive		£11m	£11m
Sheep Electronic Identification	£0m	£12m	£12m
EU Laying Hens Directive (2005 review)	T.B.D ⁹	T.B.D	T.B.D
Regulatory compliance sub-total	£48m	£89m	£138m
Charging / cost-sharing			
Fallen Stock Scheme (subsidy change)	£-3m	£0m	£0m

⁷ [Final Regulatory Impact Assessment of the Water Framework Directive, 2000/60/EC](#), Current thinking suggests the lower figure is the more relevant given the benefits expected from other initiatives in the shorter-term.

⁸ Costings based on the mid-point unit costs for disposal given in the RIA.

⁹ To be determined.

Exotic Disease Levy	T.B.D ¹⁰	T.B.D	T.B.D
Electronic livestock register		£8m	£8m
Integrated Pollution Prevention & Control (IPPC) charges		£4m	£4m
Charging sub-total	£-3m	£11m	£11m
TOTAL	£46m	£100m	£149m

3.6. The largest aggregate costs for farmers are expected to arise from compliance with EU environmental regulations. These include the costs of achieving good ecological status for all waters under the EU Water Framework Directive, the new costs for off-farm disposal required by the EU Waste Framework Directive and changes to the NVZ Action Programme as part of the Nitrates Directive.

3.7. Significant benefits are expected for cattle farmers from the lifting of the Over Thirty Month rule, with market prices for these animals currently about 35% higher than compensation rates received in 2004/5.

3.8. The headline figures in Table 1 represent the *initial* costs arising from compliance and don't incorporate the potential for costs to be mitigated by the second round impacts of any cost-price squeeze caused by an increase in regulatory costs (e.g. reductions in input prices, changes in quota rents and land prices etc.). As such they may **over-estimate** the impact on farmers.

The aggregate impact in context

3.9. The farming industry in England currently receives £1.6bn of income support each year under the CAP regime. From 2005, receipt of this income support requires farmers to meet cross-compliance conditions which incur additional costs, particularly in the first year of the scheme, presented for completeness in Table 2.

3.10. Totals may change from year to year and there will be significant redistributions amongst receivers of CAP support as payments are decoupled from production. NB The administrative burden to farmers of the Single Payment Scheme falls outside the remit of this paper, although the costs in farmers' time, and any consultancy costs incurred, have been large, particularly in the first year of the scheme.

Table 2: Comparison of direct CAP payments and costs associated with regulation

¹⁰ A Joint Industry/Government Working Group (JIGWG) has considered the sharing of responsibilities and costs for exotic animal disease. This work has now been subsumed into a wider project looking at responsibility and costs sharing across all aspects of animal health and welfare. A consultation will be launched in early December on a series of principles which will underpin this work.

<i>Initiative</i>	2006
CAP Single Payments	+£1,600m
CAP Cross-Compliance	-£40m
Future Regulation and Charging	-£46m

The benefits of regulation

3.11. This paper focuses on the costs of regulation to farmers. However, it is important to keep in mind that Government regulates to benefit society, not to impose costs on farmers. It aims, for example, to improve the quality of our water and air; to improve animal welfare and to help prevent the spread of disease. Some of these measures should provide benefits to farmers, for example through improved marketability of their products at home and abroad, or through reduced costs of treating disease

3.12. It is a Cabinet Office requirement that regulatory impact assessments quantify both the costs and benefits of proposed regulation. In reviewing a number of RIAs for this analysis, it is clear that as a Department, we need to improve our estimates of the benefits of regulation. Along with costings, this information forms a key element of the scrutiny process when proposals are presented to Ministerial challenge panels. Therefore, as each proposal comes forward for discussion and consultation, more detailed RIAs will be developed to inform the process.

4. ASSESSMENT OF REGULATORY IMPACTS

Modelling the impact of regulation

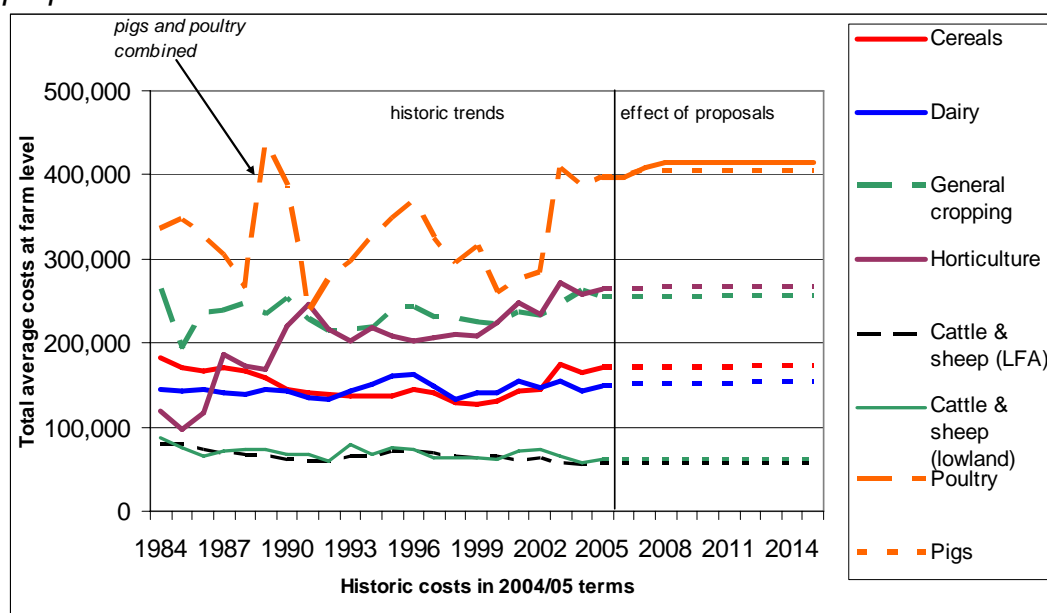
4.1. To explore the differential impact of regulation on individual enterprises and farming households the 2004/05 Farm Business Survey¹¹ has been used to model the effect of each proposal at farm-level. The financial impacts of expected changes in behaviour have been linked with farm characteristics (land area, livestock numbers, location in a Nitrate Vulnerable Zone, etc.) and applied to each of the 1850 farms in the survey to calculate annual compliance costs. Further information on the modelling of each proposal is given in Annex A. As discussed earlier, it is difficult to predict the impact of future policies with any certainty at this stage. The analysis presented here is therefore only an initial assessment and serves to highlight areas where cost pressures may be significant.

