national STATISTICS

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Department for Environment Food and Rural Affairs

Farm Practices Survey 2007

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Summary

- The 2007 Farm Practices Survey asked farmers questions on a wide range of agri-environmental topics. This year the topics fit into four main categories, each of which is dealt with in a separate chapter: livestock issues including animal health and animal housing; water; environmental protection; and the economics of modern farming.

- Survey forms were sent out to a random sample of six thousand holdings that exceeded thresholds for inclusion (Table 2.1.1). Although the survey is voluntary, we obtained a response rate of 43%.

- **Animal Health and Welfare**: Farmers perceive the biggest biosecurity risk to their livestock comes from contact with wildlife (69% of holdings with livestock). Only 38% who identified a risk from wildlife have measures in place to combat this risk. Despite a lower level of perceived risk from machinery and personnel, more farms have measures in place to minimise the risk. Almost a third of farms are operating a closed herd status.
Over 44% of farmers with livestock are using footbaths and formalin is the most commonly used footbath chemical (almost 70% of holdings).
Private vets visit 62% of holdings with livestock at least once every 6 months, with dairy farms being the most likely to have a private vet visit their premises within this period. Only 10% of holdings who use vets have changed their veterinary practice in the last 3 years, with most common reason for change being the closure of the original practice.

- **Slurry storage**: The proportion of slurry stored in each of the more common devices remains relatively similar to 2004 and 2006. Over 70% of slurry stores were constructed more than 10 years ago, and only 1% were built within the last year. Seventy-five percent of farmers with slurry had a storage capacity of at least 3 months but only 25% have a capacity greater than 6 months. In other words, 50% of farmers have between 3 and 6 months worth of storage.

- **Cattle Housing**: Over 96% of beef finishers are housed in straw yards, in comparison to 81% of suckler cows and 92% of the young stock. By contrast, for dairy cattle, 74% of the main herd (but only 27% of the young stock) are housed in a slurry system. For both beef and dairy cattle, cubicles with scraped dunging passages are more common than those with slatted floors.

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- **Environmental Protection**: The most popular manner of formulating a nutrient management plan is through the Entry Level Scheme (40% of holdings). The most common ways for calculating fertiliser requirements are using farm experience and seeking the advice of a professional (around 66% and 60% respectively of those using fertiliser). Cereals or other cropping farms are the most likely to use Defra's fertiliser recommendation guide (RB209), seek the advice of professionals or use formal tools to identify their nitrogen requirements. By contrast, the predominantly livestock farmers, for whom cropping makes up less than a third of their activity, are the more likely to use their on-farm experience to calculate fertiliser inputs.
Hedgerows with woody cover at the base exist on 88% of holdings. Predominantly arable or mixed farms are more likely to have areas sown with pollen or wild flower mixes than predominantly livestock farms.

- **Water**: At least one incidence of soil erosion happens on 12% of holdings every year and on a quarter of holdings at least every 3 years. Dairy and upland livestock farms are the most likely to experience at least one type of soil erosion on an annual basis. The most popular livestock related change made by farmers that might help water quality is to refrain from spreading manure / slurry at high risk times (78% of farmers with livestock). The proportion of farmers who have sited solid manure heaps away from watercourses has increased from 66% to 77% between 2006 and 2007. The proportion of farmers who have undertaken hedgerow conservation (44%) and improved field drainage (34%) has increased marginally since 2006.
Only 6% of holdings are using un-metered mains water, while 76% have a water meter. Almost 40% of holdings are using a private supply, such as a spring, although this rises to 77% for upland livestock farms. Overall, 77% of farmers are aware of the Water Code, 31% are aware of Waterwise on the Farm but only 5% are aware of the Enhanced Capital Allowance Scheme.

- **Economics of Modern Farming**: Between April 2006 and March 2007, 26% of farmers bought inputs or sold outputs through Farmer Controlled Businesses (FCBs). When farmers use FCBs, around 40% (by value) of both their inputs and outputs are traded via FCBs.
Financial incentives are the biggest factor that may encourage farmers to change. The cost of change appears to be the biggest barrier preventing farmers from making these changes (70% of holdings).
The most frequently used financial risk management tool is forward contracts (35% of cropping farms, 10% of livestock farms). Almost a third of farmers have never considered using financial risk management tools, while 35% consider them not necessary.

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Contents

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1. Introduction

The first Farm Practices Survey (FPS) was run in 2001 on behalf of what was then the Ministry of Agriculture Fisheries and Food (MAFF) to investigate the impact of farming on the environment. When MAFF became part of the Department for Environment, Food and Rural Affairs (Defra), the environmental impact of farming became a higher priority and resulted in FPS becoming an annual survey from 2004 onwards. The FPS is devised to have a flexible set of topics and questions that allows the survey to be tailored to the needs of policy colleagues and the wider Defra community. Our aim is to provide new and up-to-date agri-environment information on the current high priority.

For the FPS we plan each survey from scratch and invite colleagues and other interested parties to request questions to be retained or recalled from a previous survey or even to propose new topics and / or questions. Thus the 2007 survey is a combination of new topics, those retained from 2006 – because they are still of great interest – and those re-introduced from 2004 or 2005 to monitor any possible changes. For 2007 we were able to mould all of our question / topic requests into a single questionnaire that contained livestock related and environmental topics as well as a section on the economics of modern farming.

For 2007, the survey focused on topics that are grouped into four main categories (Figure 1.0.1), each of which is dealt with in a separate chapter. The livestock topics include animal health and welfare issues, cattle housing and the storage of slurry. Once again water continues is an important issue, so for 2007 the water quality questions have been retained and are supplemented by questions on water usage. The environmental protection section includes nutrient management plans and wildlife habitats. Economic sustainability is represented by questions on financial risk management and the use of farmer co-operatives. What now follows is a brief summary of the survey methodology and then a discussion of the results from the survey.

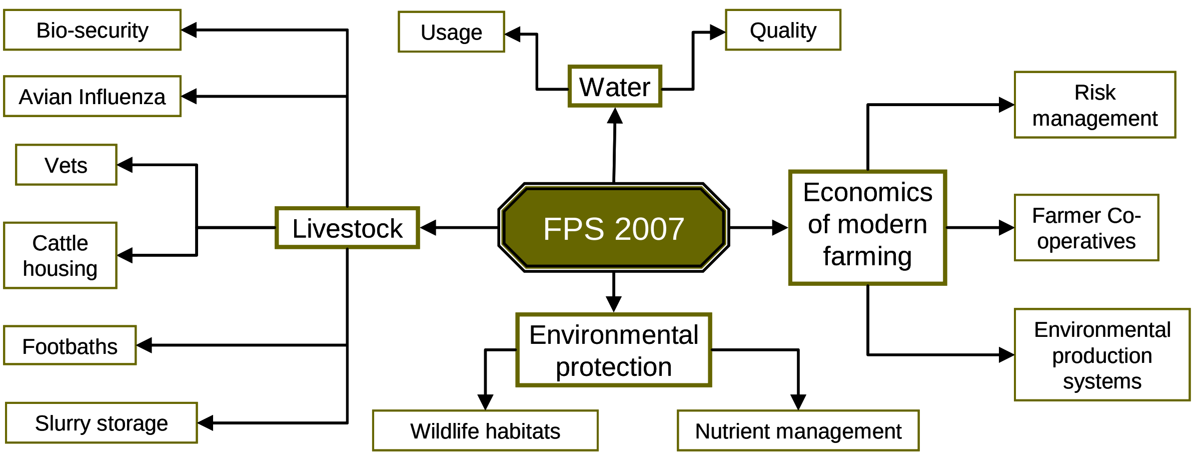

Figure 1.0.1: A summary of the main topics covered on the 2007 Farm Practices Survey.

In addition to this report, there is a statistical notice, a FPS factsheet and a copy of the survey form available on the FPS web site: http://statistics.defra.gov.uk/esg/publications/fps/default.asp

We are always keen to hear any ideas or suggestions for the future content of the FPS. These can be sent to Helen Hoult or Robin Karfoot at Rm 157, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX (email: helen.hoult@defra.gsi.gov.uk or robin.karfoot@defra.gsi.gov.uk).

2. How The Survey Was Run

The 2007 FPS was run in much the same way as previous years. This section briefly discusses the sampling methodology, any potential biases in the survey and the analysis method used.

2.1. Survey Methodology

The FPS is a postal survey, with the forms being sent to arrive on 1st March 2007. Similarly to 2005, the survey was run using a single survey form that covered both livestock-related and more general topics.

There are currently around 200,000 agricultural holdings in England, but a large proportion of these are small. It would, therefore, be highly inefficient to take a simple random sample of all of the holdings. Instead, a stratified random sample was used with higher sampling rates for the (economically) large farms. Farm type was also utilised in the construction of the strata to ensure that each portion of the farming industry was adequately represented.

Similarly to the previous FPSs, thresholds were used to ensure that the smallest holdings were not included in the survey. To make results as comparable as possible to previous surveys, the same thresholds were used. To be eligible a holding must exceed at least one of the criteria in Table 2.1.1. Any holding that does not meet these thresholds would have been eligible for the FPS smallholdings survey run in 2005. Any farms that received either the 2005 or the 2006 FPS were excluded from this survey.

Table 2.1.1: Thresholds for inclusion in the 2007 FPS, a holding must exceed at least one of these criteria.

Criteria for inclusion in FPS 2007
≥ 50 Cattle
≥ 100 Sheep
≥ 100 Pigs
≥ 1,000 Poultry
≥ 20 ha Arable Crops / Vegetables / Orchards

Applying these thresholds leaves around 69 thousand holdings (Table 2.2.1) that are eligible to receive the 2007 FPS form (35% of the holdings in England). Despite representing only a third of all holdings in England, these holdings give good coverage for the major crop and livestock categories. Typically they account for at least 95% of the England area for the major crops (Appendix 1: The level of coverage for the main crop types in the FPS population). With the exception of the beef herd, over 95% of the major livestock types are associated with holdings within the FPS population (Appendix 2: The level of coverage for the main livestock types offered by the FPS population).

A sample size of approximately 6,000 was selected from the 69 thousand eligible holdings. This sample accounts for around 8.7% of the eligible holdings. The FPS is a voluntary survey, but the response rate was 43% (Table 2.2.1).

2.2. Potential Biases

The results from this survey, like any other, will contain a degree of uncertainty due to two principal factors.

1. We are using a sample rather than the entire population. This induces error, but the sample is designed (Section 2.1) to minimise the impact of not using the full population of farms. In

addition, where appropriate we try to give an indication of the sampling error by quoting 95% confidence intervals.

2. We are reliant on the respondents giving a truthful answer. In many cases a farmer may not be willing to admit to bad practice and may instead opt to omit the question. We have tried to minimise this impact by assuring farmers that any information they supply will not be used to assess cross-compliance on their holding and it will not influence their Single Farm Payment applications. Of course given that the form is optional, it is likely to be the more conscientious farmers who return the form.

These potential biases do mean that the results contained within this document need to be interpreted with caution. They do however serve as a useful guide on current farming practices and (in some cases) how they are changing over time.

Table 2.2.1: The population eligible for the 2007 FPS, the number of holdings sampled for each farm type and their response rates.

Farm type	Holdings eligible for the FPS form	Number of holdings sampled	Number of forms returned	Response rate
Cereals	17,447	1,517	770	51%
Dairy	8,091	1,199	443	37%
Grazing Livestock (LFA[1])	3,268	437	192	44%
Grazing Livestock (Lowland)	11,462	719	295	41%
Mixed	8,109	615	246	40%
Other Crops	14,258	1,057	482	46%
Pigs & Poultry	6,571	462	148	32%
All Farms	69,206	6,006	2,576	43%

2.3. Survey Analysis

Results have been analysed using a standard methodology for stratified random surveys in which all of the data are weighted according to the inverse of the sampling fraction. Results in this document are generally expressed in terms of the estimated proportion of farmers following a particular practice – for Chapter 3 this will often by presented as the proportion of farmers with livestock. On occasions results are expressed in a different manner e.g., for cattle housing it is appropriate to present the results as a proportion of the livestock within the population.

An added complication is that not all respondents complete all sections. This is particularly pertinent to the livestock sections at the beginning of the form as it is unlikely that every section will be relevant to them, *e.g.,* few pig farmers will also have beef or dairy cattle so they would omit section 5 on the livestock form[2]. On other occasions, it will not be clear why the section has been left blank, particularly where part of the section has been completed. Where possible, we try to design the form to minimise any confusion, *e.g.,* offering boxes on the livestock sections for farmers to tick if the section is not relevant to their holding. In addition, there are instructions at the beginning to direct

[1] LFA is Less Favourable Area and is grouped into Severely Disadvantaged Area and Disadvantaged Area
[2] See http://www.defra.gov.uk/corporate/regulat/forms/census/surveys/farm-practices/css956.pdf for a copy of the 2007 FPS form

farmers without livestock to the first non-livestock question (section 7). On occasions we will phone farmers to clarify responses.

Despite these measures some interpretation is necessary for blank responses in order to decide whether they are genuine missing values or implicit negative responses. If the question was asked on a previous survey we have attempted to use the same approach to make the results comparable[3]. There are two ways of doing this depending on the question. Either treat the value as a missing value in the analysis or the records can be omitted from the analysis completely so that the results are in term of those to whom the question is applicable not in terms of all holdings. Both methods have been used in this analysis.

Where the topic was included on a previous survey, comparisons have been made with these results. The 2001 figures were originally produced separately for each sector on a weighted basis, and so, to allow a fair comparison, an overall 2001 figure has been calculated, using the same methodology as for the 2004 results. Unfortunately the overall response rate to the 2001 survey was only 20% and in some strata there were very few responses. As a result the 2001 figures must be treated with some caution.

This document is designed to provide a summary of results, usually in a pictorial format, and an explanation of their importance. Detailed tabulations of the data by farm size, farm type and region can be found in the FPS factsheet[4].

2.4. Terminology

Where reference is made to the type of farm in this document, this refers to the 'robust type', which is a classification of farms into 7 different categories (Appendix 3: The Main Farm Types Included Within Each Robust Type) on the basis of the economic value of the production from different enterprises. A farm is assigned a given robust type (e.g., cereals or upland livestock) if the given activity comprises more than two thirds of the total holding Standard Gross Margin (SGM)[5]. Where a holding comprises both crops and livestock that separately account for more than one third, but less than two thirds of the total SGM, it is allocated to a mixed category. Thus for example, a farm labelled as dairy may also keep sheep, or a cereals farm may also keep some cattle. Note that the farm type "other crops" is the same as what has previously been termed general cropping and horticulture.

Where reference is made to farm size, this is a classification based on the theoretical labour requirements for the holding considering its size and primary function rather than an estimate based purely on the area of land within the holding. The method uses Standard Labour Requirements (SLRs) in which each livestock type and land-use has an average amount of labour they require each year (Appendix 4: What is a Standard Labour Requirement (SLR) unit?). This value is multiplied by the number of hectares or livestock numbers and then summed to give the SLR for the holding. The SLR indicates the typical number of full time workers required on the holdings. For FPS, holdings with an SLR of less than 2 are described as small, while those with an SLR greater than 3 are described as large.

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[3] In the case of water quality where the methodology was changed, the 2006 results have been re-run using the new methodology to facilitate year on year comparisons.

[4] See http://statistics.defra.gov.uk/esg/publications/fps/FPS07_factsheet.xls for a copy of the 2007 FPS fact sheet.

[5] The SGM is a financial measure based on the concept of the gross margin for farming enterprises. The gross margin of an enterprise is its total output less the variable costs which are directly attributable to it, where a variable cost is a cost which can both be readily allocated to a specific enterprise and which varies in approximately direct proportion to changes in the scale of that enterprise. Examples or variable costs are seed, fertiliser, pesticide, feeding stuff and veterinary and medicine costs.

3. Livestock Related Topics

On the 2007 form, the first half of the form was devoted to livestock related questions. These sections were preceded by a question asking farmers whether they keep livestock or not. Thus the analysis in this chapter relates to only those farmers who keep livestock[6]. The early part of the chapter focuses on animal health and welfare, then continues on to slurry storage and cattle housing.

3.1. Animal Health and Welfare

This section encompasses questions on biosecurity (3.1.1), the use of footbaths (3.1.2), veterinary services (3.1.3) and avian influenza guidance (3.1.4).

3.1.1. Animal Health and Biosecurity

The term “biosecurity” first became popular during the 2001 outbreak of foot and mouth disease (FMD). In addition to controlling major outbreaks such as this one and the 2007 outbreak of FMD that has largely been confined to Surrey, biosecurity measures are an essential tool to combat the more common diseases that can be present in livestock in England. For example, digital dermatitis which causes lameness in dairy cattle, which reduces their food intake which in turn affects milk yields or sheep scab in which a mite damages the skin and causes a loss of wool.

A new virus began to cause concern for the UK during 2007 - blue tongue virus. In Europe this insect borne viral disease was previously confined to the Mediterranean countries, but as average (and maximum) temperatures begin to increase across Europe the disease has begun to spread north and there were outbreaks in the Benelux countries during 2006. In September 2007, the disease spread to the UK with the disease being detected in a small number of animals across farms in Suffolk. The disease is most prevalent in cattle but has the greatest impact on sheep and is transmitted by biting midges (Figure 3.1.1), not through direct contact between animals. Once infected there are no fully effective treatments although a vaccine is currently being developed[7,8].

Figure 3.1.1: A culicoides biting midge that transmits the blue tongue virus

To help control disease it is important to know what measures farmers have in place to prevent contamination of their livestock and what measures they use for incoming animals. In FPS 2004, there was a series of questions under the heading of animal health and biosecurity (Appendix 5: The FPS Topic Timeline). Whilst some of these questions cover the same topics as the FPS 2006, the questions have been substantially revised to improve the quality of the data gathered. The 2007 results are therefore not comparable with those from 2004.