Impact of regulation on costs of production

4.2. In previous analysis of regulatory burdens, the assessment of impact has been made with reference to increases in the cost of production. The forecast impacts on production costs have, in general, come from technical specialists in the relevant sectors, sometimes from separately commissioned research work.

4.3. Figure 2 shows the future costs arising from the proposals, relative to 2004/05 costs and in the context of historic changes in farm costs for each sector.

Figure 2: Trend in average farm-level costs and likely future effect of proposals

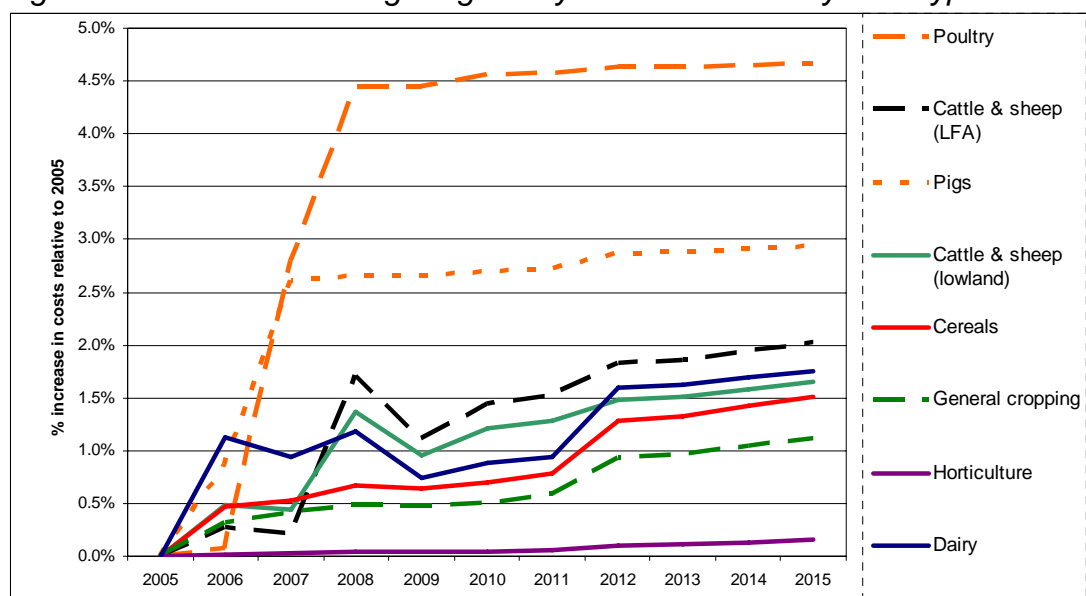


¹¹ The Farm Business Survey is an annual sample of around 1,850 farms in England and contains detailed information about financial and physical characteristics.

4.4. Although no attempt has been made to model future changes in costs arising from factors other than regulation, it is evident that the impact of future regulatory activity on costs is relatively small when compared with the historic variations experienced by industry. It is worth noting that these historic variations are typically attributable to fluctuations in the prices of inputs such as feed and fertiliser, rather than regulatory costs.

4.5. Figure 3 illustrates the variation in regulatory costs over time for the different farm-types, prior to adjustment and mitigation. The greatest relative impacts on costs are expected for the poultry and pig sectors as a result of compliance with the EU Meat Chicken Welfare Directive from 2008, IPPC from 2007, and the EU Nitrates Directive (modelled here from 2006 to allow for preparatory costs before the change comes into force). The cattle and sheep sector incur costs primarily from the Waste Framework and Sheep EID regulations.

Figure 3: Increase in average regulatory costs over time by farm-type



4.6. Conversely, the benefits of changes to the OTM rule are currently expected to offset a significant proportion of the additional regulatory burden for dairy farmers.

Developing a new methodology for assessing regulatory impacts

4.7. Whilst this assessment in terms of production costs gives a sense of proportion, it makes no reference to profitability and therefore doesn't begin to predict the likely impacts on economic viability and ultimately farmers' production decisions. For this reason, a framework paper¹² was commissioned to provide a methodology for assessing impacts on production

¹² 'Methodological framework for assessing the cumulative burden of regulation', Defra 2005.

and the economics of farming households. This has resulted in four indicators which can be applied to the package of forthcoming regulations¹³:

Table 3:

Indicator	Aim	Method
1a	Short-term viability of an enterprise	Calculate the proportions of enterprises and production whose gross margins are negative before and after the costs of regulation are included.
1b	Long-term viability of an enterprise	Calculate the proportion of enterprises and production whose net margins are negative before and after the costs of regulation are included.

Indicator	Aim	Method
2	Long-term viability of production	Calculate the proportion of businesses and production whose Management and Investment Income is negative before and after the initial costs of regulation are included.

Indicator	Aim	Method
3	Long-term viability of production	Refine estimates from indicators 1b and 2 to include the likely impact of adjustments.

Indicator	Aim	Method
4	Assess the long-term impact on farming households	Calculate the impact of regulatory costs on the distribution of total household income (represented by the sum of Family Farm Income, diversified income and off-farm income).

4.8. The remaining sections of the paper discuss the indicators in more detail and the results of applying them to the package of forthcoming regulations and charges.

¹³ Defra and the Devolved Administrations are currently consulting stakeholders both on measures of farm income and on what activities the farm business comprises. This may be seen at <http://www.defra.gov.uk/corporate/consult/farm-income/index.htm>

5. INDICATORS 1 AND 2 – ECONOMIC PROFITABILITY OF PRODUCTION

Indicator 1 - Impact of regulation on enterprise profitability

5.1. The first dimension in the assessment of regulatory impacts is the analysis of changes in economic profitability of different farming enterprises. **Gross and Net Margins** are considered to be the best proxies for this assessment, although as will be discussed later, negative profits don't necessarily mean that production will end.

5.2. Gross margins are defined as *gross output minus variable costs* and represent short-term operating profitability. Net margins also account for *fixed costs and overheads* and provide a measure of longer-term profitability.

5.3. Historically, the Department's principal source of information on farm accounts – the Farm Business Survey (FBS) – hasn't captured information on fixed costs (buildings, machinery, labour etc.) by enterprise, thus limiting the calculation of reliable net margins. This may change if a current research study produces an acceptable method of allocating between enterprises the fixed costs recorded in the FBS. Analysis of the survey is currently taking place. In the meantime, a number of the Department's recent Special Studies have collected net margin information for the following enterprises: Meat chickens (broilers), eggs, pigs, lowland beef cattle and milk. In each case, the analysis is based on a sample of farms which have been chosen to be representative of each sector at large. **Figures for gross and net margins have not been updated in this version of the Cumulative Impact paper, pending the results of the research study mentioned above.**

5.4. Regulatory effects are explored in terms of the increase in the level of output which is likely to become unprofitable as a result of compliance. For a number of commodities, a significant amount of current output is already being produced at a negative economic profit. The effects of decoupling CAP support payments in 2005 are also included in this analysis, given the significant impact this will have on production economics.

5.5. Table 4 shows the effect of regulation on gross and net margins for enterprises where recent data are available (Information is not currently available for sheep, cereals or horticulture). **Regulation is expected to have minimal impact on the short-term profitability of production (gross margins) for the commodities considered, with the exception of lowland beef.**

5.6. 2% of lowland beef production is currently produced with negative gross margins. This rises to 9% when the effects of decoupling are introduced by excluding the former production-linked CAP support payments. The removal of subsidies from the calculation erodes beef margins significantly and the

additional cost of regulation, although much smaller, compounds this effect. Given the impact of decoupling on the beef sector, there is likely to be significant dynamic adjustment in response and the static assessment of long-term profitability presented here should be treated with caution.

Table 4: Impacts of future regulation (and CAP support decoupling) on enterprise profitability, for selected enterprises, prior to adjustment/mitigation

	% of output produced with negative:			
	gross margins		net margins	
	<i>(short-term)</i>		<i>(long-term)</i>	
	Currently	With future regulation	Currently	With future regulation
Milk	0%	0%	40%	43%
Meat Chickens (Broilers)	0%	0%	16%	45%
Eggs	0%	0%	13%	23%
Pigs	0%	0%	19%	23%
Lowland Beef including direct CAP support	2%	2%	61%	63%
Lowland Beef excluding direct CAP support	9%	13%	100%	100%

5.7. Regulatory impacts on net margins are more significant for the production of eggs and meat chickens (broilers). NB: These figures have not been updated but it is likely that the impact of regulation on net margins for the pig sector will be greater than indicated here because of IPPC and changes planned to the NVZ action programme.

Indicator 2 - Impact of regulation on farm profitability

5.8. In practice, unprofitable production may be economically rational when considered at the farm level if it complements other enterprises. Farm systems can be arranged to combine enterprises such as to maximise the use of both variable and fixed costs. It is therefore logical to also consider net margins at the aggregate farm level.

5.9. The farm level equivalent of enterprise specific net margins is **Management and Investment Income (MII)**. This represents the return to the farmer and spouse for their management and on the tenant-type capital¹⁴ in the business. It is the return to the business after all costs have been deducted – including an imputed cost for the farmer and spouse’s manual labour and an imputed rent on owned land. It is as close as we can practically get to a measure of the economic profit from farming. The information available on Management and Investment Income from the Farm Business Survey is also currently more comprehensive than gross and net margin data,

¹⁴Tenant-type capital comprises livestock, machinery, crops in store, stocks of consumables, work in progress, orchards, other permanent crops, glasshouses, cash and other assets needed to run the business. It does not include land and buildings. ([2005 Farm Incomes statistical notice](#), Defra 27/10/05)

allowing a comprehensive impact assessment for all sectors rather than the limited number of commodities covered in Table 4.

5.10. Table 5 shows the proportion of output being produced on farms with negative Management and Investment Income currently and the relative effects of both decoupling CAP subsidy from production and the additional costs of regulation in 2012. The effects of full decoupling have been represented here (in the 'excluding subsidy' columns) by excluding the former production-linked current support payments from the calculations of Management and Investment Income. Note also that the figures in the 'excluding subsidy' columns exclude the decoupled single payment. Given that this is a business level payment that will not be linked to any enterprises, it is reasonable to exclude it in order to illustrate the proportion of output from farms where MII will be negative before single payment is considered.

Table 5: Impacts of future regulation (and CAP support decoupling) on farm business profitability, for selected enterprises, prior to adjustment/mitigation

	% of output produced with negative Management & Investment Income			
	Current	With future regulation	Current	With future regulation
	Including subsidy		Excluding subsidy	
Cattle & sheep (LFA)	46%	49%	91%	93%
Cattle & sheep (lowland)	64%	66%	91%	92%
Dairy	35%	37%	62%	67%
Pigs	34%	47%	41%	47%
Poultry	18%	27%	18%	28%
General cropping	30%	32%	64%	68%
Horticulture	25%	26%	26%	26%
Cereals	38%	42%	89%	92%
Mixed	41%	41%	79%	80%
All farms	34%	37%	63%	67%

5.11. In aggregate, the effects of decoupling increase the amount of unprofitable output from 34% to 63%. Regulatory costs would increase this only marginally to 67%. [It should be noted that Management and Investment Income is a relatively narrow measure of profitability and therefore fluctuates from year to year aside from the impact of regulation].

5.12. In absolute terms, when current direct subsidies are removed, 50,500 farm businesses would have had negative Management and Investment Income in 2004-05. Regulation would increase this by around 1000 to 51,500 farm businesses. Again, these figures do not include the potential for adjustment and mitigation of cost increases. They also exclude the single payment, as mentioned at paragraph 5.10.

Summary of impacts on economic profitability by sector

Cattle and Sheep

5.13. The greatest new regulatory impacts for the cattle and sheep sector are expected from the waste framework directive, and from the introduction of compulsory sheep electronic identification (EID) in 2008. Sheep EID will increase costs primarily from the requirement to purchase electronic tags, additional tag reading equipment and the associated training. These costs are continuing to be revised.