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[6] With the exception of Section 3.1.4 and Section 3.3 which only relate to farmers who keep poultry and cattle respectively.
[7] Technical Review - Bluetongue: The Virus, Hosts and Vectors: http://defraweb/animalh/diseases/notifiable/pdf/bluetongue_technical.PDF
[8] Foot and Mouth and Bluetongue – Farming link feature, Farming Link, November 2007, http://www.defra.gov.uk/farm/contact/link/pdf/fl-nov07.pdf

Biosecurity risks

Most farmers with livestock (69%) perceive the greatest biosecurity risk to be from contact with wildlife (Figure 3.1.2). The only other risk that more than 40% perceive to be an issue is contact with farm personnel or visitors. Whilst the level of risk for each category increases with increased farm size, there is no change in the ranking of which risks are considered the most prevalent (Figure 3.1.3). More than three-quarters of large farms perceive their livestock to be at risk from contamination by wildlife.

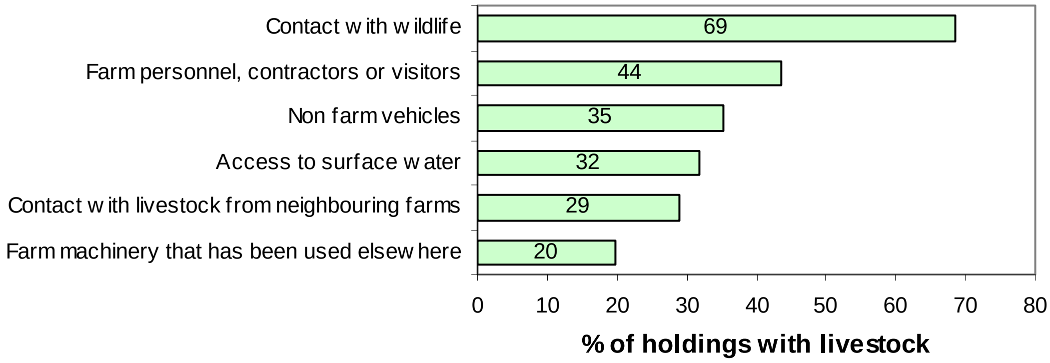

Figure 3.1.2: The percentage of holdings with livestock that are perceived to be at risk from a variety of sources.

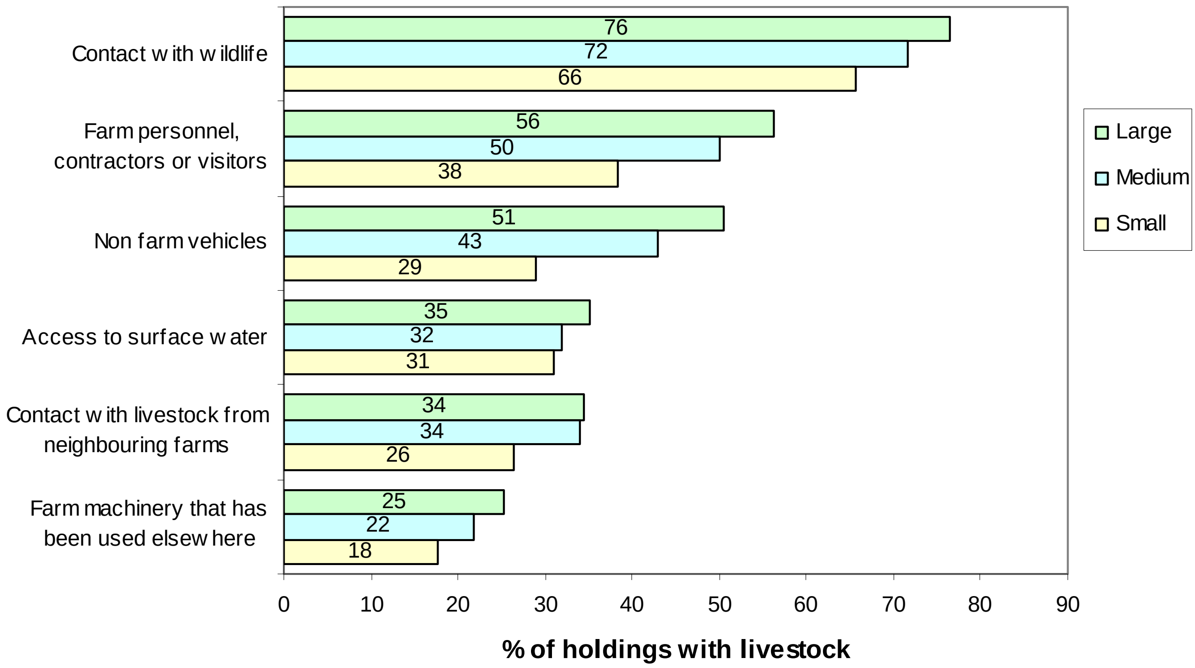

Figure 3.1.3: The percentage of holdings with livestock that are perceived to be at risk by farm size.

Farmers from all types of farm consider contact with wildlife to be the biggest biosecurity risk (Figure 3.1.4). Upland livestock farmers see contact with neighbours' livestock as the second biggest risk (42% of farmers); this could be due to farmers with sheep grazing open moorland being able to freely mix with their neighbours flock. Pig and poultry farmers show a lower perceived risk from surface water, which reflects the fact that the majority of their livestock is housed all year round and cannot access surface water.

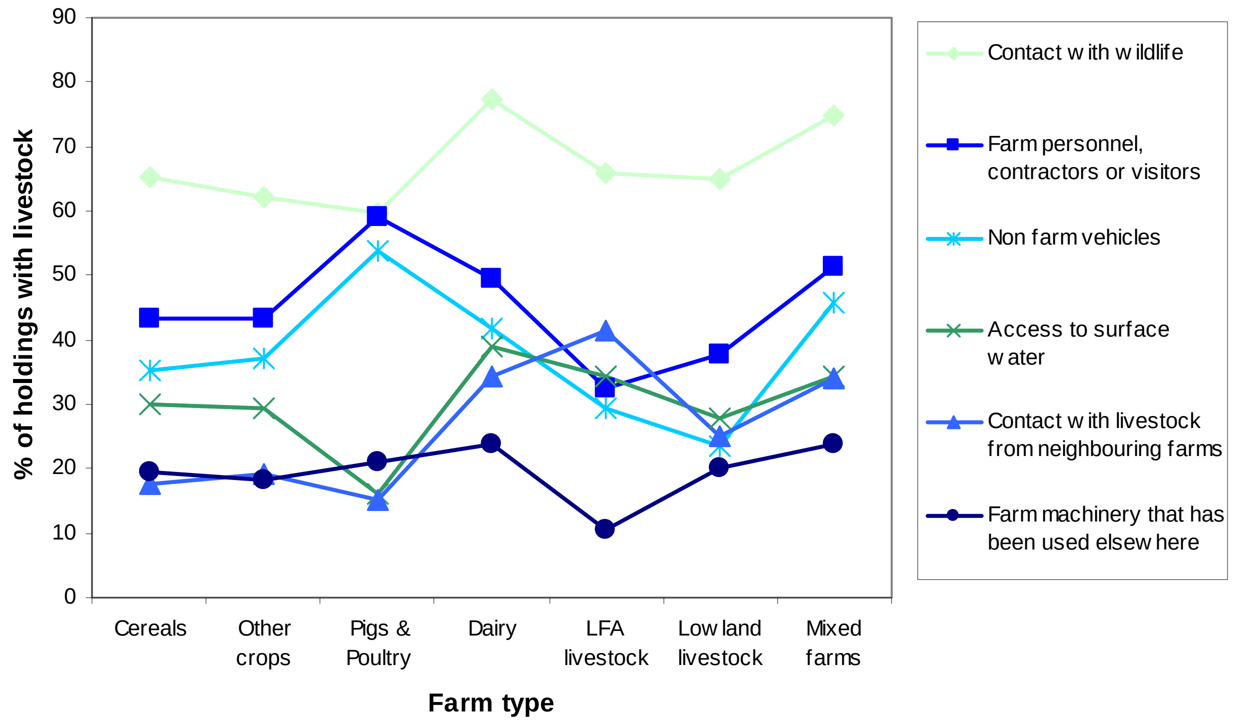

Figure 3.1.4: The percentage of holdings with livestock that are perceived to be at risk by farm type.

Risk minimisation

While contact with wildlife was perceived to be the biggest biosecurity risk, only 38% of the holdings with livestock who identified a risk from wildlife actually have measures in place to minimise the risk (Figure 3.1.5). The high risk for contact with wildlife reflects the difficulty in implementing measures to minimise the risk. By contrast, it is easier to implement minimisation measures for machinery and workers *e.g.,* using clean overalls or disinfecting machinery, so more farmers have measures in place.

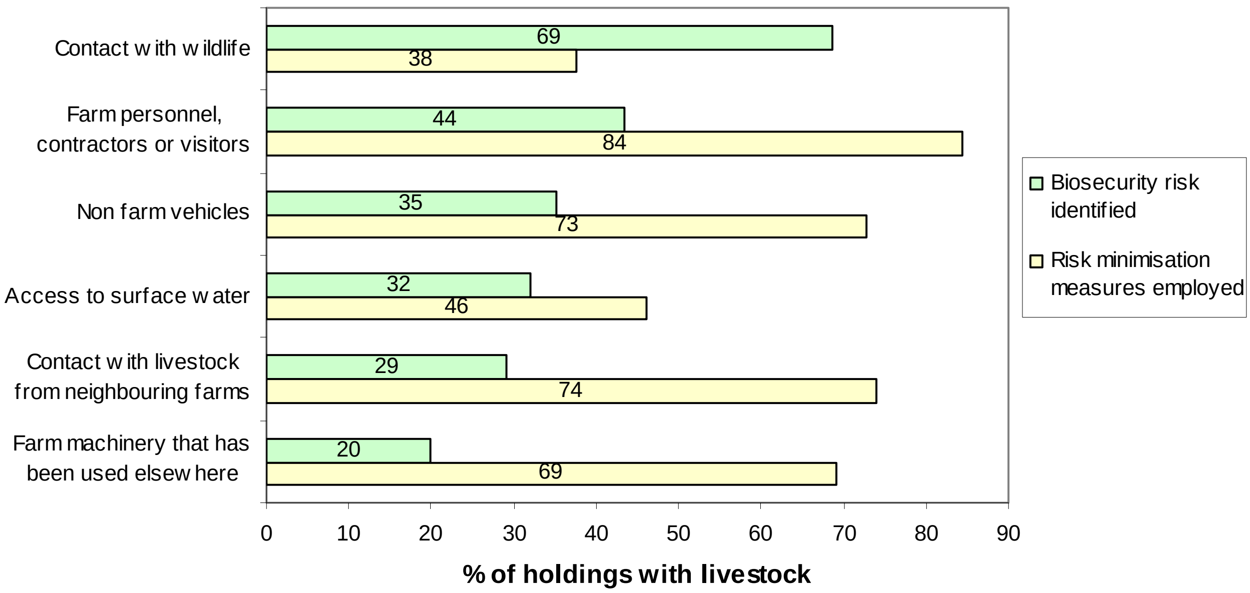

Figure 3.1.5: The percentage of holdings with livestock at risk from a variety of sources and the percentage of holdings where a risk was identified who have measures in place to minimise the biosecurity risk.

For each of the risks, large holdings are more likely to have measures in place than small or medium ones. There is however considerable variation in the percentage of holdings (who have identified a risk) with minimisation measures in place by farm type (Figure 3.1.6). For all types of risk, pig and poultry farmers are the most likely to have measures in place, reflecting the fact a greater degree of control can be achieved in intensive farming. Less than 50% of farmers who identified risks associated with wildlife and surface water have measures in place to combat the risk for all farm types, except pigs and poultry, which reflects the difficulty of combating these risks when the animals are kept outdoors. Notice that upland livestock farmers are the least likely to have measures in place to minimise the risk associated with access to surface water and machinery that has been used elsewhere. For the access to surface water, this is largely because they have no control over whether their animals are using springs on open moorland.

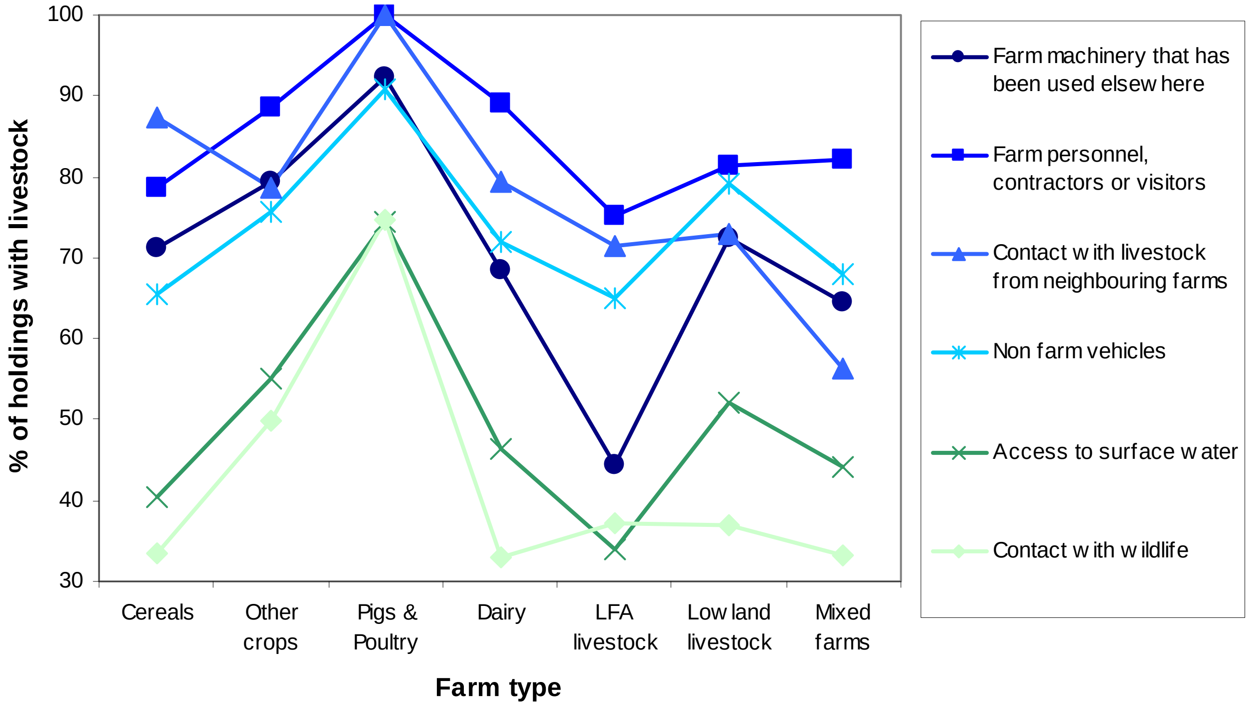

Figure 3.1.6: The percentage of holdings (with livestock) where measures in place to minimise an identified biosecurity risk, by farm type.

Incoming animals

Around 31% of farmers with livestock operate a closed herd status i.e., they breed their own replacement animals so no new stock enters the farm (Figure 3.1.7). For the other farms, new stock will be entering the farm. Even when farmers try to operate with a closed herd status occasionally new animals will be introduced to enhance the breed.

When introducing new livestock it is important that measures are taken to avoid the possibility of disease. Almost 40% of farmers only buy animals from herds with a known disease status and 30% isolate new stock (Figure 3.1.7). A range of treatments such as worming and footbathing of new animals are also common. Less than 2% of farmers apply no treatments to new animals.

There is variation in the measures taken to prevent disease by farm type (Figure 3.1.8). Around half of dairy farms operate with a closed herd status, but they are the least likely to apply worming treatments. For all farm types, between 36 and 45% purchase animals from a herd with a known disease status. Dairy farmers are more likely to purchase animals with a known disease status than upland livestock farmers, partially because the latter frequently buy from auctions. The grazing livestock farmers, particularly the hill farmers, are the most likely to footbath and dip new animals.