5.14. A significant proportion of the sector however already operates with negative net margins and decoupling is likely to make the majority of current production unprofitable irrespective of impact of regulation.

Dairy

5.15. The intensive nature of dairy farming is likely to give rise to significant compliance costs from the likely extension of restrictions for farmers in NVZs. By 2012 at the latest, compliance with the EU Water Framework Directive is also expected to impose significant burdens on the sector.

5.16. The lifting of the Over Thirty Month rule for cattle born since August 1996 is likely to bring gains for dairy farmers. With current market prices around 35% higher than the 2004/5 scheme compensation rate, the resulting gains are expected to significantly offset the increase in regulatory costs.

Pigs

5.17. The greatest regulatory pressures for pig production are likely to arise from IPPC and changes to the NVZ Action Programme. As with the other regulations there are considerable uncertainties about the practical implications of both measures. The current costings for changes to the NVZ Action Programme reflect lower manure loading limits and increases to closed periods for spreading. The exact details of the changes are currently being discussed with the Commission and stakeholders.

5.18. The estimates of impact from IPPC are based on information from a Rural Development Service study into the likely costs from the IPPC Directive. They include both compliance costs and charges.

Poultry

5.19. Given the potentially significant impacts of regulation on the poultry sector, effects have been analysed separately for both meat chicken and egg production.

5.20. The future regulatory picture for the profitability of **meat chicken** production is dominated by the impact of two pieces of regulation: IPPC which

will affect larger enterprises (around 50% of the meat chicken flock) from 2007; and the EU Meat Chicken Directive which will apply to all meat chicken producers from 2008.

5.21. An assessment of the costs to farmers from complying with IPPC suggests significant costs to poultry businesses, particularly as a result of requirements to limit condensation and the air-drying of manure.

5.22. ADAS/University of Exeter research has indicated that the implementation of the EU Meat Chicken Welfare Directive, currently being negotiated with the EU, would increase production costs by £10.5m (around 2%). For the purposes of this paper, costs are increased evenly across the sector, but as with other regulations, some producers will face much greater costs than the average suggests.

5.23. The combined impacts of compliance with IPPC and the EU Meat Chicken Welfare Directive are likely, all other things being equal, to have a significant impact on the profitability of meat chicken production.

5.24. Compliance costs are likely to be lower for **egg** producers, however analysis of the economics of a limited sample of flocks suggested IPPC could cause a small number of the largest flocks to become unprofitable. Given the small number of very large producers affected, these results should be treated with caution, particularly as larger businesses are typically more able to adapt to mitigate cost increases. The EU Laying Hens Directive is currently being reviewed and the costs associated with any revisions are currently excluded from this assessment because of a lack of information. If enriched cages are banned in 2012, along with conventional cages, the associated costs would be very significant.

General Cropping & Cereals

5.25. The additional costs of the proposals for general cropping and cereals enterprises are minimal compared with other sectors given the animal-related nature of over half the measures. Of most significance are the costs associated with the EU Waste and Water Framework Directives and new emissions standards for tractors which will require any new equipment to use sulphur-free fuel. The effects of decoupling of CAP subsidy are expected to have an increasing impact, particularly for cereals enterprises.

Horticulture

5.26. The information available on horticulture businesses is more limited and analysis of regulatory impacts is less well developed for this sector. Of the measures, it is expected that the EU Waste Framework Directives will have particular impact; however cumulative effects are not expected to be significant.

6. INDICATOR 3 – OPTIONS FOR ADJUSTMENT

6.1. The analysis thus far presents the worst-case impacts for farmers, by assuming that the costs of regulatory compliance will translate fully into increases in farmers' costs, and therefore reductions in farm incomes. In practice, there are a number of mechanisms by which these cost increases can be mitigated. These are discussed fully in the paper 'Farmers' adjustments in response to imposition of regulatory costs'¹⁵ and include:

- Reductions in the use of inputs such as feed and fertiliser;
- Reducing fixed costs per hectare by extending life of machinery or using contractor services;
- Exploiting new technology;
- Changes in the enterprise mix;
- Reductions in land rents and land prices.

6.2. The extent to which different farms can mitigate costs will be particularly variable and will depend upon a range of factors, including:

- Current viability;
- Location, climate, soils and topography;
- Access to alternative sources of livelihood;
- Size of enterprise;
- Managerial and technical ability;
- Willingness to innovate and attitude to risk;
- Age or stage in life-cycle;
- The effect of competition from imports.

6.3. The work on dynamic adjustments includes commentary on these factors and is complemented by a paper on the future (non-regulatory) trends in farming¹⁶, commissioned as part of the evidence base for the regulation and charging strategy. The outlook for each sector is expected to be rather different, with regulatory pressures likely to be particularly significant for **pig** and **poultry** producers. The next sections discuss the scope the adjustment in these specific sectors.

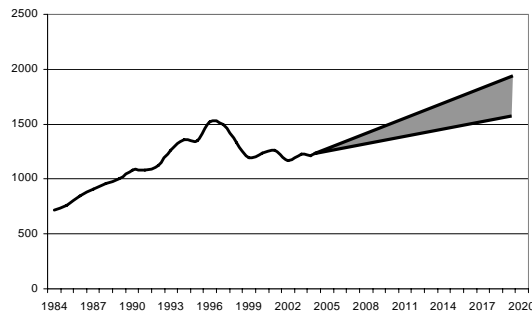
Potential for adjustment in the poultry sector

6.4. The work on future trends concludes that despite increased international competition, the growing demand for poultry meat will see output from the sector continuing to increase, as indicated in Figure 4.