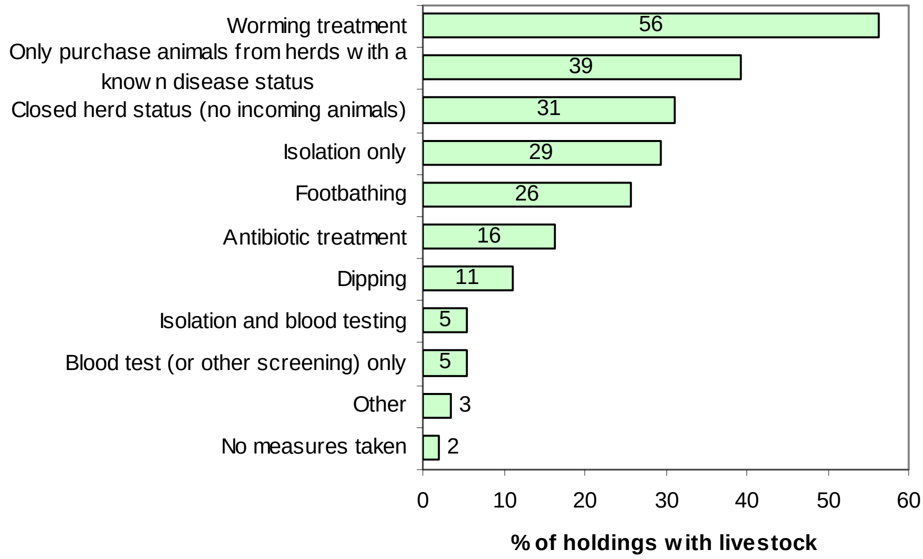

Figure 3.1.7: Methods for preventing disease when introducing new animals

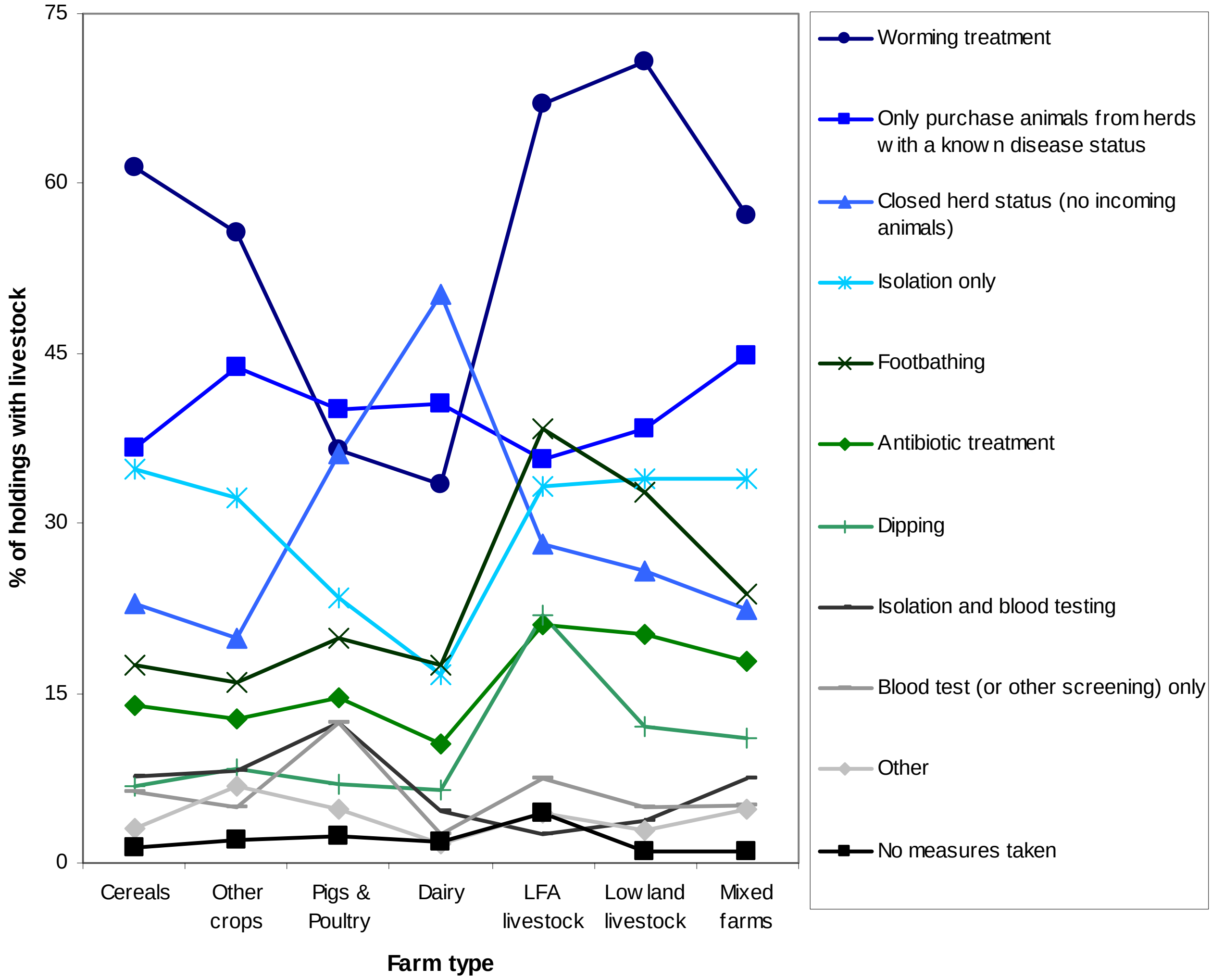

Figure 3.1.8: Methods for preventing disease when introducing new animals

3.1.2. Footbaths

Information on footbaths was collected for the first time in the 2006 FPS (Appendix 5: The FPS Topic Timeline). It was anticipated that most farmers with livestock would use footbaths; however the response rate for the question was quite low. We believe that this may be due to farmers not wishing to respond to the question on how they dispose of spent dip, so they just omitted the entire question. If this was the case then the use of footbaths will have been under-estimated. To obtain a more accurate estimate of footbath usage we have repeated the question, but excluded the part that asks about disposal methods.

An introduction to footbaths explaining why they are a valuable management tool to minimise heal erosion and lameness was included in section 3.2.1 of the 2006 FPS report so it is not repeated here. It is predominantly cattle and sheep that use footbaths, with dairy cattle being the most frequent users.

Footbath usage

The 2006 data showed that around 35% of holdings with livestock used footbaths. The 2007 data shows that 44% of holdings with livestock used footbaths (Figure 3.1.9), which supports the claim that the footbath usage was under-represented in FPS 2006. Similarly to 2006, the larger the farm the more likely they are to use footbaths, with almost 59% of large holdings with livestock using footbaths. This seems reasonable as smaller farms with fewer animals may find it more cost effective to treat injured or infected animals on an individual basis rather than treating their entire herd on mass with a footbath. The changes relative to 2006 are larger for the small and medium farms, suggesting that these were the ones who were unwilling to fill in the question last year.

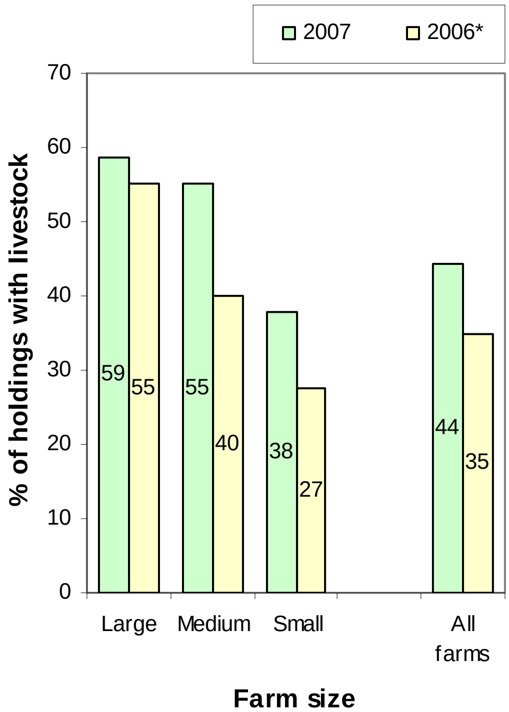

Figure 3.1.9: The percentage of holdings with livestock who use footbaths by farm size. *We believe that there was a degree of under recording in 2006 – see text for details

The frequency of use of footbaths varies with farm type, with dairy and LFA livestock farms being the most likely to use them (Figure 3.1.10). The high frequency of usage for dairy holdings can be explained by the fact that it is relatively straightforward to incorporate using a footbath into the regular routine management of the farm by placing it at the exit of the milking parlour. The difference in usage of footbaths between upland and lowland livestock farms is likely to be linked to the incidence of disease. Foot rot in sheep will tend to thrive in wet environments where temperatures are between 4 and 21°C[9]. In upland parts of Northern England, particularly peat moorland where the moisture is retained underfoot leading to boggy conditions, foot rot may persist in some sheep all winter – although few new cases occur. Under these conditions, regular foot bathing (if possible) may help to control the disease[10]. By contrast in the warmer and drier lowland areas the disease is less common and its occurrence less predictable so it may be preferable to treat sheep on an individual basis rather than the blanket approach of using footbaths.

[9] Dee Whittier, W and Umberger, S.H (1996). Control, treatment, and elimination of foot rot from sheep, Virginia State University Publication Number 410-028 http://www.ext.vt.edu/pubs/sheep/410-028/410-028.pdf
[10] Hosie, B (2004). Footrot and lameness in sheep, The veterinary record, 154, January 10, 37-38.

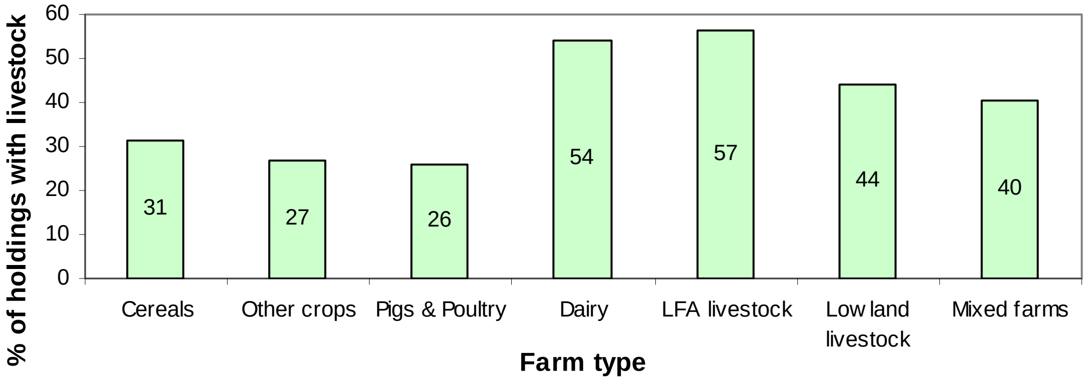

Figure 3.1.10: The percentage of holdings with livestock who use footbaths by farm type.

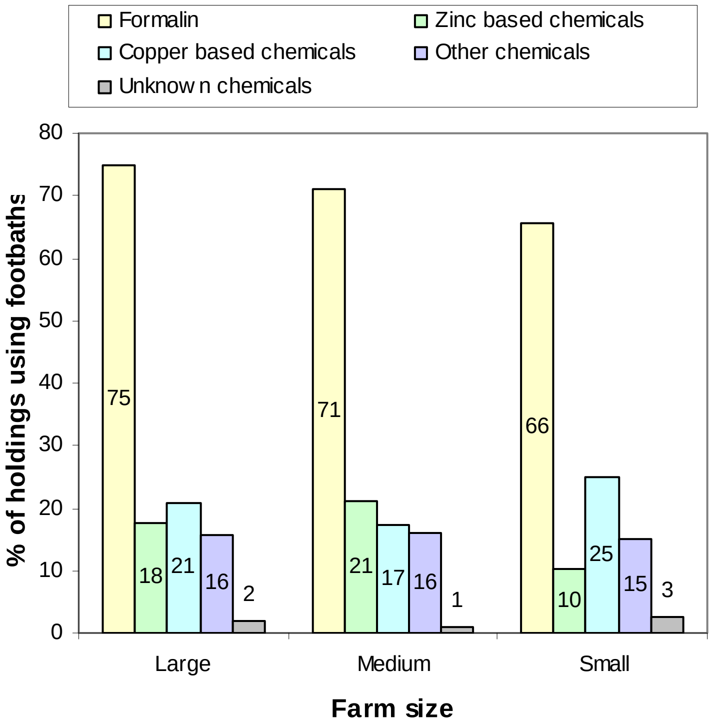

Figure 3.1.11: The proportion of holdings using different types of chemical for their footbath.

Footbath chemicals

The most commonly used chemical for footbaths is formalin, which is used by almost 70% of holders. This is the most common chemical irrespective of farm size or farm type although the usage is slightly less frequent for the small farms.

Figure 3.1.12: Dairy cattle using a foam based footbath.

Most of the farms using other products in their footbath use: Virkon (which is a potassium based product) or Tylan (the brand name for a power form of Tylosin - which is an antibiotic made naturally by bacterium known as “Streptomyces fradia”) or Lincospectin. Some farmers are beginning to use foam based products such as Kovex (Figure 3.1.12) since it is effective across a range of temperatures and it is highly resistant to organic matter so its effectiveness deteriorates less after 50 cows have passed through than traditional methods.

3.1.3. Veterinary Services

The use of veterinary services is a new topic for the FPS. In some areas, private veterinary practices have been closing due to a lack of business. To ensure that enough vets remain to ensure that a quality service is maintained, there is a need to know how often and for what purposes farmers are using vets. Further, farmers sometimes obtain veterinary services from other service providers, so it is important to know which other providers are commonly used.

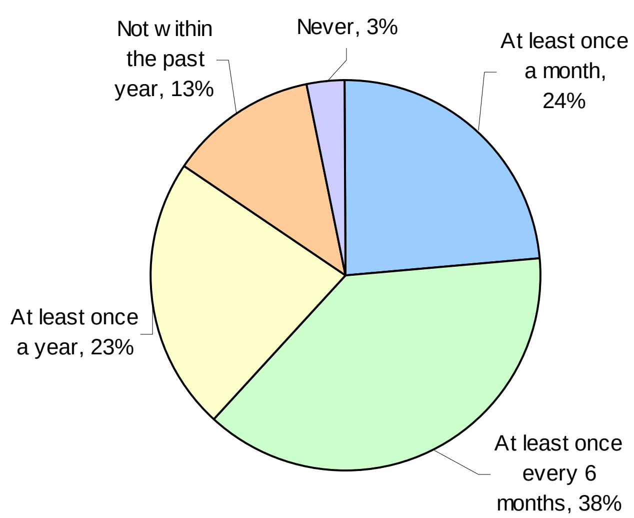

Figure 3.1.13: The frequency of visits from private vets to holdings with livestock in England.

Private vets visit almost a quarter of holdings at least once a month, and visit 62% of farms at least once every 6 months (Figure 3.1.13). Only 3% of farmers with livestock never have a vet visit their premises. Dairy farms are the most likely to have frequent visits from vets to their holding (93% have a visit from a vet at least once every 6 months) and upland livestock farmers are the least likely (Figure 3.1.14).

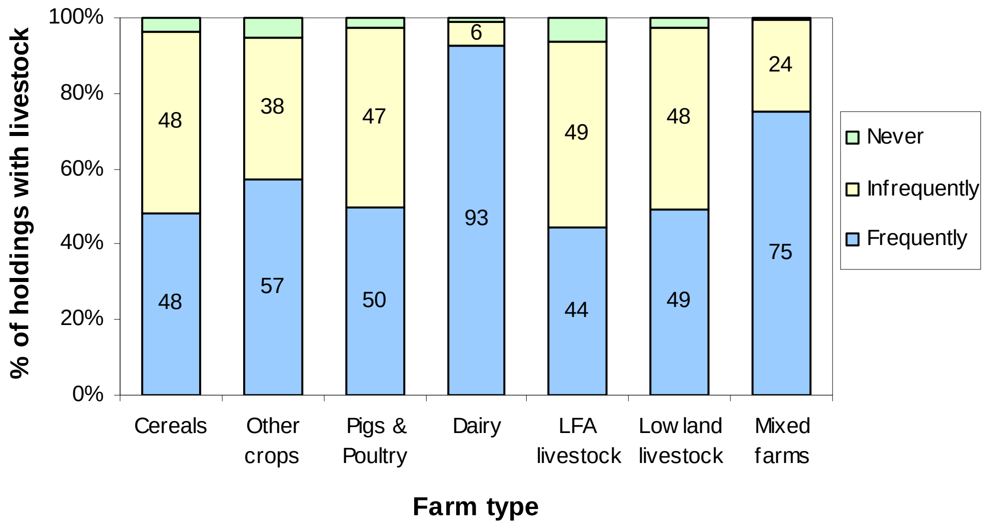

Figure 3.1.14: The frequency of visits from private vets to holdings with livestock in England by farm type. Frequently is at least once every six months, infrequently is less often than once every 6 months.

Unsurprisingly, the most common reason for farmers consulting a vet is for emergencies, but 44% of farmers have routine planned consultations (Figure 3.1.15). Larger farms are much more likely to have routine consultations with vets (68%) than smaller farms (35%). When the reasons for consulting vets is considered by farm type it is revealed that the dairy sector are the most likely to have routine planned visits (Figure 3.1.16). Pig and poultry farmers are the least likely to consult vets in an emergency, but the most likely to have specialist consultancies. Only 1% of farmers who use vets have ever had difficulty in obtaining routine services, and almost 1.5% had had difficulty in obtaining emergency services (Farm Practices Survey 2007 statistical Figure 4)[11]. Larger farms appear to have more difficulty in obtaining services than small farms[12].

[11] http://statistics.defra.gov.uk/esg/publications/fps/FPS2007.pdf. (Page 10)
[12] It is noted that this question did not specify a time frame for when the farmer experienced difficulty, some will have interpreted the question to mean in all the time that they have been farming while others will consider it to mean in the last 3 years due to the following question asking about changing vets during the last 3 years. These figures could therefore be interpreted as an upper estimate.

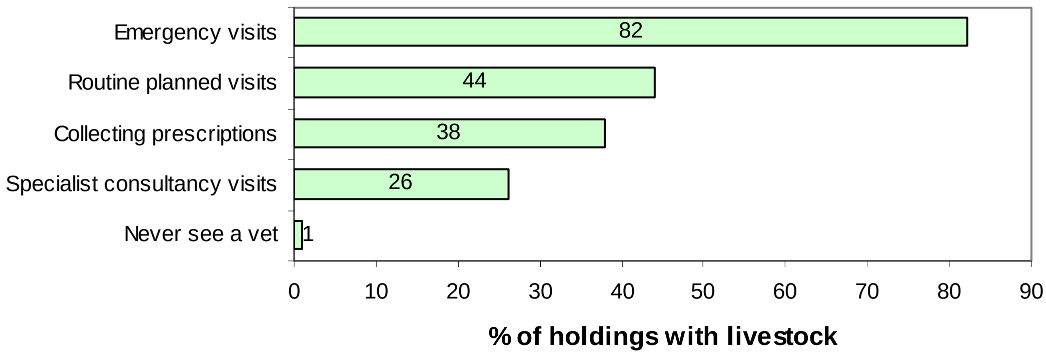

Figure 3.1.15: The reasons why vets are consulted.