¹⁵ Upton, M. (2005). 'Farmer's Adjustments in Response to Increased Regulatory Costs'

¹⁶ Oglethorpe, D. et al. (2005). 'A study of long-term trends affecting the farming industry'

Figure 4: Expected UK Poultry Output (£m)



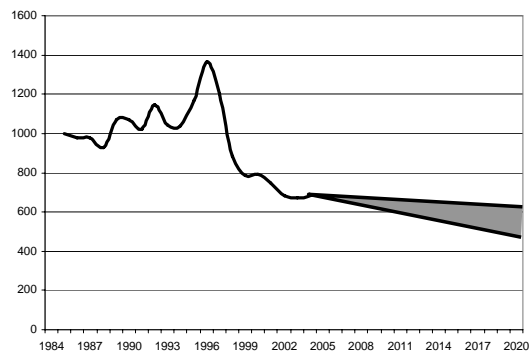
Source: EFPF

6.5. The paper on dynamic adjustments notes that whilst the high levels of vertical integration limit the scope for cost adjustment, the expected increase in output provides scope for further productivity increases. There is also the potential for egg producers to adapt by moving away from cage and barn systems and into free range and organic production. The report notes that the poultry sector has been less seriously affected by the introduction of existing animal health legislation than the pig sector.

Potential for adjustment in the pig sector

Profit margins in the pig sector have been small for the past few years and until recently the sector has been contracting. According to a study of long-term trends, increased competition and disease risks mean the decline in herd numbers and output is unlikely to be reversed¹⁷ (Figure 5), although it also noted that the decline is likely to be slower than in recent years.

Figure 5: Expected UK Pig Output (£m)



Source: EFPF

6.6. If this is the case, then it may affect the sector's ability to adjust to increased regulatory costs arising from compliance with IPPC and the NVZ Action Programme. Defra is in dialogue with the industry about how to minimise these costs while making sure our objectives are still met.

¹⁷ A study of long-term trends affecting the farming industry, Oglethorpe D. et al, 2005.

6.7. . It is also worth noting that the economic profile of the pig industry now appears to be improving (although it is too early to say whether this is a fluctuation or the start of a trend): the national breeding herd has recently increased in size, and production costs are coming down due to better animal welfare and husbandry practice.

7. INDICATOR 4 – ECONOMIC IMPACTS ON FARMING HOUSEHOLDS

Farming household income

7.1. The analysis of the impact of new regulations on farming earlier in the paper illustrates which businesses are likely to become unprofitable as a result of regulatory costs. The implications of negative margins are less clear cut than might otherwise be supposed: Negative net margins do not, necessarily result in farmers exiting the industry.

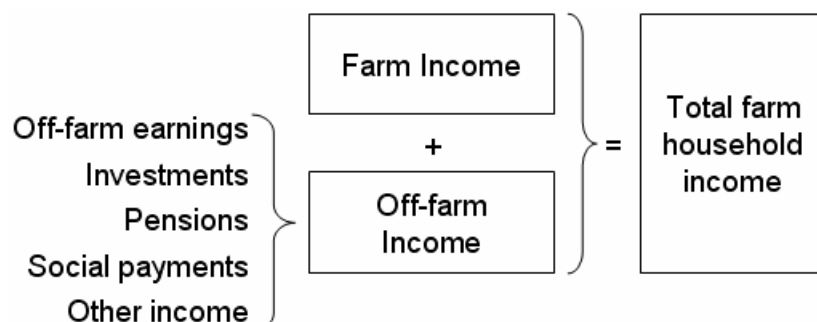
7.2 Two issues are of particular interest. First, not all farmers are motivated by maximising profit from agricultural production. Second, many farmers have a range of income sources. Any assessment of the incomes of farm households (and in this context, the marginal impact of regulation) must be based on total agricultural household income and wealth, not just income from agricultural production.

7.3 Many farmers derive income from diversified activities, off-farm earnings and asset ownership. Between 2000 and 2004, on average less than 0.1% of farm businesses went bankrupt compared to an average of around 0.7% of businesses across all industries. This is likely to be due to the high asset-value of the farm business compared with other businesses, as well as the access to income from other sources.

7.4 Farmers also accrue benefits from farming over and above those from their farm income and they may choose to pay for these benefits with off-farm earnings. The additional factors leading to such a decision could include:

- the value placed on living on the farm/in the countryside;
- the value placed on passing the farm on to future generations;
- tax concessions (e.g. agricultural property relief on inheritance tax); and
- capital gains from increases in land value more than offsetting negative net margins.

7.5 Furthermore other farm household members may also have income from a variety of sources. Therefore, to assess the impact of regulation on farming households, we need to consider the income of all members of the farming household.



This leads to indicator 4 which will show the impact of new regulations on the distribution of the total income of farm “households” and assesses farm households’ ability to adjust to new circumstances. It will also indicate whether or not changes in income from farming are likely to have negative implications for the government’s poverty objectives.

7.6 The Farm Business Survey captures detailed information on farm business income and income from diversified activities for all farms in the survey. Information on off-farm earnings, such as off-farm employment, pensions, investment and social security payments, is voluntary and only provided for around 80% of the farms in England represented by the survey¹⁸. From 2004/05 new information on household incomes was added to the Survey. At present there are still some technical problems to resolve in using this sort of data but in due course, we hope to be able to use them to assess the impact of regulation, compare them with the Department for Work and Pensions’ low income threshold and make a more appropriate comparison with non-farming household incomes than has previously been possible.

Affordability

7.7 Whether or not a regulation is affordable to farm households is essentially a subjective political question. This relates to the extent to which society can reasonably expect farmers and landowners to adjust their businesses and bear economic costs to generate a net welfare gain for society as a whole. This judgement will need to be made in the context of:

- the perceived ability of farmers to pass on costs and adjust and reorganise their businesses to mitigate the impact of new regulations, recognising that resources released by the departure of marginal farmers will be available to new entrants or to continuing farmers to expand and achieve economies of scale;
- the size of farm household incomes and wealth relative to those of other households;
- the opportunity for farmers with the lowest incomes to offset their losses through the working tax credit and child tax credit system; and
- the impacts on the rest of the food chain.

7.8 These contextual factors need to be combined with the quantitative results of the four indicators above to produce a considered judgement regarding the potential impacts of regulation.

¹⁸ The Farm Business Survey only includes farms in England that are large enough to occupy a person at least half-time. These farms represent 90% of land area farmed and 96% of total production.