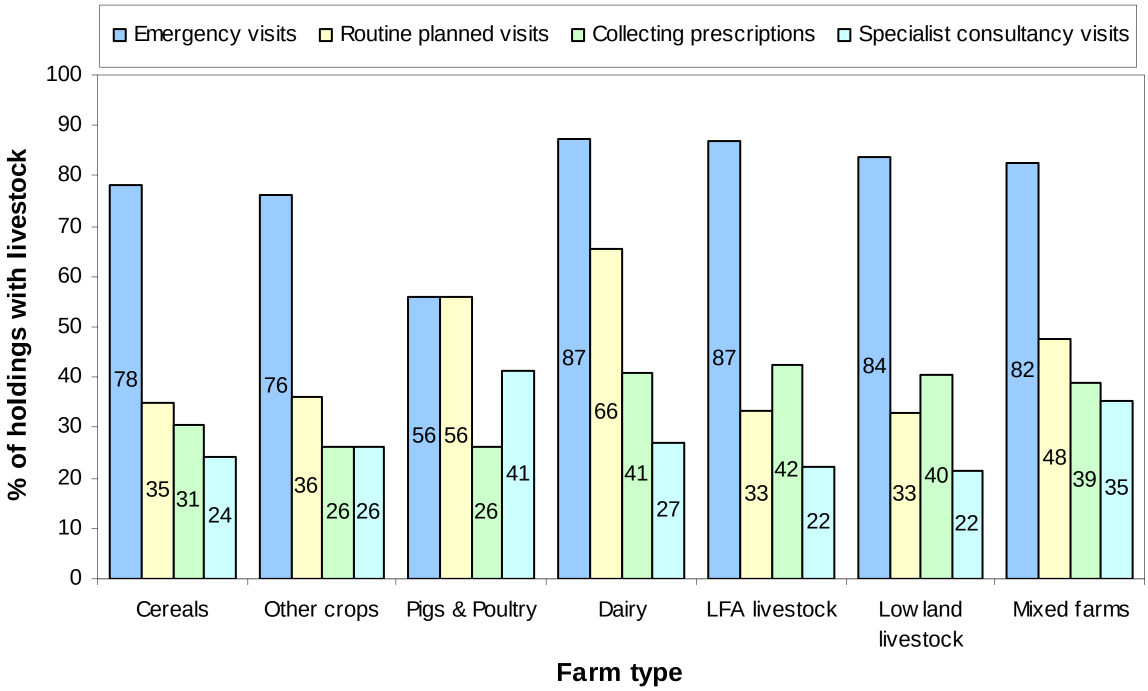

Figure 3.1.16: The reasons why vets are consulted by farm type.

During the last 3 years, just over 10% of farmers have changed to a different veterinary practice. The main reason for change appears to be the original practice closing (Figure 3.1.17), although a smaller number have changed to receive a higher quality service or for better value. More than 12% of farmers using vets have changed their service provider in the last 3 years in each of the following regions: East Midlands, Eastern, North East and South East (Figure 3.1.18). In the former three regions, by far the most important reason for changing service provider is because the existing veterinary surgery has closed – this is almost exclusively the case in the West Midlands. In the North East and South East regions the quality and value of the service provided seem to be nearly as important as practice closures in prompting farmers to change vets.

Some farmers with livestock obtain additional vet services from other services providers, most commonly hoof trimmers and artificial insemination technicians (Figure 3.1.19). A small number of farmers do not have visits from vets and exclusively use these additional service providers.

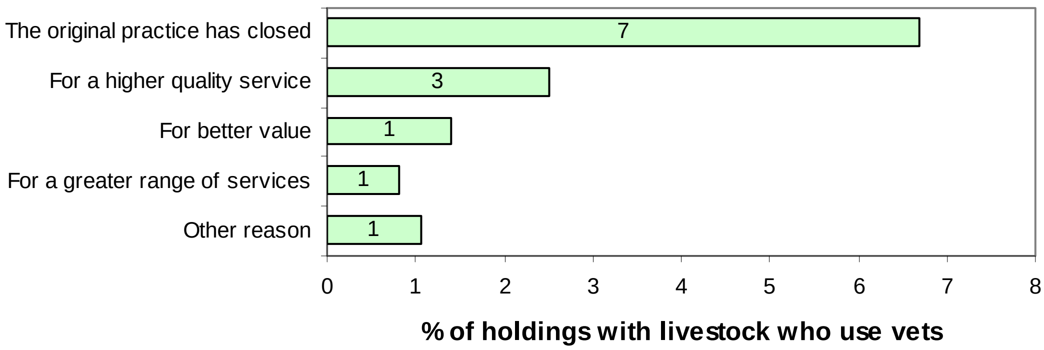

Figure 3.1.17: Reasons for holdings who use vets changing their service provider in the last 3 years. Note that 89% of holdings using vets have not changed their service provider during this period.

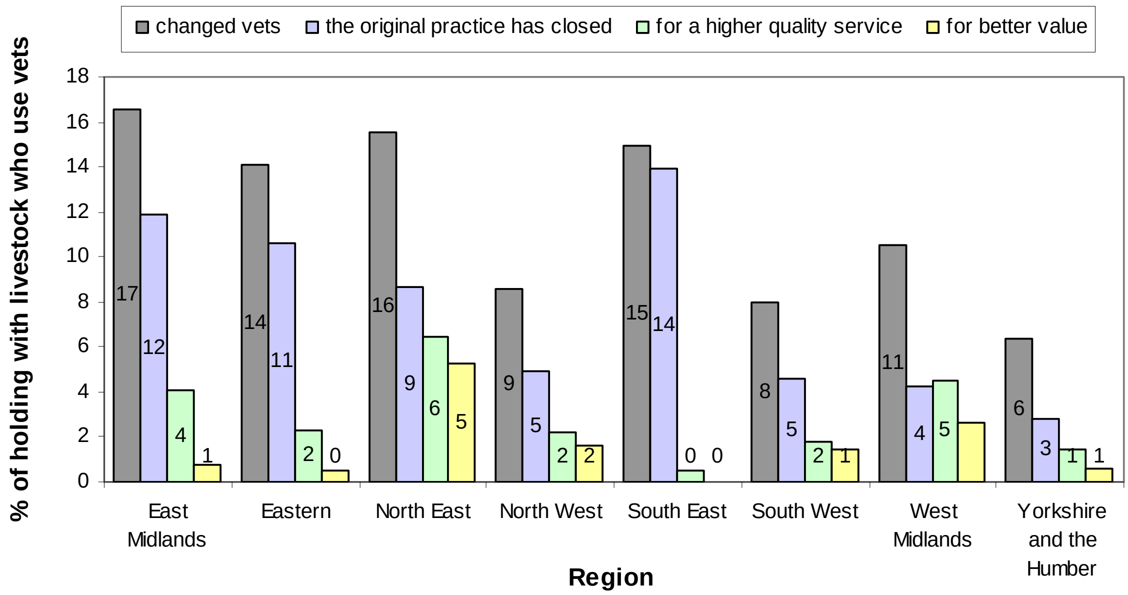

Figure 3.1.18: The proportion of holdings who use vets and have changed their service provider in the last 3 years by region (dark bars). The additional light coloured bars indicate the most popular reasons for the change.

There is little variation in the usage of these additional service providers by farm size, but dairy farmers are much more likely (64%) to use these additional service providers than other farmers (Figure 3.1.20). Similar to the overall picture, the dairy farmers are more likely to use hoof trimmers (32%) and artificial insemination technicians (41%).

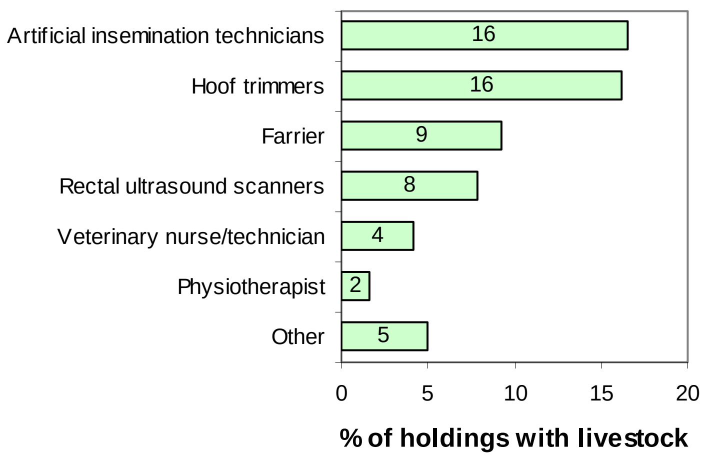

Figure 3.1.19: Holdings who obtain veterinary services from additional service providers by service provider type.

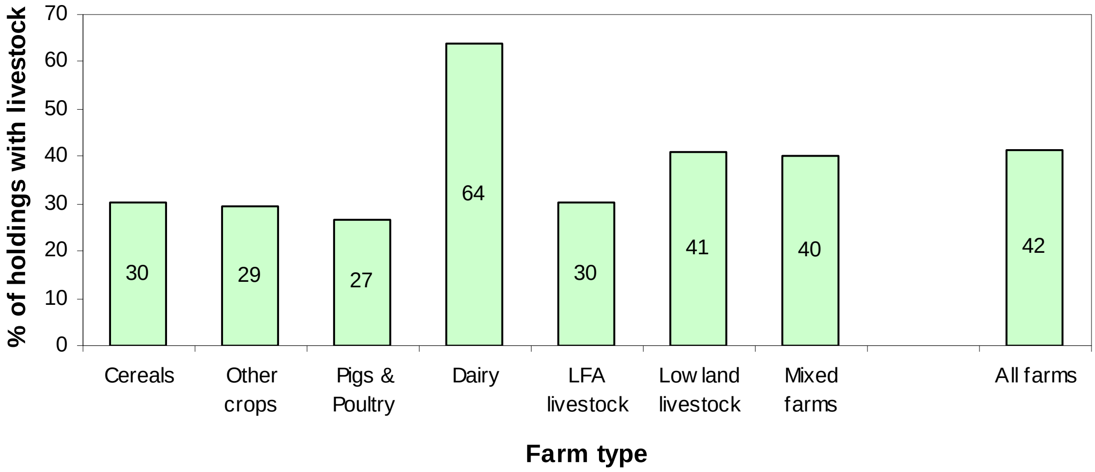

Figure 3.1.20: Holdings with livestock who obtain veterinary services from at least 1 additional service providers by farm type

3.1.4. Avian Influenza Guidance

There were a spate of outbreaks of Avian Influenza in Western Europe throughout the latter part of 2005 and early 2006, including one in Norfolk in April / May 2006. The early outbreaks lead to a tightening of legislation across the EU and the production of new legislation for farmers. The 2006 FPS contained a section on Avian Influenza (Section 3.5.2 of the 2006 FPS report), but given that the outbreaks continued to occur[13] the questions were repeated for 2007.

Overall, at March 2007 more farmers who keep poultry were aware of the Defra biosecurity and Avian Influenza guidance than were aware of it in March 2006 (Figure 3.1.21). This increase is largely driven by a strong increase in awareness on smaller farms. All of the 76 specialist pig and poultry farmers who responded to the question were aware of this guidance.

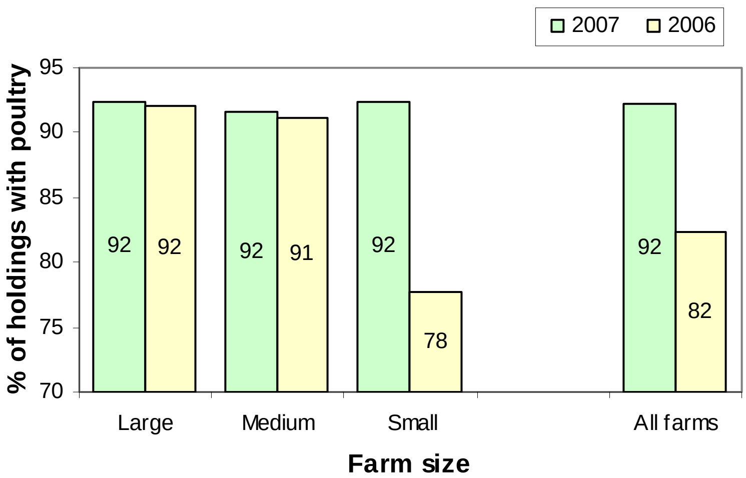

Figure 3.1.21: Awareness of the Defra biosecurity and other guidance on Avian Influenza by farm size.

The proportion of holders with poultry who have made changes to their husbandry as a result of this guidance has reduced compared to the proportion recorded in March 2006 (Figure 3.1.22). In 2007 we had more responses than 2006. The 2007 estimate is therefore more accurate, but despite this the confidence intervals are such that the differences are not statistically significant. The 2007 data shows that fewer large holdings have made changes to their husbandry than medium and small

[13] There have been several outbreaks in Europe during 2007. The latest UK outbreak was on the Suffolk/Norfolk border in November 2007. http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/latest-situation/index.htm.

holdings – perhaps they already met the criteria. The 2006 data showed that only 80% of large holdings with poultry could separate their flock from wild birds. For 2007, this figure has increased to 96%. There is insufficient data to make any meaningful regional comparisons.

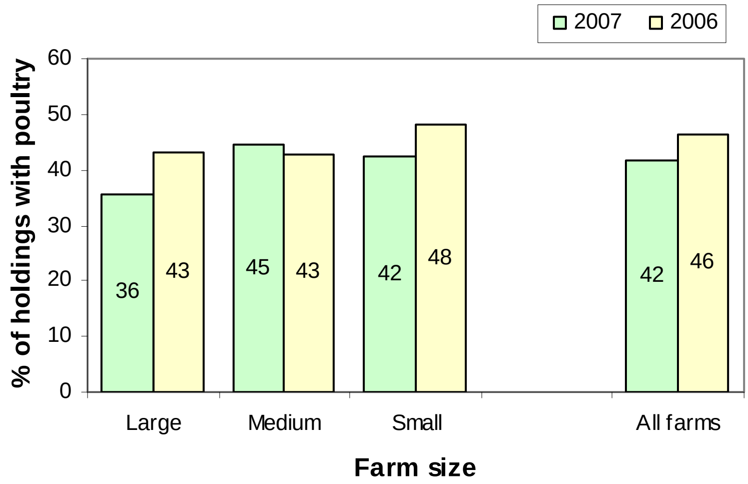

Figure 3.1.22: The proportion of holdings who have made changes to their husbandry based on the Avian Influenza and biosecurity guidance.

FPS 2007 asked farmers whether or not they keep free range poultry. Overall 74% of the holdings in England that keep poultry have some free range poultry – however this figure is as low as 64% for the large poultry holdings.

3.2. Slurry storage

Over 80% of all UK ammonia emissions are from agriculture (Ammonia in the UK, 2002) and 74% of these come from manure and slurry. So the agricultural industry has an important role to play in minimising the impact of ammonia emissions on the environment. Several sections of the FPS 2006 looked at topics related to ammonia emissions: cattle housing systems; cattle grazing periods; pig housing; poultry housing; and the storage of manure and slurry. Although slurry storage was included on the 2006 survey, no information was collected on the capacity of the store. Where farms are within Nitrate Vulnerable Zones (NVZs) there is a requirement for longer slurry storage periods than on farms in non-NVZs. So the slurry storage question has been retained (and extended to include storage capacity) for 2007.

3.2.1. Storage Capacity

The proportion of slurry stored in each of the more common devices remains relatively similar to 2004, with the main difference between the 2006 and 2007 figures being an increase in weeping wall usage at the expense of circular tanks above ground (Figure 3.2.1) – although a proportion of this change is simply due to the sampling uncertainty. Unless a slurry store develops a leak the only pollution risk is through volatilisation, i.e., the conversion to the gas phase and release to the atmosphere. Comparing the three most common stores (earth bank lagoons, outdoor tanks and above ground circular tanks) the lagoons emit more ammonia because their surface area : volume ratio is higher than for either of the tanks. In addition, it is much more likely that outdoor tanks will be covered when compared to unlined earth bank lagoons (Figure 3.2.2), which further reduces ammonia emissions[14], in some cases by as much as 70%. Further, the covers stop rain entering the store which reduces the volume of slurry and hence reduces the cost of spreading and storage. Earth bank lagoons are popular in areas where the underlying ground is impermeable because they offer very large capacities.

[14] Institute of Grassland and Environmental Research fact sheet on managing livestock manures to reduce air pollution. Available at: http://www.iger.bbsrc.ac.uk/Practice/Publications_&_Leaflets/Managinglivestockmanurestoreduceairpollution.htm

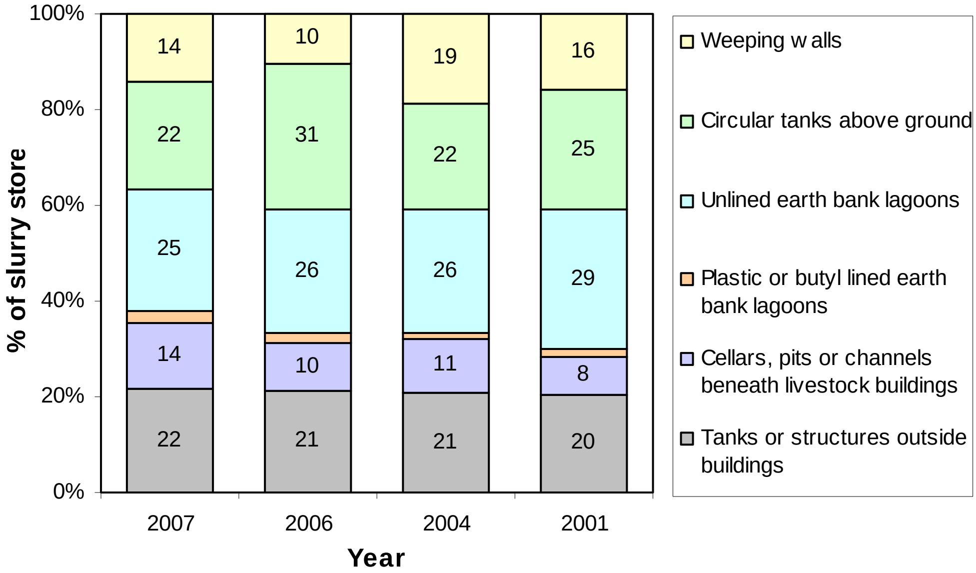

Figure 3.2.1: The percentage of the total slurry capacity provided by the common types of store for England (2001, 2004, 2006, 2007).

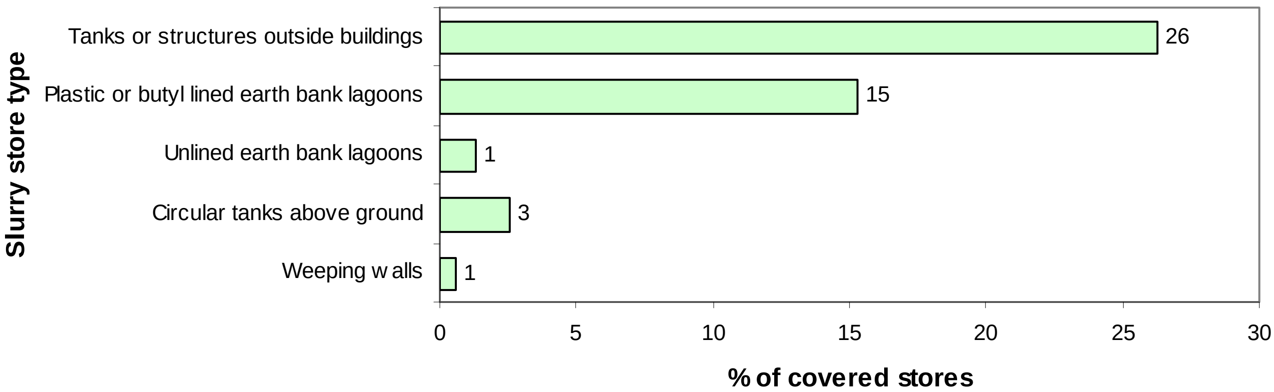

Figure 3.2.2: The proportion of covered slurry stores by store type. Note that all cellars, pits or channels beneath livestock buildings are classed as covered. There are a small number of responses for lined lagoons (24) compared to the other types of store (typically more than 150) so the results are much more uncertain for this category and range between 4 and 32%.

As in previous years, the data shows that pig and poultry holdings are more likely to use cellars and pits beneath livestock buildings than the other farm types (Figure 3.2.3). This is partially because these holdings tend not to have enough spare land for lagoons or large outdoor tanks. Also, large specialist pig enterprises will tend to use relatively modern buildings that have been designed to incorporate pits or cellars. Less than 12% of the slurry stored on upland livestock farms is stored within an earth bank lagoon. Like the pig and poultry farms this is probably a function of available space. Lagoons need relatively flat land. Upland farms often have little flat land, and what flat land is available will tend to be used for crops, grazing or hay/fodder rather than being used for a lagoon. Further upland livestock farms will not normally have enough livestock to justify the need for a lagoon – typically it is only the large dairy holdings that will need the capacity offered by a lagoon.

In 2006, it was found that slurry storage can change substantially with region and the North West and South West regions were compared (the two regions with the largest number of survey returns for slurry storage). For 2007, the largest number of responses to the question was for the same two regions (Figure 3.2.4). By and large the figures for the South West region are the same as in 2006 and indicate a clear preference for lagoons. For the North West there are some changes (largely due to sampling uncertainty) but the preference for tanks remains. There are a series of reasons why tanks may be popular in the North West. Firstly they can be covered to prevent water entering the store thus minimising the volume of slurry that they need to store. Secondly, a significant proportion of North West farmers are in upland regions which as previously discussed are not ideal situations for lagoons. Thirdly, as shown in section 3.3.1 a large proportion of beef cattle are housed in a slurry system in the North West (unlike any other region). Typically beef herds will be smaller than their dairy counterparts and since the animals are only housed over the winter the slurry capacity required is smaller so the volume offered by lagoons is not required.

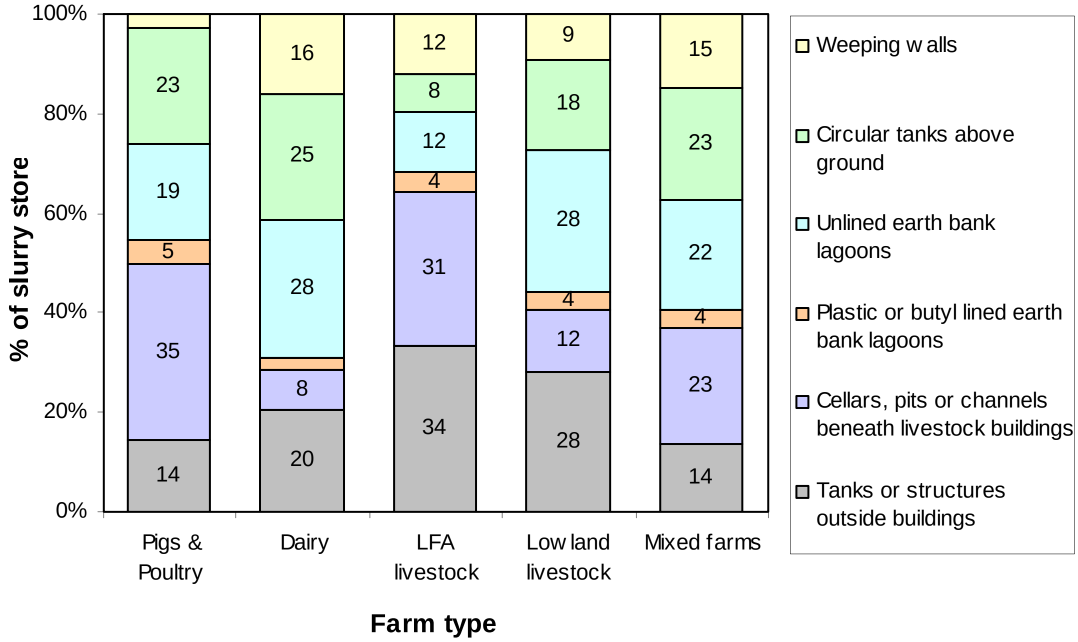

Figure 3.2.3: The percentage of the total slurry capacity provided by the common types of store by farm type in 2007. Only farm types with at least 35 responses have been included.

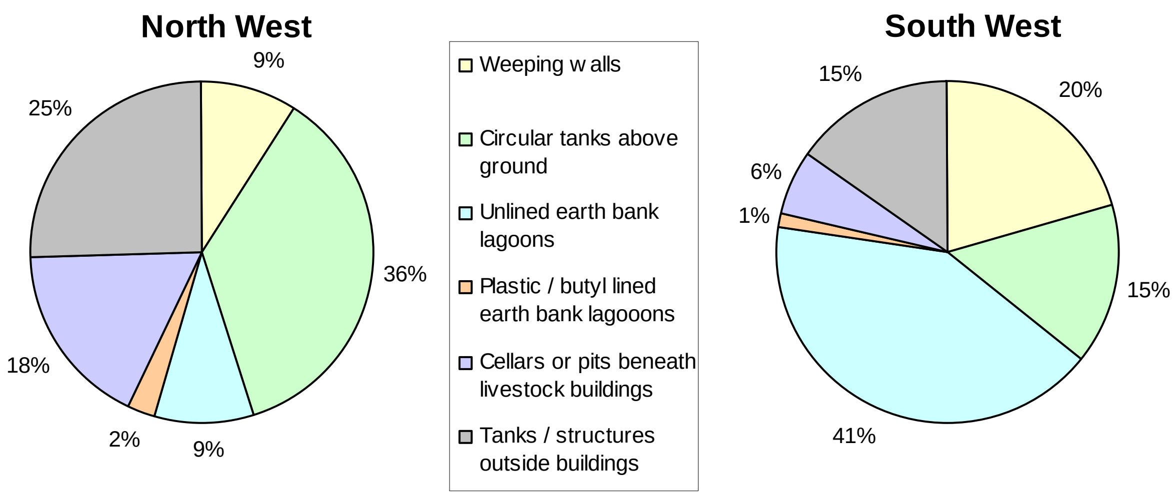

Figure 3.2.4: The variation in slurry storage by region for the two regions with the highest sample sizes, the North West region (left pie – 133 responses) and the South West region (right pie – 185 responses). Categories are read clockwise from the vertical.

A key component missing from the 2006 survey was the capacity of the slurry store. The average storage capacity for those holdings who store slurry was 5.6 months, whilst the median was 5.0 months. Considering just the sample returns, 75% had a storage capacity of at least 3 months but only 25% have a capacity greater than 6 months (Figure 3.2.5). In other words, 50% of farmers have between 3 and 6 months worth of storage. The problem with the data is its skewed nature (Figure 3.2.6); we received 65 responses from farmers claiming 12 months storage or more. All of the holdings who reported more than 12 months storage received a telephone call to confirm the figures. In many cases the holding were formerly large dairy business but they had gone out of the dairy business but still have the lagoons or they were holdings with significantly reduced livestock numbers. The most popular response from farmers was 6 months worth of storage (125 responses or 22% of the responders) followed by 4 months worth (109 responses or 19% of the responders). The data shows that 162 of the 565 responding to the question (29%) have 3 months of storage or less.

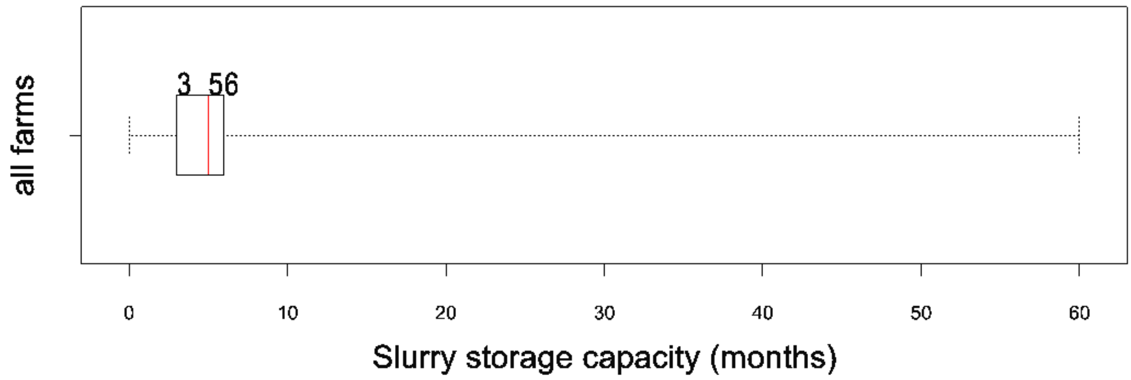

Figure 3.2.5: A box and whisker plot for slurry storage capacity in England. The red vertical bar represents the median value, while the box spans the inter-quartile range, *i.e.* the middle 50% of the data. The three labels above the box indicate the lower quartile, median and upper quartile values respectively. The dashed vertical lines that form the whiskers mark the maximum and minimum values.

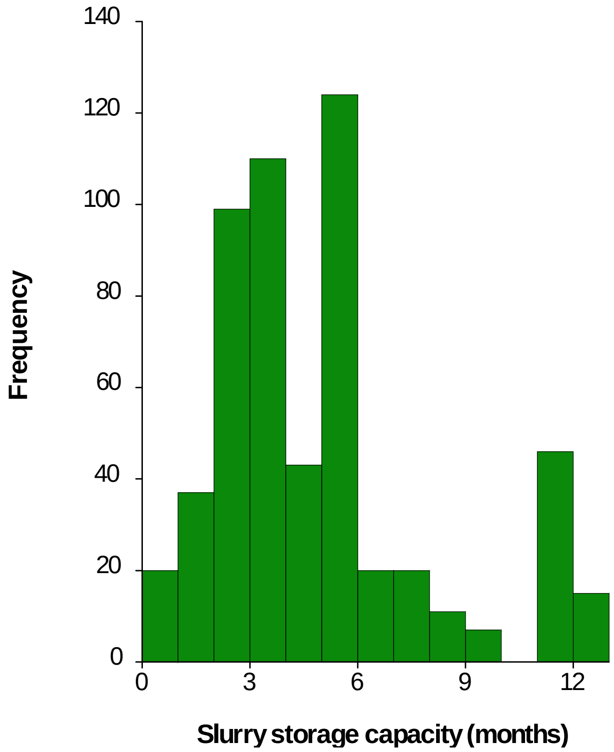

Figure 3.2.6: Slurry storage capacity in England. The final size category is for all storage periods of 12 months of more.

There is no systematic pattern in how slurry storage varies with farm type or farm size. Indeed there does not even appear to be a link between the number of cattle housed in a slurry system and the slurry storage capacity (Figure 3.2.7).

Additional analysis splitting holdings into those in NVZs and those outside them reveals that the mean and median storage capacities are greater on farms within NVZs than those outside. For NVZ holdings the median storage period of 5 months is one month longer than for non-NVZ farms. It is also more likely that stores within an NVZ will be covered than those in non-NVZ areas.

These results reflect the regulations on slurry storage. Currently slurry stores are required to have at least 4 months worth of storage[15] unless it can be demonstrated that the farm has a safe year-round disposal system.

[15] The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (as amended). Any stores built prior to September 1991 are usually exempt from this regulation.

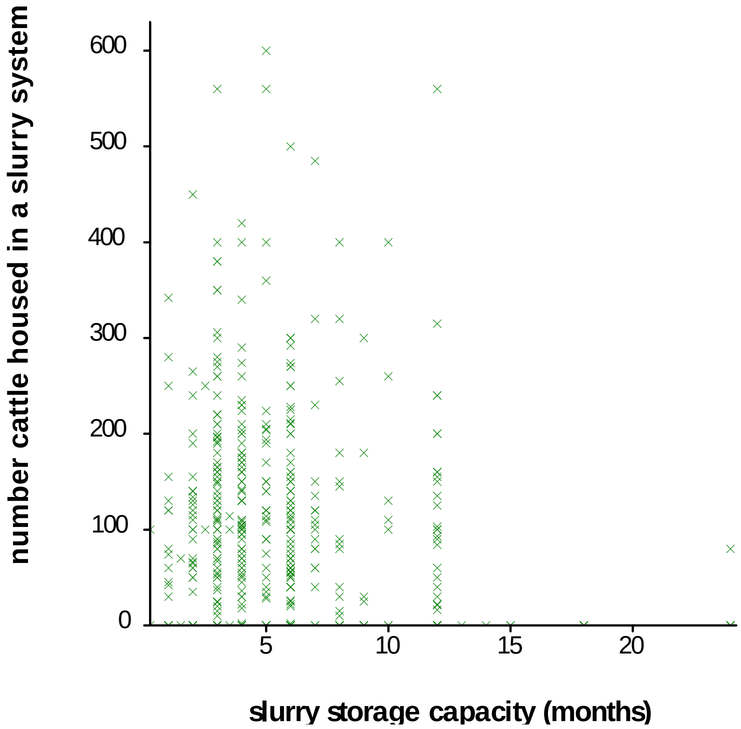

Figure 3.2.7: A scatter plot showing the absence of any correlation between slurry storage capacity and the number of cattle housed in a slurry system.

The NVZ rules[16] prevent farmers in NVZs from spreading organic manures on grassland or arable land with a winter sown crop between 1st September and 1st November. If no winter crop has been sown the closed period begins on 1st August. So farmers in NVZs must have a storage capacity big enough to encompass this high risk period. In practice, to avoid pollution some farmers, particularly those situated in areas with above average rainfall, and unsuitable land for winter spreading, may need more than 4 months storage. Examples of such land could be steeply sloped land frozen / snow covered land or waterlogged soils.

[16] Guidelines for farmers in NVZs – England http://www.defra.gov.uk/corporate/regulat/forms/agri_env/nvz/nvz4.pdf

3.2.2. Updates to the Store

In 2004 and 2006, there were questions on the FPS investigating the reasons for changes being made to the slurry store during the preceding two years. On both surveys it was found that around 1 in 5 holdings with a slurry store had made changes. New analysis of the 2006 data has shown that holdings within NVZs are more likely to have made changes to their store between spring 2004 and spring 2006. The most popular changes were diverting clean water away from the store (11% of holdings in NVZs who store slurry) and increasing the size of the store (8% of holdings). For the holdings that made a change, 80% of those in NVZs did so to allow an increased storage period.

For 2007, the question was changed to investigate when the store was constructed and when it was last updated. The main slurry store on over 70% of the holdings in England (who have slurry stores) was constructed more than 10 years ago and 11% of holdings have had a store constructed in the last 5 years (Figure 3.2.8). The figures are consistent across farm sizes. This is reasonable given that the slurry storage facilities should be designed to have a minimum life expectancy of 20 years. Pig and poultry farms tend to have newer stores than the other farm types - only 62% of them have a store that is more than 10 years old.

Updates have been made to the main slurry store on 32% of holdings within the last 5 years, whilst more than a third of stores have never been updated (Figure 3.2.9). Large farms are the most likely to have updated their store within the last 5 years (34%). These changes tend to be to allow for increased livestock numbers or to increase the storage period (FPS 2006). Similarly, the small holdings are the most likely to have never updated their store (40%). Thirty percent of dairy holdings have updated their store in the last 5 years whereas 45% of pig and poultry holdings have updated their store during this period.

In NVZs the main slurry store on 14% of holdings (who store slurry) has been constructed in the last 5 years, compared to 11% of holdings outside NVZs (Figure 3.2.10). Slurry stores in NVZs are also more likely to have been updated in the last five years than those stores outside NVZs (Figure 3.2.10).