ANNEX A

OVERVIEW OF REGULATIONS

A.1. This annex provides more detail on the regulations discussed in the paper. Each regulation is discussed in terms of its aims and compliance activity expected of farmers. The effect of each regulation on farm costs is summarised in Table 6. Further, more detailed, information is also available in the Regulatory Impact Assessment for each regulation.

Table 6: Average increase in farmers' costs of production from forthcoming regulation and charging in 2015, prior to adjustment and mitigation

	Cattle & Sheep (LFA)	Cattle & Sheep (lowland)	Cereals	Dairy	General cropping	Pigs	Poultry	Grand Total
EU Water F/W	0.2%	0.1%	0.4%	0.6%	0.3%	0.1%	0.1%	0.3%
EU Waste F/W	0.8%	0.6%	0.6%	0.4%	0.4%	0.1%	0.1%	0.4%
Changes to OTMS	-0.8%	-0.6%	0.0%	-1.4%	-0.1%	0.0%	0.0%	-0.4%
Animal by-products (Fallen Stock subsidy change)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
IPPC - compliance	0.0%	0.0%	0.0%	0.0%	0.1%	1.4%	2.4%	0.2%
IPPC - charges	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.0%
Meat Chicken Welfare	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.1%
Livestock Register	0.3%	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Sheep EID	1.1%	0.6%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%
EU Nitrates Directive	0.2%	0.4%	0.0%	1.7%	0.0%	0.8%	0.0%	0.4%
Tractors/NRMM	0.3%	0.3%	0.4%	0.3%	0.3%	0.1%	0.0%	0.3%
<i>Net effect of regulations</i>	2.0%	1.7%	1.5%	1.8%	1.1%	2.9%	4.7%	1.5%

EU Waste Framework Directive, Landfill Directive and landfill tax

A.2. New Regulations to apply waste management controls to agricultural waste for the first time in England and Wales came into force on 15 May 2006. They apply the same controls on agricultural waste that have applied to all other sectors of industry for many years. Farmers will broadly have five waste disposal or recovery options. It is assumed that most farmers will opt to dispose of their waste off farm with consequential costs. Use of unregulated farm dumps (and uncontrolled burning), which is cost-free, leaving aside harms to human health and the environment, and does not trigger payment of the landfill tax, will no longer be possible. Off-farm disposal in licensed landfill sites will require payment of commercial charges (including landfill tax).

A.3. Budget 2006 confirmed that the standard rate of landfill tax will increase by £3 per tonne to £21 per tonne from 1 April 2006. In 2003, the Government took a long-term strategic view and announced that, from 2005-06, the standard rate of landfill tax covering active wastes would increase by at least £3 per tonne each year, towards a medium to long-term rate of £35 per tonne. It has been assumed for this paper that the long-term rate of £35 per tonne is reached in 2011.

A.4. Cost estimates are based on those in the [RIA](#) adjusted to reflect costs to farmers in England. The costings in this analysis are based on the mid-point of the estimated unit cost ranges that are given in the RIA. The RIA was published as part of the [Explanatory Memorandum to the 2006 Regulations](#).

Changes to the Over Thirty Month Rule

A.5. Following a review of the [Over Thirty Month Rule by the FSA](#), UK cattle born after the 1st August 1996 have been allowed into the food supply from late 2005, with all such cattle aged over 30 months at slaughter subject to BSE testing and removal of the vertebral column. A new scheme, the Older Cattle Disposal Scheme (OCDS) has also been introduced providing for disposal of and compensation for cattle born before 1 August 1996. This scheme will run until 31st December 2008.

A.6. For this paper, costings have been based on the average 2004/5 OTMS scheme rate, and either current average deadweight prices which are around 35% higher, or OCDS rates, which are lower. Assumptions about the number of cattle entering the OCDS scheme and the market have been used with the relevant new rate to calculate the net benefit from the changes to the Over Thirty Month rule [NB we are using 2004/05 data as a basis for the costings]. Since the last update, we have revised the modelling to take into account the OCDS scheme, and to improve the cattle number estimates, and have updated prices using more recent data.

A.7. The additional costs of BSE testing (£10/head) and removal of the vertebral column (£2/head) have been included in the assessment.

A.8. Note that in future years, the benefit of lifting the Over Thirty Month rule will be largely captured within the farm's income data, and this will not therefore be shown in the same way in future analyses.

EU Nitrates Directive

A.9. The Nitrates Directive requires that an Action Programme of measures be implemented in Nitrate Vulnerable Zones to prevent nitrate pollution of waters caused by agricultural sources. The combination of nitrate loading limits and closed periods for manure application, means farmers may have to export excess manures off-farm, reduce herd sizes or build new/additional storage facilities.

A.10. Defra is currently undertaking a review of the Action Programme for Nitrate Vulnerable Zones (NVZs) in consultation with the Commission and stakeholders. A formal consultation on proposals to revise measures will be launched shortly. At this stage, it is not possible to predict what the outcome of discussions and formal consultation, and therefore the size of additional costs falling upon farmers is uncertain. However, for the purposes of this paper we have assumed that from financial year 2006-07 all farms in NVZs must adhere to the following changes:

- The whole farm loading limit for organic manure applications to arable land will be reduced from 210kg/ha to 170 kg/ha (for NVZs designated

in 1996, the 170kgN/ha limit already applies, for NVZs designated in 2002 the 170kgN/ha limit would have applied from December 2006 in any case);

- The whole farm loading limit for organic manure applications to grassland will be reduced from 250kg/ha to 170 kg/ha;
- There will be a closed period for applications of between 4 and 6 months, for all soil types and land use.

A.11. Preliminary estimates of the cost of these changes to the Action Programme indicate a figure of around £37m to the English farming industry. [Consultation options give a range of annual costs from £29m - £40m].

A.12. The estimates consider the impacts on dairy herds, other cattle and pigs.

Integrated Pollution Prevention and Control Directive

A.13. The [Integrated Pollution Prevention and Control Directive](#) seeks to reduce pollution to air, soil and water; and minimise dust, noise, heat and smell arising from agricultural activity. The regulation comes into force at the end of 2006 for the agricultural sector, and, in farming, impacts only on larger pig and poultry installations. These account for around 20% and 50% of each sector respectively.