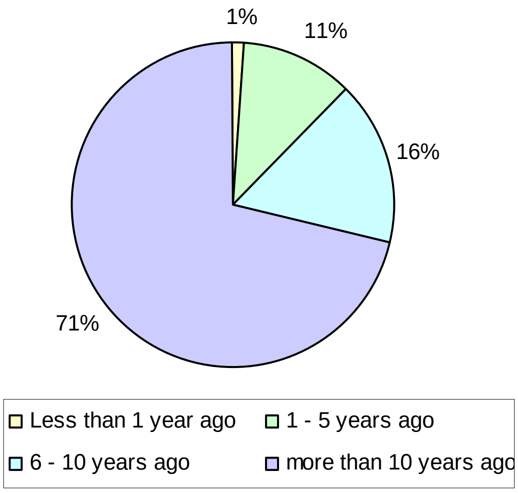

Figure 3.2.8: When slurry stores in England were first constructed.

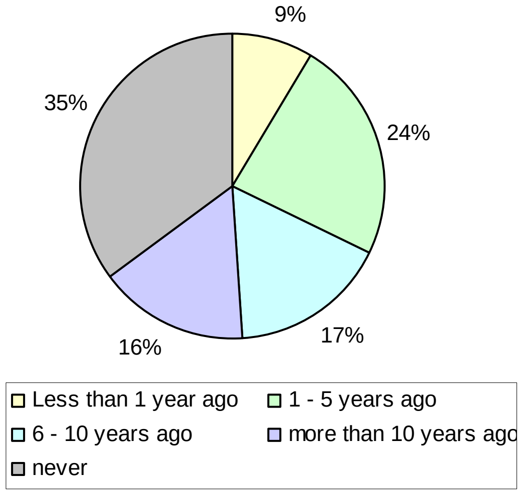

Figure 3.2.9: When slurry stores in England were last updated.

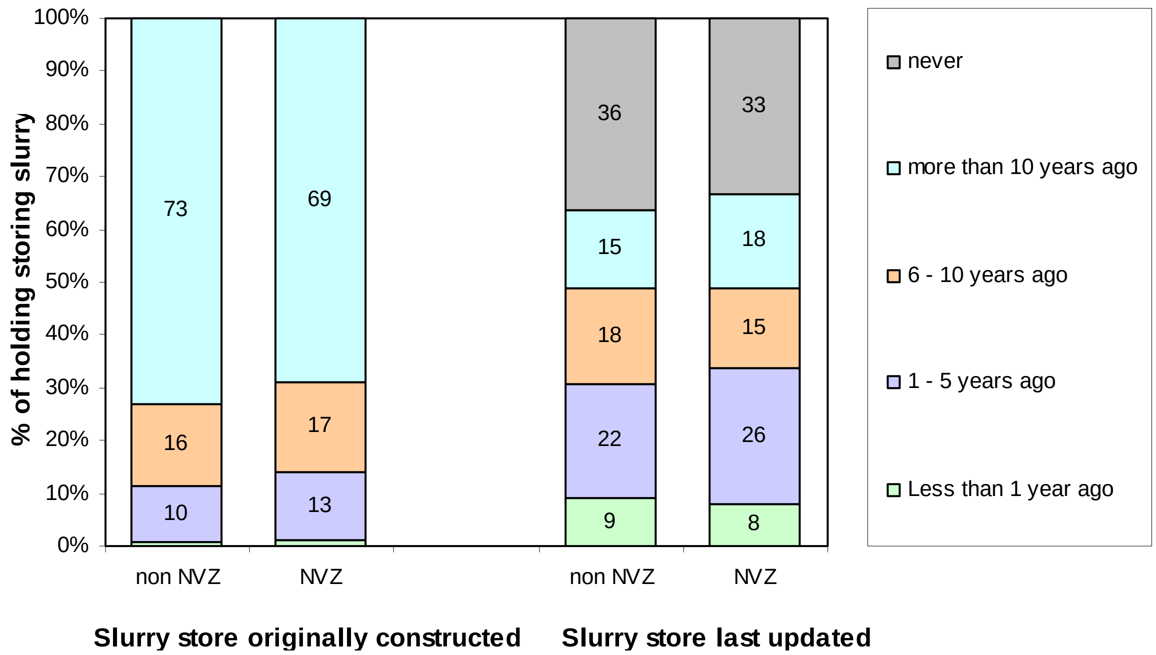

Figure 3.2.10: When slurry stores in England were constructed and last updated broken down by NVZ status of the holding.

3.3. Cattle Housing

If cattle are housed indoors, either permanently over winter or on a temporary basis, the waste that they produce must be removed from the building. Whilst this manure can be a valuable fertiliser if used in an appropriate manner, it can also act as a source of pollution. Cattle actually account for 44% of all UK ammonia emissions[17] through emissions released during grazing, the storage and

[17] Ammonia in the UK (2002): http://www.scotland.gov.uk/Resource/Doc/1052/0002247.pdf

spreading of manure and emissions from the animal housing. This is the largest contribution from any livestock group. In the UK Ammonia Emission Inventory, produced by ADAS, emissions from cattle housing account for around 15% of all emissions.

Cattle can be housed in either a solid manure (straw based) or a slurry system. Ammonia emissions will be a function of the type of system used, how many animals are housed in the system, the period they are housed for and how often the buildings are cleaned. Ammonia emissions tend to increase strongly with the amount of bedding used with Beene *et al.,* (2006)[18] suggesting that emissions from housing with significant bedding material may be up to 12 times those from housing with almost no bedding material. So the emissions will tend to be greater when a solid manure system in used in comparison to a slurry based system. Whilst there were questions on cattle housing on the 2006 FPS, they did not ask for the number of dairy cattle housed in each system, hence the need for including cattle housing again in 2007.

3.3.1. Beef Cattle Housing

The 2006 FPS data showed that the majority of the beef herd, irrespective of the type of cattle (or the size of the farm), are housed in straw yards and this conclusion is re-enforced by the 2007 data (Figure 3.3.1). Using straw yards is good for cow comfort and helps to reduce lameness. For beef finishers there is a slightly higher proportion housed in straw yards, which perhaps reflects their greater value when compared to the rest of the beef herd and the need for high levels of hygiene at slaughter. In slurry based systems, scraped dunging passages are more common than slatted floors. From an ammonia emissions stand point the slatted floors are beneficial as the waste falls into tanks beneath the building, which are then emptied on a regular basis. Given that the beef cattle are housed for a continuous period cleaning is an important issue as emissions will increase as the quantity of manure builds up.

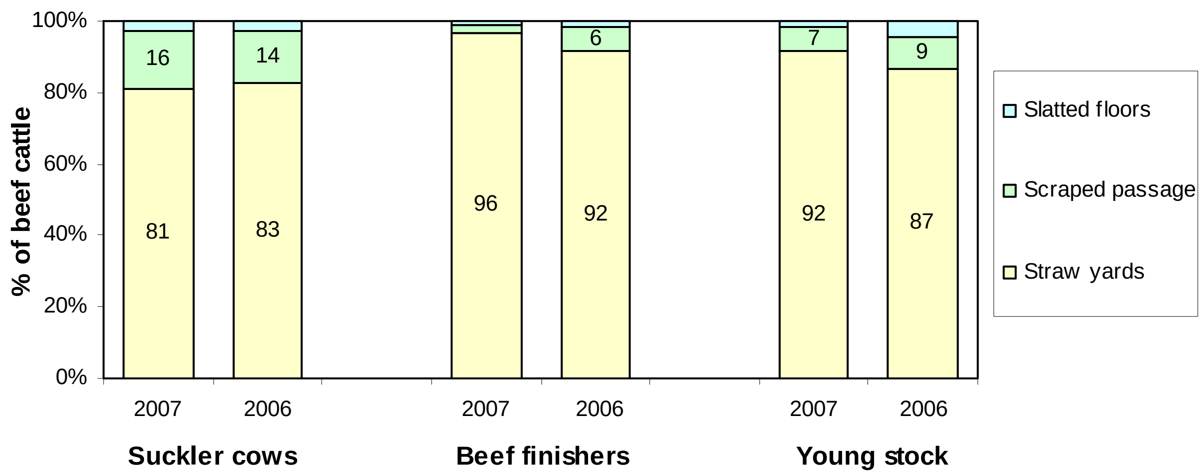

Figure 3.3.1: The housing system for beef cattle by cattle group for all farms 2007, 2006. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

In most regions, at least 99% of all beef finishers are housed in straw yards (Figure 3.3.3) and the North West region is the only one where a significant proportion of the cattle are housed in a system with slatted floors. In general, the North West region seems to be a bit different to the other regions with slurry systems being more common, particularly for suckler cows where it is close to a 50/50 split between solid manure and slurry systems (Figure 3.3.2). In some regions almost all of the young stock are housed in straw yards (Figure 3.3.4).

[18] Beene, M, Krauter, C and Goorahoo, D (2006): Ammonia fluxes from animal housing at a California free stall dairy, 15th International Emissions Inventory Conference, New Orleans, May 15 – 18, 2006.

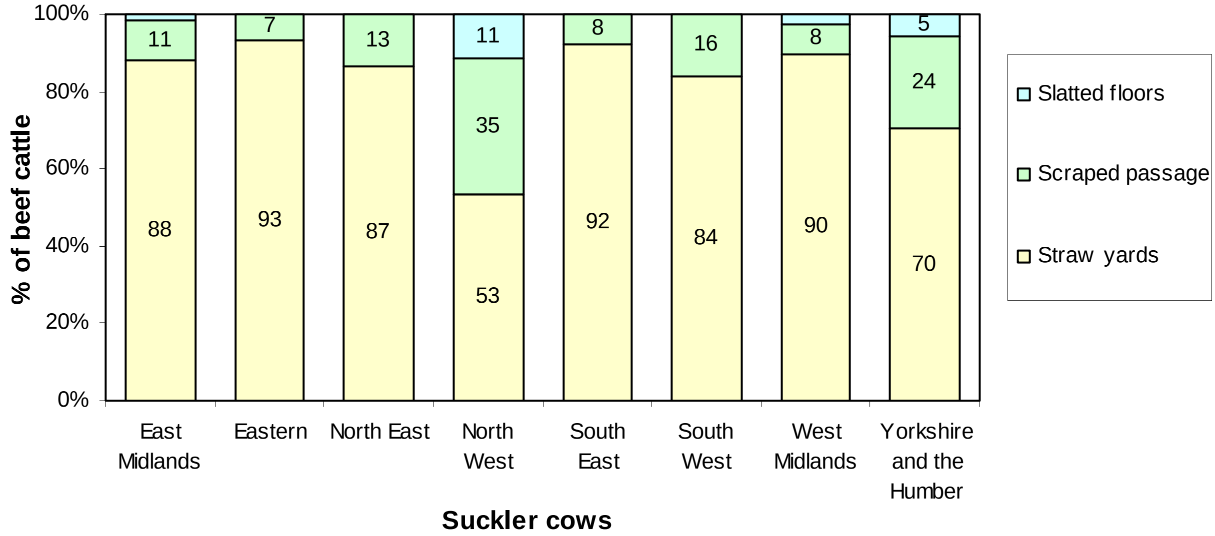

Figure 3.3.2: The housing system for the suckler cows by region. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

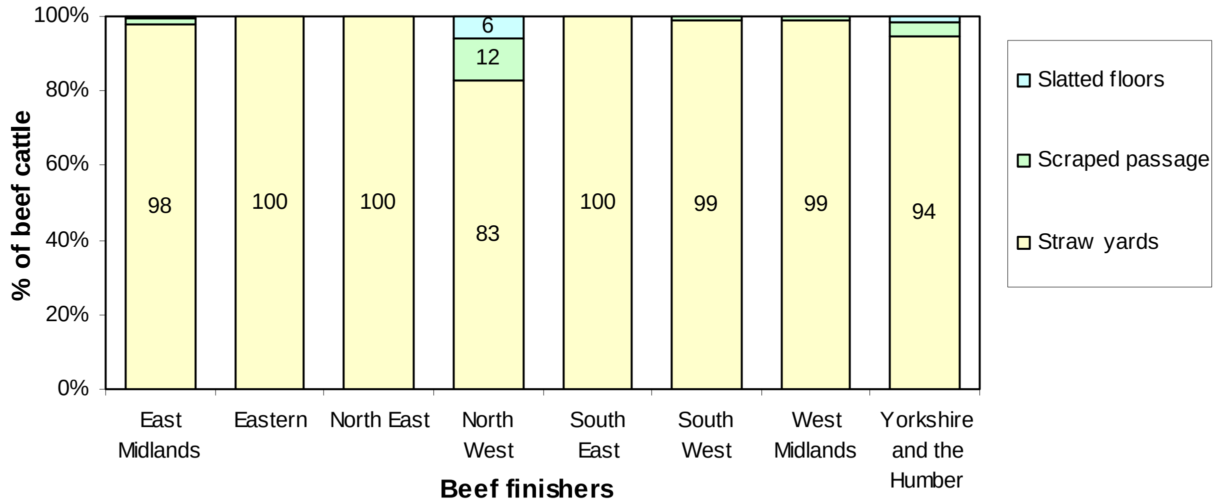

Figure 3.3.3: The housing system for the beef finishers by region. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

Figure 3.3.4: The housing system for the young beef cattle by region. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

3.3.2. Dairy Cattle Housing

Although there was a question on dairy cattle housing in the 2006 survey it did not ask for cattle numbers housed in each of the systems. This data showed that around 40% of holdings used a solid manure system. It was estimated (using data from the June Survey of Agriculture and Horticulture) that these holdings accounted for around 37% of dairy cattle. This method did not take any account of variations with cattle type and as Figure 3.3.5 shows whilst almost three-quarters of the main dairy herd are housed in slurry systems, the vast majority of the young stock are housed in straw-based systems. These straw pens offer more comfort for the calves (Figure 3.3.6). If straw yards are not managed properly they can induce a higher level of mastitis (infection in the udders) so the main herd tend to be housed in a slurry system.

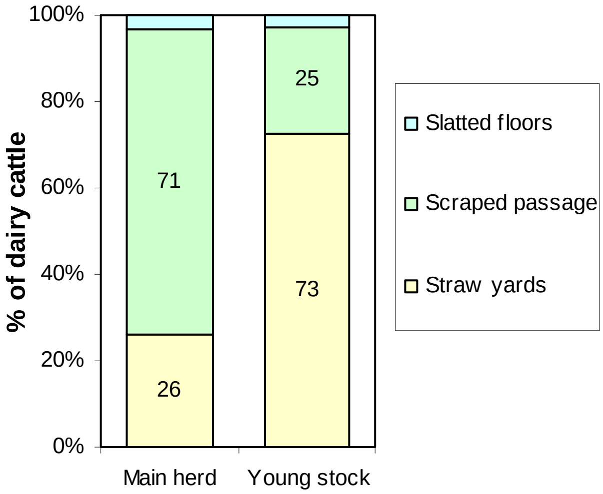

Figure 3.3.5: The housing system for dairy cattle by cattle group for all farms. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

Figure 3.3.6: Holstein Friesian Calves in a straw bedded pen.

Unlike beef cattle, dairy cattle will be housed indoors for at least some of the day all year round when they are brought in for milking. This will increase overall annual (housing related) ammonia emissions relative to beef cattle housed in the same type of system but only housed over the winter – particularly since the increased temperatures during summer enhance emissions. An ADAS study commissioned for Defra[19] has shown that when the herd are brought in for milking, average ammonia emissions increase the longer the animals remain in the housing. This study also showed that cleaning the housing immediately after the animals leave significantly reduces the emissions when compared to cleaning the housing once in a 24 hour period.

In the North West region, there is a strong preference for housing the main dairy herd in a slurry system (Figure 3.3.7). In this region, more of the young stock are housed in a slurry environment than are housed in straw yards – this is the only region where this is the case (Figure 3.3.8). The South West region also has a strong preference for housing the main herd in slurry systems – this was seen, but to a lesser degree, in the 2006 data. In some regions, more than 90% of the young stock are housed in straw yards. The 2006 data suggested that the larger the holding the more likely they were to use a slurry system, but the 2007 data does not appear to support this.

[19] ADAS (2005): Investigation of how ammonia emissions from buildings housing cattle vary with the time cattle spend inside those buildings. Defra project code AM0115, Project dates 1 January 2002 to 31 March 2005.