A.14. The costs to agriculture from compliance with IPPC have recently been assessed and annual costs of around £15m for the poultry sector and £6m for pig producers have been reported. The main costs arise from modifying animal housing to reduce emissions and improve slurry management, and additional processes required to apply manure and slurry to land.

Animal By-products Regulations

A.15. The animal by-products regulations (which are already in force) prohibit farmers from burying their fallen stock on-farm. Earlier costings within this paper considered any extra cost to farmers of compliance with the regulations. Since November 2004, Government has provided support to the industry through the National Fallen Stock Scheme; support which will be phased out by 2008. These latest costings look at the effect of the inclusion of subsidy and its subsequent phasing out, against a baseline of 2004/05 data.

Animal Health Charging

A.16. In the context of the Partners for Success – Defra's farm regulation and charging strategy a Joint Industry/Government Working Group (JIGWG) was set up to consider the sharing of responsibilities and costs for exotic animal disease in England. This work has now been expanded to cover all aspects of animal health and welfare on a UK basis. A consultation will be launched in early December on a series of principles which will form a framework within

which future proposals can be developed. A further consultation on specific proposals will be published later in 2007.

A.17. We have been working with Industry to develop a single **livestock register** for cattle, sheep, goats, pigs and deer. Work is currently underway to ensure that we are working towards the best business model. We are aiming to improve the efficiency of livestock identification and tracing systems and processes; and the accuracy and availability of livestock data; thereby reaping benefits for both Industry and Government – including benefits associated with the facilitation of disease prevention and control. It is envisaged that the ongoing operational costs would be shared with industry. Initial estimates for the costs to farming are £7.6m per year from 2010, but both costs and timescales will be revised as we obtain further information.

Electronic tagging of sheep (Sheep EID)

A.18. The 2001 Foot and Mouth outbreak demonstrated the need for improvements to the existing identification and traceability rules that apply to sheep. Consequentially, from 1st January 2008 electronic identification will be mandatory for all sheep born after this date that are not intended for slaughter before 12 months of age (this is an EU regulation). Electronic tags and electronic equipment (readers, computers and printers) will be required, as well as the training to use this equipment.

A.19. Additionally, the regulation requires all animals born after 9th July 2005 to be double tagged. The UK has been granted a temporary derogation in respect of this requirement and the analysis of the directive's costs to farms assumes that the current system will continue until 2008 with minor modifications and with no extra costs. The actual implementation date is due to be confirmed by the European Commission early in 2007.

A.20. The costs of electronic tagging have been estimated by this analysis to be £17m in 2008, falling to £12-13m thereafter. The increased cost in the first year of the regulation is related to the training required to use the equipment. Equipment costs have been annualised. This analysis also assumes that all farms included in this analysis will use the EID equipment rather than taking manual tag readings. The RIA makes more sophisticated estimates of which farms are likely to use manual as opposed to electronic readings. This has not been possible in this analysis because of limitations in the data available.

A.21. The total sheep EID costs included in this analysis are only for those farms included in the Farm Business Survey, i.e. those with a labour requirement of at least half a full time equivalent. The costs that will be incurred by small, part-time sheep farms are therefore not included in this analysis. The Sheep EID Regulatory Impact Assessment (RIA) will however look at costs for all farm sizes, i.e. including the costs that will be incurred by part-time farms.

A.22. As a result of the different assumptions (A20) and coverage (A21) the figures in this analysis may differ slightly to those in the draft RIA. Figures given in the draft RIA should take precedence over the cost estimates given here. This analysis will be developed further as the costings in the draft RIA develop.

EU Meat Chicken Welfare Directive

A.23. The meat chicken sector is the one major area of intensive livestock production not so far covered by the programme of EU farm animal welfare standards. An EU Meat Chicken Welfare Directive has therefore been proposed to lay down minimum standards of protection for meat chickens, and is currently being negotiated with the EU. The key provisions of the proposals are:

- minimum welfare standards for establishments keeping meat chickens at stocking densities up to a maximum of 30kg/m²;
- enhanced welfare standards for establishments keeping meat chickens at stocking densities above 30kg/m² to an upper limit suggested at 38kg/m²;
- new requirements for training flock- keepers;
- monitoring at slaughterhouses.

A.24. Analysis has been undertaken by ADAS and the University of Exeter to cost the proposals at farm level. Current estimates for the costs to industry of this Directive are £10.5m per annum for England.

EU Laying Hens Directive

A.25. The Welfare of Laying Hens Directive came into force in 2002 and includes a number of minimum standards for protecting laying hens, including:

- A ban on battery cages from 1st January 2012;
- Minimum standards for barn and free-range systems from 1st January 2007; and
- Minimum standards for hens kept in enriched cages from 1st January 2002.

A.26. The most significant of these measures is the move from battery to enriched cages by 2012 to allow hens to perform 'the full range of natural behaviours'. Enriched cages operate at lower stocking densities than current battery systems and provide facilities such as nest boxes and dust-baths. An [RIA](#) was produced in April 2002 to assess the impact of the directive and estimated annual costs to farmers of £46m per annum. An updated RIA will follow the Commission Review of Directive 1999/74/EC.

A.27. The directive also includes the requirement to review the various systems of rearing laying hens, particularly those covered by the Directive. The review has yet to be completed; once it has, the costings will be revised to reflect the latest requirements.

EU Water Framework Directive

A.28. Compliance with the Water Framework Directive is likely to impose very significant burdens on farmers by 2012 at the latest. Compliance may be required as early as 2009 in some areas of the country, should evidence indicate the need for earlier action to meet the Directive's targets.

A.29. The Department commissioned researchers to assess the additional costs imposed on agriculture by the [Water Framework Directive](#) which reported in July 2003. Impacts were assessed using three case studies to identify the additional costs imposed by reducing the use of nutrients (phosphorous and nitrates); minimising runoff into water-courses; reducing erosion vulnerability and containment of contaminants. This information provided per hectare costs for arable and dairy sectors.

A.30. For the other agricultural sectors, analysis draws on work from English Nature and the Environment Agency, who estimated the average costs of action required in their study "[Field Development of Grant aid proposals for the control of diffuse agricultural pollution](#)" (Withers et al, 2003).