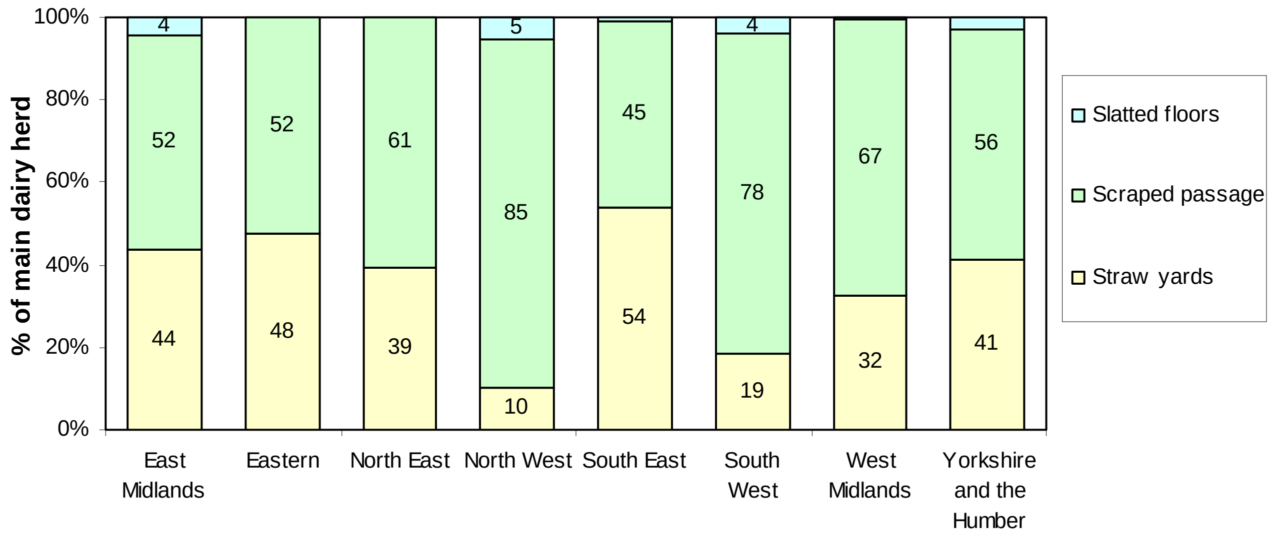

Figure 3.3.7: The housing system for the main dairy herd by region. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

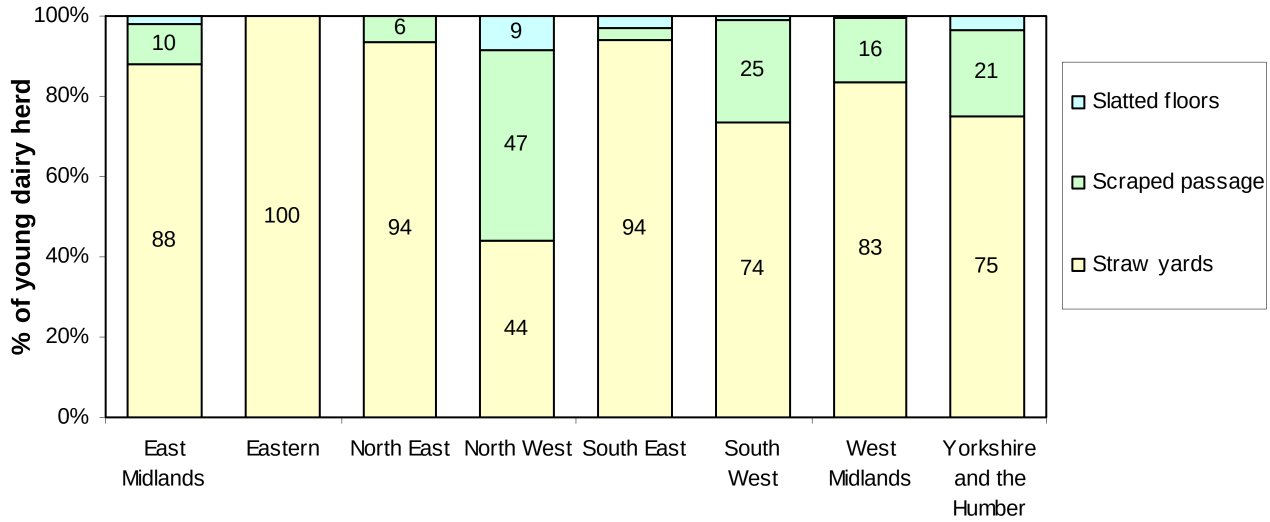

Figure 3.3.8: The housing system for the young dairy cattle by region. Slatted floors and scraped passages are defined as slurry systems and straw yards as solid manure systems.

4. Environmental Protection

In the past, agricultural policy tended to encourage farmers to favour agricultural production over conservation. Much of the subsidies that they received were linked to their agricultural output, while a smaller amount was channelled into environmental schemes such as the Countryside Stewardship Scheme. More recently due to the reform of the Common Agricultural Policy, this situation has been reversed. In England subsidies linked to production have been largely abandoned in favour of a Single Farm Payment, to be eligible for which one must maintain the land in Good Agricultural and Environmental Condition (GAEC). A significant proportion of farmers will receive enhanced payments for achieving higher environmental standards via the Entry and Higher Level Stewardship schemes (ELS and HLS).

It is useful to examine farmers' attitudes and practices in relation to the environment, so the FPS form has traditionally included several questions on environmental topics. This year the survey focused mainly on nutrient management (Section 4.1) and water related issues (Chapter 5).

4.1. Nutrient Management

To maintain soil productivity and ensure acceptable yields there is the need to add extra nutrients to the soils used for growing crops. If no nitrogen fertiliser was added to the soil anywhere in the world, we would not be able to grow enough food to feed the current world population. Nitrogen fertilisers have now been available for so long that they have become to be relied upon to guarantee yields large enough to feed the expanding world population. The problem is that unless the application of these extra nutrients is carefully managed, they represent a potential threat to the environment. One way of doing so is via a nutrient management plan (NMP). A NMP is defined as managing the amount, form, placement, timing and application of animal manure, chemical fertiliser, bio-solids (sewage sludge), or other plant nutrients used in the production of agricultural products to prevent pollution, maintain soil productivity and achieve realistic yield goals.

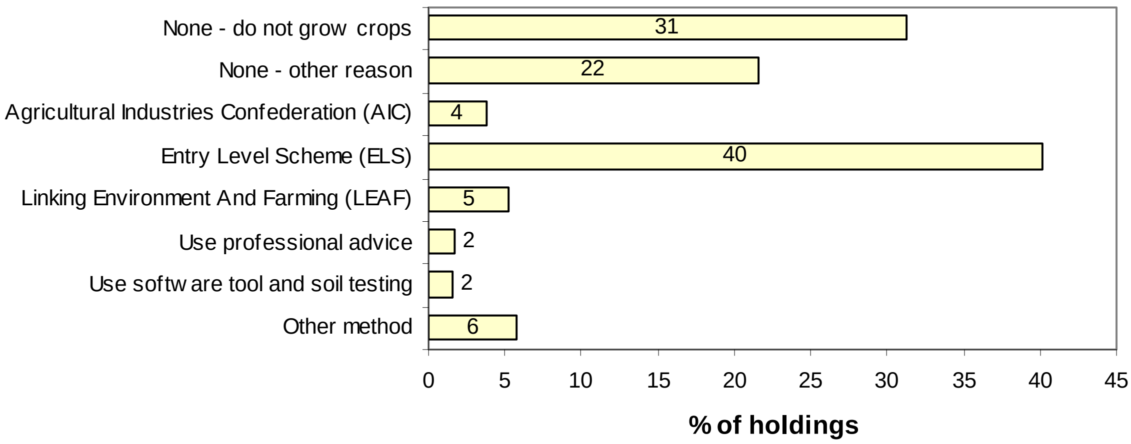

Figure 4.1.1: The types of nutrient management plan for holdings in England. Note farmers could tick more than one plan type so the totals sum to more than 100%.

Currently, farmers are not obliged to have a formal NMP, though it might become a regulatory requirement. NMPs were included on FPS 2006, but the survey showed that over half of farmers did not have a formal NMP. This was a surprising result, so the question was re-worked and included in FPS 2007. The results from the 2006 and 2007 survey are therefore not directly comparable. The 2007 data shows that around 31% of farmers do not grow any crops (Figure 4.1.1); hence they have less need for a NMP. These responses were simply included as no recognised plan in 2006, which slightly skews the figures. As in 2006, the most popular NMP is through the Entry Level Stewardship scheme[20] (ELS), with 40% of farmers using this method. There are still over 20% of farmers who grow crops but do not have a recognised NMP.

As may have been anticipated, for those farmers who grow crops, the smaller the farm the more likely they are not to be using a formal NMP are small farms (Figure 4.1.2). For each of the formal plans, large farms are the most likely to be using them.

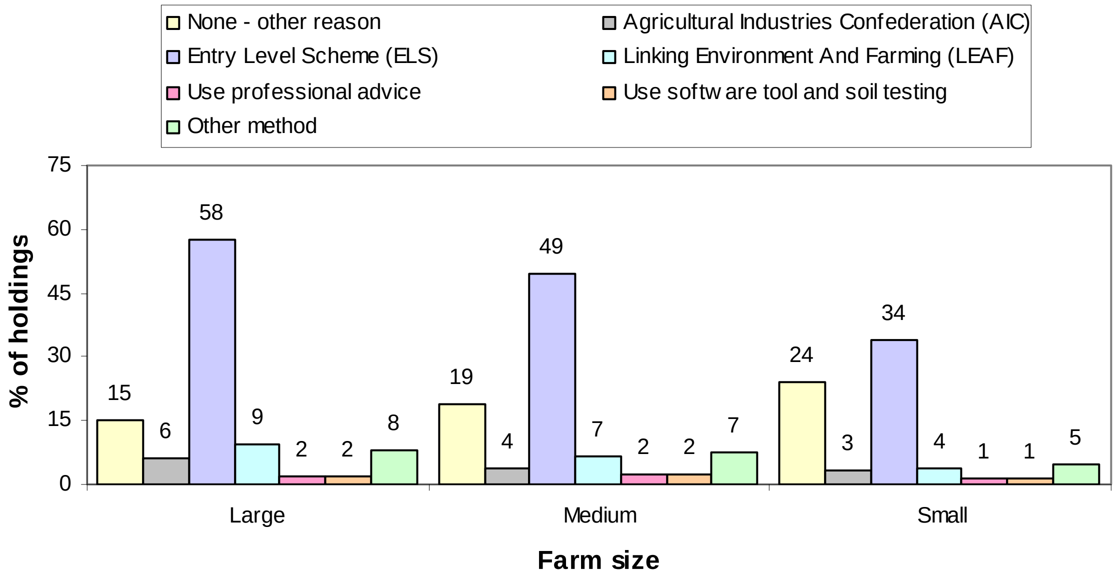

Figure 4.1.2: The types of nutrient management plan for holdings by farm size. Note farmers could tick more than one plan type so the totals sum to more than 100%. This chart does not display the category "none –do not grow crops" that was displayed on Figure 4.1.1.

Clearly, there are variations in uptake of NMP with farm type. Around 65% grazing livestock and 68% of pig & poultry farmers do not grow crops (Farm Practices Survey 2007, Table 19) so their need for a NMP is low. For dairy farmers, only 27% are not growing crops. Figure 4.1.3 considers just the predominantly arable and mixed farms and shows that around a quarter of these farms do not have a NMP. Similarly to FPS 2006, the data shows that: (1) ELS NMPs are more popular with cereals farmers than those who grow other crops; and (2) LEAF is more commonly used by the general cropping farms than the specialist cereal growers.

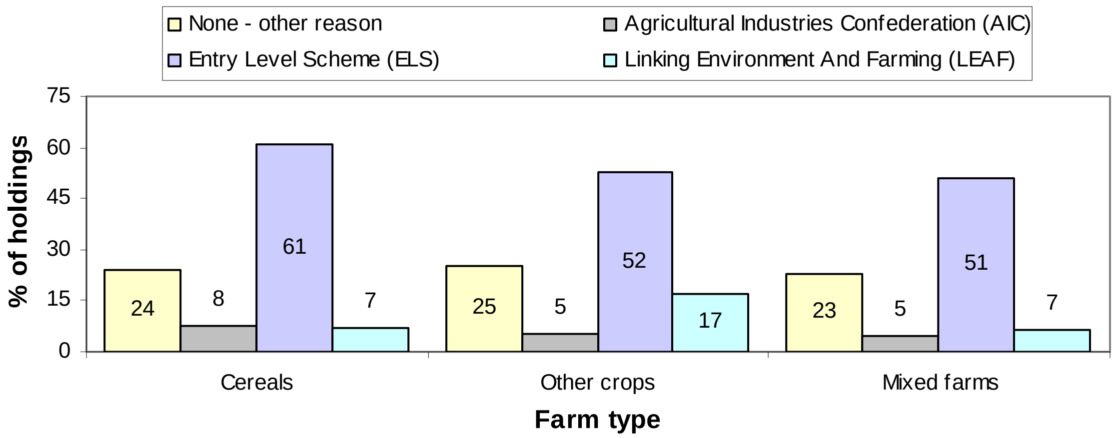

Figure 4.1.3: The types of nutrient management plan used for the main crop growing farm types. Note farmers could tick more than one plan type so the totals sum to more than 100%. This chart only includes selected categories from the full list that was displayed on Figure 4.1.1.

[20]ELS gives farmers access to funding to manage their farms in an environmentally friendly manner. Payments of £30 per ha can be achieved for actions like buffer strips, hedgerow management and stone wall maintenance - there are 50 different options to choose from. See: http://www.defra.gov.uk/erdp/schemes/els/default.htm for more information on the ELS.

There are a variety of ways that farmers can assess how much fertiliser they need including both formal and informal methods. The most popular methods are for the farmer to use their past experience to make a judgement or seeking the advice of a professional (Figure 4.1.4). The results suggest that more farmers are happy to use their own judgement for nitrogen (N) than for phosphate (P) or potash (K). Conversely, a farmer is move likely to seek the advice of a professional for the application of potash or phosphate than they would for nitrogen. This result reflects the familiarity farmers have with each of the main chemical fertilisers.[21]

Relatively small numbers of farmers are using the Defra fertiliser recommendation book (RB209)[22] or formal tools like its computerised equivalent – PLANET[23]. For example RB209 provides recommendations for the use of lime and major nutrients (N, P, K, S, Mg, and Na) on most field-grown crops and it provides details of the content and supply of nutrients from a wide range of organic manures.

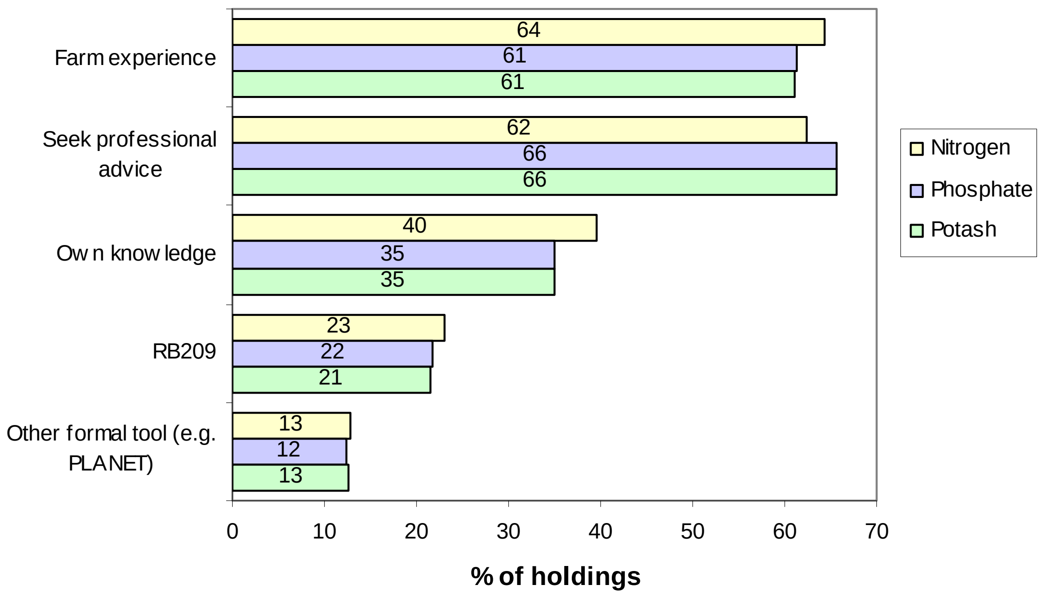

Figure 4.1.4: The methods used for calculating fertiliser requirements.

Considering just nitrogen, Figure 4.1.5 shows that large farms are the most likely to seek the advice of professionals or use formal tools or books to calculate their fertiliser requirements. Whereas smaller farms are more likely to use their own experience than the large farms. Usually the larger farms will be dealing with a greater number of crops spread over larger areas, possibly involving more complex crop rotations, so they require additional knowledge and information to supplement their own knowledge. Similar results and conclusions could be drawn for both phosphate and potash, although the actual figures differ slightly from those for nitrogen (Farm Practices Survey 2007, Tables 20 & 21).

Cereals or other cropping farms are the most likely to use the fertiliser book (RB209), seek the advice of professionals or use formal tools to identify their nitrogen requirements (Figure 4.1.6). The predominantly livestock farmers, for whom cropping makes up less than a third of their activity, are the more likely to use their on-farm experience to calculate nitrogen inputs. Similar results and conclusions were obtained for the other two fertilisers (Farm Practices Survey 2007, Tables 20 & 21).

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[21] FPS 2007 data shows that 71% of crop growing holdings (78% for medium and large ones) use nitrogen compared to 63% and 64% using potash and phosphate respectively.
[22] The 7th edition of RB209 can be downloaded from: http://www.defra.gov.uk/farm/environment/land-manage/nutrient/fert/rb209/index.htm
[23] A copy of the PLANET software program can be downloaded from: http://www.planet4farmers.co.uk/welcome/index.html.

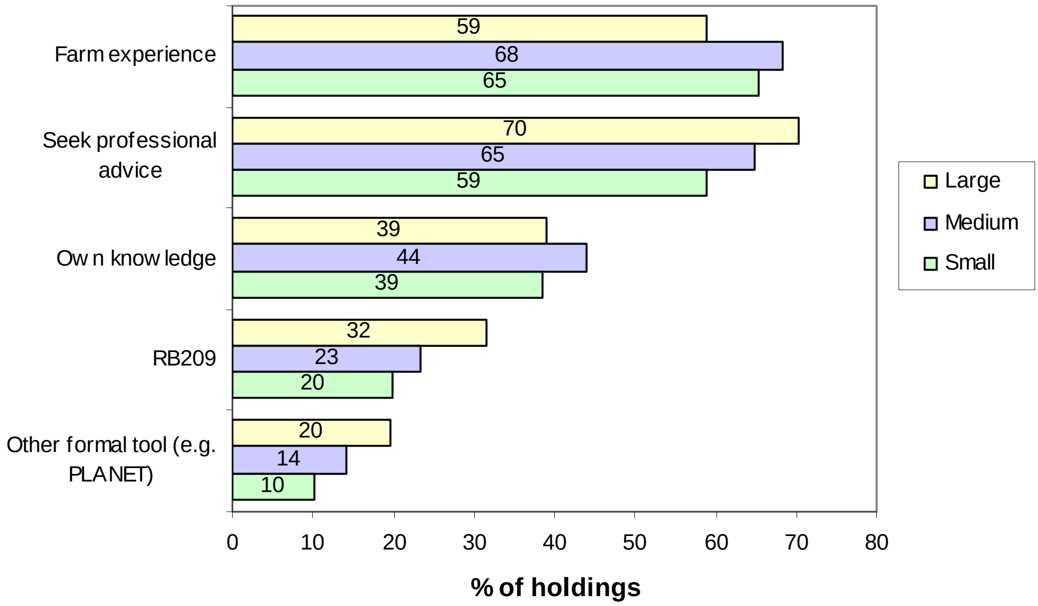


Figure 4.1.5: The methods used for calculating nitrogen fertiliser requirements by farm size.