A.31. The resulting [RIA](#) for the directive estimates that costs to farmers will be between £30m and £210m per annum (para 216), with the range indicating uncertainty in the water quality baseline. The RIA stresses that the methodology used to produce the figures is crude and that the figures are provided for illustrative purposes only. It also notes that major uncertainties exist in the attribution of these costs to the Water Framework Directive, since it is not clear to what extent many of the identified changes would take place in the absence of the WFD. For example, improvements in the ecological status of waters are expected ahead of 2012 from CAP cross-compliance, agri-environment schemes and compliance with the Nitrates Directive. The lower end of this range of cost estimates is therefore now thought to be the more relevant.

A.32. This directive will be implemented based on the requirements identified in river basin management plans and, therefore, impacts on farmers are likely to vary considerably depending upon their location. Assessment of the directive's implications for each river basin is currently underway, and costings should be revisited when this has been completed.

A.33. In addition, an RIA on water quality standards currently being prepared will help to improve our understanding of the cost implications of these proposals, although, it too is constrained by uncertainties about the measures required to achieve the objectives, and whether they pass the disproportionate cost test.

A.34. New proposals for Catchment Sensitive Farming will also be consulted on in the near future, and costings will be revisited to take these into account.

EU Emission Standards for Tractors and Non-Road Mobile Machinery

A.35. This section covers two EU Directives – one for tractors and one for non-road mobile machinery (NRMM) (such as bulldozers, excavators, forklifts and loading shovels). The aim of these two Directives is to help enable the UK to achieve air quality objectives by reducing the emissions of oxides of nitrogen and particulate matter from the engines of new tractors and non-road

mobile machinery. The requirements imposed by the Directives are above and beyond the restrictions currently in force (Stages I and II) and are given below:

A.36. Stage IIIA: Comes into force in 2006-8 with the aim of reducing oxides of nitrogen by 30-40% relative to Stage I. This will require modification to engines, adoption of electronic engine control, improved fuel pumps and use of exhaust gas recirculation.

A.37. Stage IIIB: Comes into force in 2010-12 with the aim to reduce particulate matter emissions by around 90% relative to stage II and III. This will require the adoption of diesel particulate filters and will probably also require the use of 'sulphur free' fuel with these engines.

A.38. Stage IV: Expected to come into force around 2014 with the aim of further reducing oxides of nitrogen emissions. This will require the adoption of 'selective catalytic reduction' technology.

A.39. These requirements only apply to purchases of new tractors and NRMM. These requirements will increase the cost of manufacturing engines/machines, which is likely to lead to an increased cost for farmers of purchasing new tractors and NRMM. The analysis assumes that all cost increases are passed on to farmers. The cost of 'sulphur free' fuel is also marginally more expensive to produce than diesel, which will also lead to increased costs for farmers. These estimated costs for Stages IIIA, IIIB and IV are reflected in the calculated costs for these Directives of £26.7m per year by 2015. This is 0.3% of an average farm's annual total costs.

Other Regulations

A.40. Other forthcoming regulations likely to have an impact on farmers are the Animal Welfare in Transport EU regulation (1/2005), the Soil Framework Directive, EC Pesticides regulations, and the Priority Substances Daughter Directive, and progress on the Waste Incineration Directive.

A.41. The Implementation of the Animal Welfare in Transport Regulation requires anyone transporting animals in connection with an economic activity above 65kms, to have a transporter authorisation. In addition, road vehicles used for journeys in excess of 8 hours must be inspected and approved. Public consultation on the implementation of the Regulation closed at the end of July. Defra's formal response to the public consultation exercise will be issued shortly

A.42. The European Commission have adopted proposals for a Soil Framework Directive. This directive seeks to establish a framework for the protection of soil and the preservation of its capacity to perform its various ecosystem services. A Regulatory Impact Assessment is currently being prepared.

A.43. EC Pesticides and Priority Substances Daughter Directive of the Water Framework Directive: As part of the Water Framework Directive, a European 'priority list' of 33 substances posing a threat to or via the aquatic environment was established in 2001. A 'daughter directive' on Priority Substances was published by the European Commission in July 2006 accompanied by an

extended impact assessment. The proposal contains draft environmental quality standards for the priority substances. A UK partial RIA has also been produced which outlines some potential costs to farmers. At this stage it is unclear what the costs will be due to the uncertainties of what obligations the UK will be required to meet.

A.44. Some of the benefits required from this Priority Substances Directive may be delivered by potentially forthcoming EC regulations on pesticides – the Directive on the Sustainable Use of Pesticides and a Regulation on Pesticide Authorisations. These regulations are being developed as part of the Pesticides Thematic Strategy, which aims to minimise the risk to health and the environment from the use and disposal of pesticides. These regulations are being consulted on until 11 December 2006, with the consultation document available here, <http://www.pesticides.gov.uk/environment.asp?id=1939>. Following this consultation and further development of the impact assessment, these regulations will be quantified in further updates of this paper, where relevant.

A.45. Additional, [potentially significant] costs may arise for the livestock sector from the rendering industry's move towards full compliance with the Waste Incineration Directive (2000/76/EC). This specifies air emission limits, and prescribes measures such as the level of incineration required, and operating conditions of the incinerator. Renderers fuelling their installations using the tallow produced as a by-product will need to ensure that their plants are equipped to be compliant, or use alternative fuels.

ANNEX B

DEFINITIONS

Farm Size

B.1. The Farm Business Survey measures farm size based on Standard Labour Requirements (SLRs). The SLR for a farm business represents the labour requirement (in full-time equivalents) for all the agricultural activities on the farm, based on standard coefficients for each commodity on the farm. The SLR is representative of labour requirement under typical conditions for enterprises of average size and performance.

Table 7: Definition of FBS farm sizes

Description	Standard Labour Requirement (annual full-time equivalents)	Approx number of farms in England
Very small	0.5 - <1 person-years	19,000
Small	1 - <2 person-years	20,300
Medium	2 - <3 person-years	10,500
Large	3 - <5 person-years	9,400
Very large	>=5 person-years	6,800

Source: [FBS website](#)