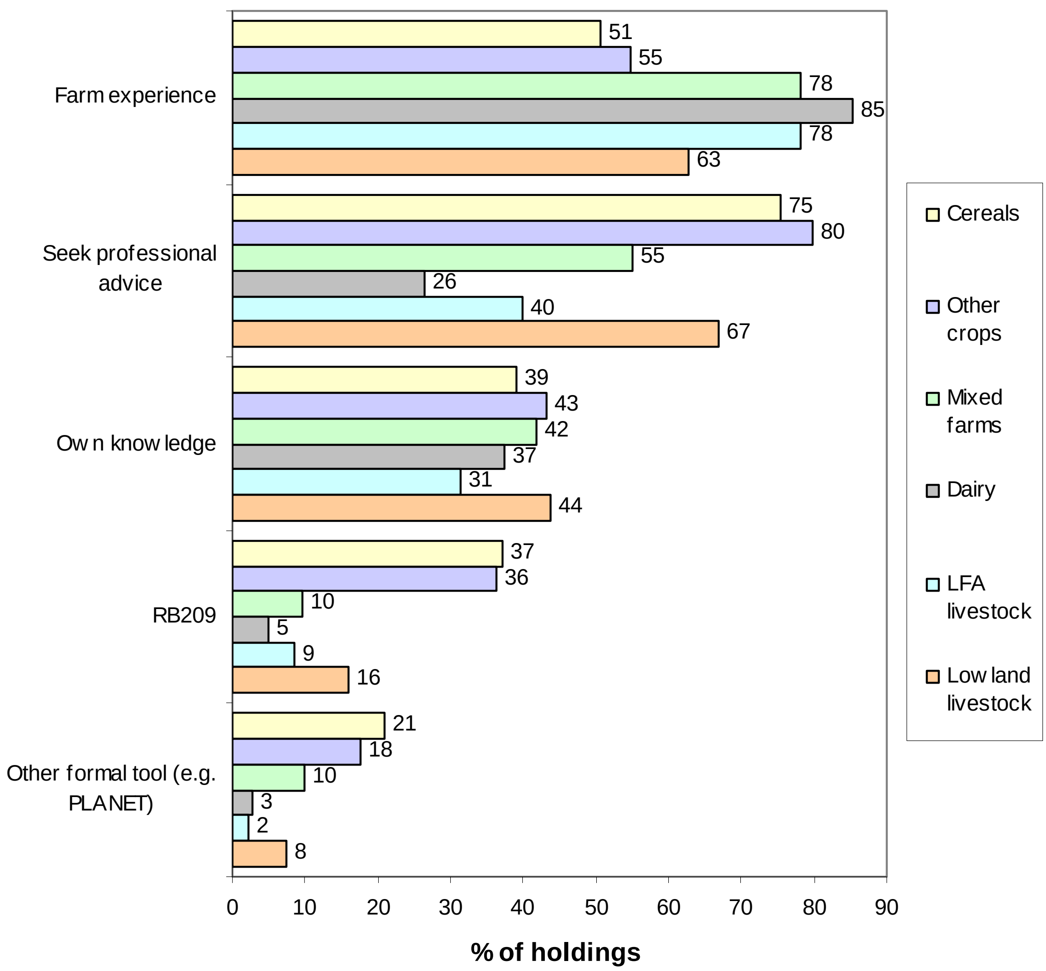


Figure 4.1.6: The methods used for calculating nitrogen fertiliser requirements by farm type.

Just over 30% of farmers do not spread manure on their land (Figure 4.1.7). Fewer farmers seek the advice of professionals to assess the nutrients supplied from manure than do so to assess nutrients from fertilisers. Instead, farmers prefer to use their own knowledge and experience. As with chemical fertilisers, larger farms are more likely to consult experts, manure books and software tools. There are 9% of farmers who do not make any assessment of the nutrients supplied to their fields from the manure that they spread. There are a variety of reasons why farmers do not assess nutrients from manure but the most common one is that farmers do not know the manure content, i.e., its chemical composition (Figure 4.1.8).

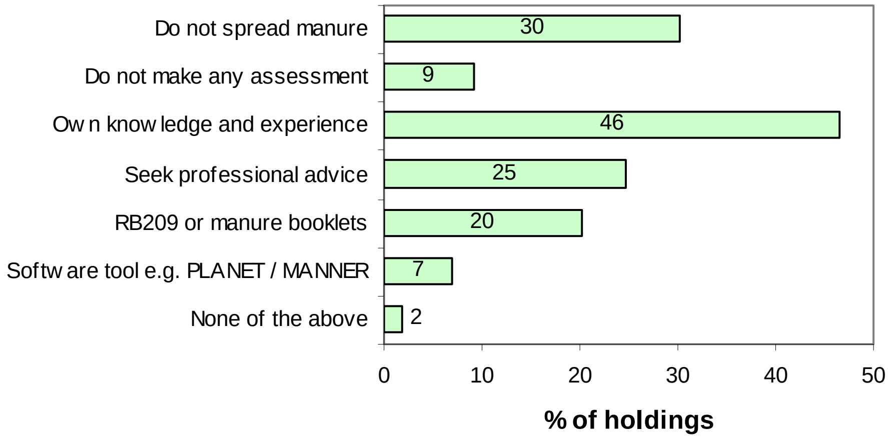


Figure 4.1.7: The methods used for calculating manure requirements.

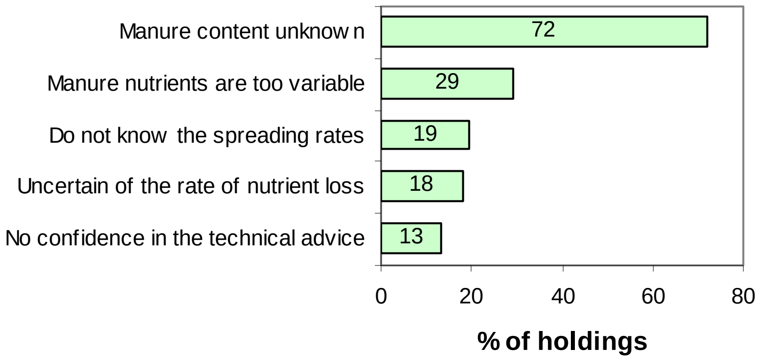


Figure 4.1.8: The reasons why farmers do not assess the nutrients supplied from manure. This figure only includes the 9% of holdings who spread manure but do not make an assessment of its nutrient content.

4.2. Wildlife Habitats

This topic is a follow up to the questions that have been asked in previous years on conservation management, hedgerows and field margins. Bumblebees have an important economic value as crop pollinators, but many bumblebee species have declined in recent years. They have become the subject of campaigns to raise the awareness of farmers and promote their conservation – for example, the BUZZ project[24]. Due to increased knowledge of their habitats we now know that a range of these are required throughout the lifetime of the bees. There are options in ELS and HLS relevant to these habitats. We therefore want to know whether English farms have habitats that are suitable for bumble bees, beetles, butterflies and other insects.

Three habitat types were investigated on the survey: hedges with a woody cover at the base; tussocky grassland alongside the hedges; and areas specially sown with pollen and nectar seed or

[24] http://www.syngenta-crop.co.uk/Food+And+Enviroment/The+Buzz+Project

wildflower mixes. Hedges and tussocky grassland habitats are present on the vast majority of farms and as a result few farms are planning to introduce them (Figure 4.2.1). The question on the form asked farmers if they had hedges with "good woody cover at the base". Defining "good woody cover" is subjective and this may have over inflated the estimate. The areas sown with pollen and wildflower mixes require farmers to make a change to their practices and sow these in place of crops (often in unproductive parts of the farm or as part of enhanced field margins) or on their set-aside land. Of course these can be planted to score points towards eligibility for ELS. Almost 1 in 5 holdings have made such a changes and a further 14% plan to do so – note that this survey was undertaken before the decision to remove set aside for the 2007/2008 growing season. Whilst there is little variation with farm type for the proportion of holdings with suitable hedges and tussocky grassland, it is the predominantly arable or mixed farms that are the more likely to have the pollen and wildflower mixes (Figure 4.2.2). Similarly, it is these farm types who are the most likely to introduce such habitats (plot not shown)

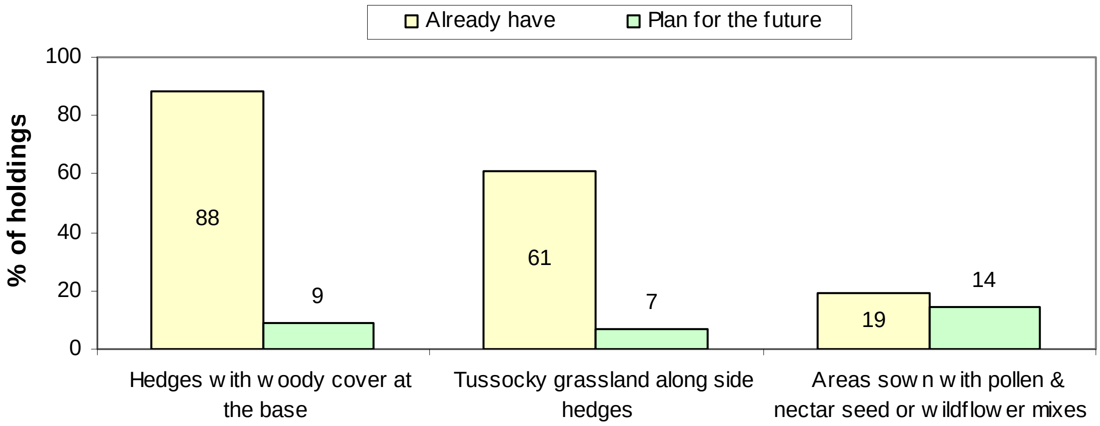


Figure 4.2.1: The proportion of holdings who have (and plan to introduce) habitats that encourage the development of wildlife.

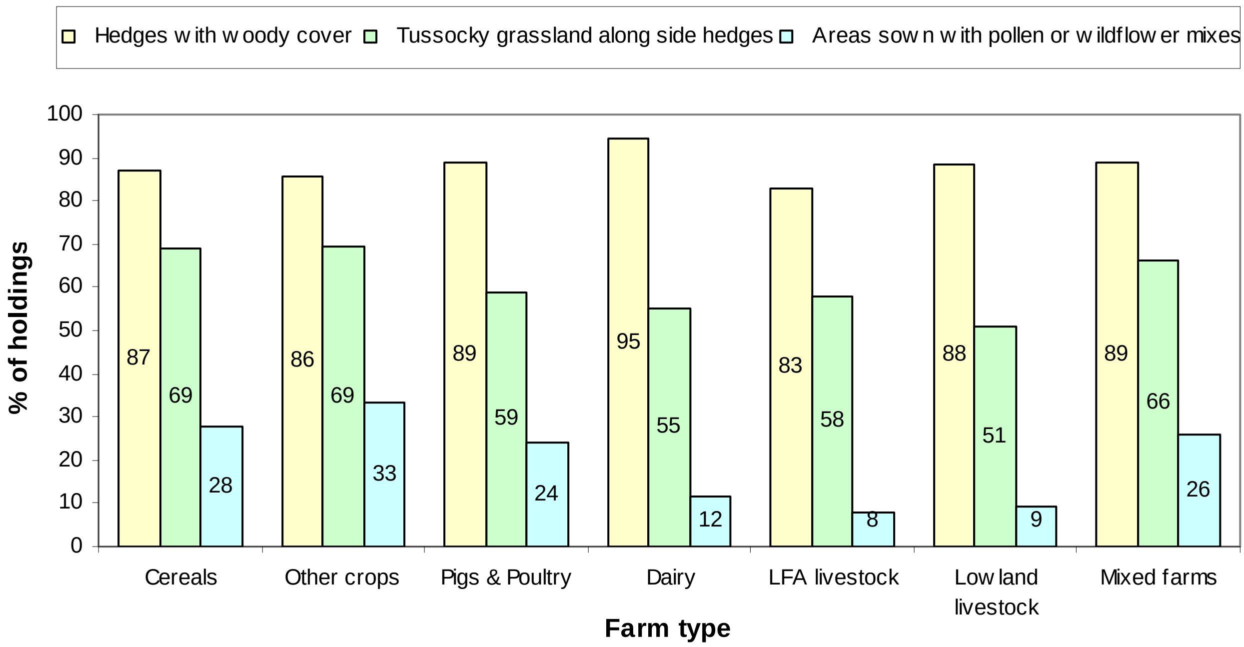


Figure 4.2.2: The proportion of holdings who have habitats that encourage the development of wildlife by farm type.

5. Water

Additional nutrients added to the soils in the form of chemical and organic fertilisers can be leached out of the soils and may end up being washed into watercourses, which may actually be sources of drinking water for both (farm and wild) animals and humans. The rate at which these chemicals can be transferred to watercourses is strongly related to the rate of soil erosion. So the water quality section (5.1) considers the frequency of soil erosion and the steps than have been taken to maintain water quality, whilst the water usage section (5.2) focuses on water efficiency.

5.1. Water Quality

There is a clear link between soil erosion and water quality (and a degree of overlap) so in 2006, the two topics were combined into a single section. For 2007 a subset of these questions was retained. Soil erosion is a serious issue. In addition to the loss of soil, nutrients are also transferred from the field to water bodies and the atmosphere. Naturally these water bodies have relatively low concentrations of nitrates and other nutrients needed for plant growth. The animals and plants that inhabit these aquatic environments have evolved over time to thrive in these conditions. Any influx of nutrients will mean that a few species that are more able to tolerate higher nutrient levels will out compete all other species. There is also an economic impact as water companies spend millions of pounds every year removing nitrates from drinking water so that it complies with quality standards.

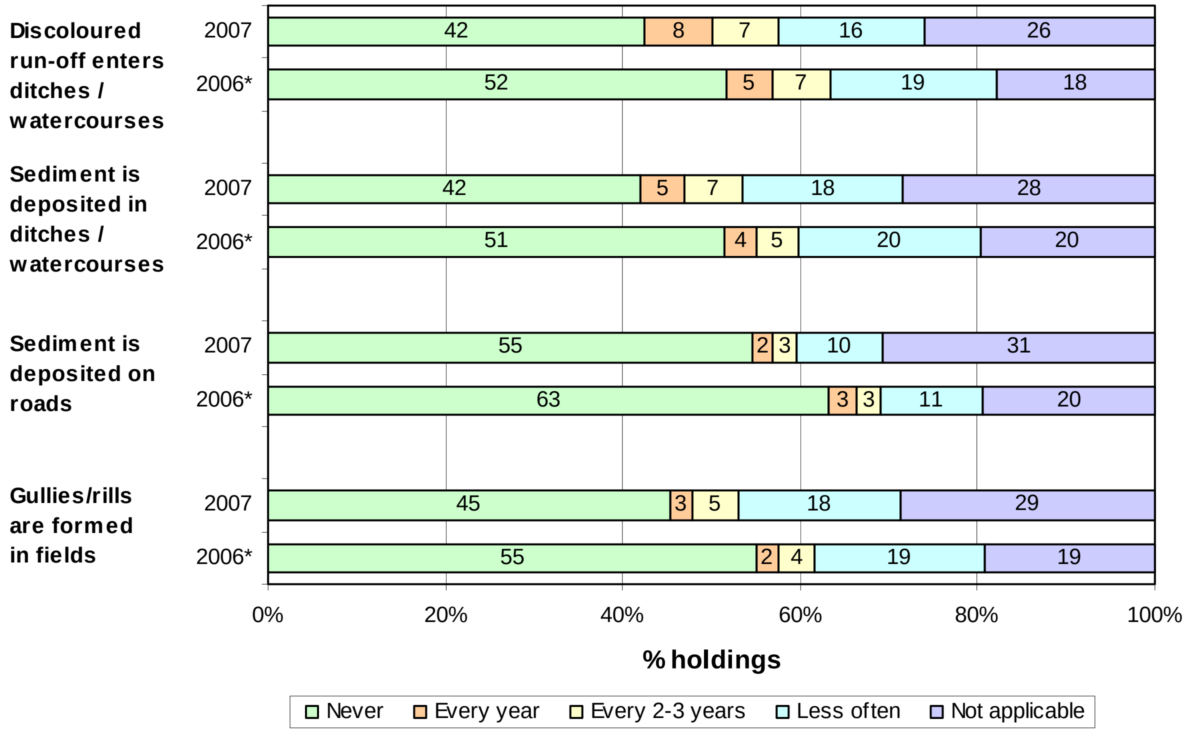


Figure 5.1.1: Frequencies of the various types of soil erosion. * The 2006 figures have been re-calculated using a different methodology to make them comparable to those for 2007.

Farmers were asked about the frequency of occurrence of erosion events on their land in both 2006 and 2007, but the analysis methodology used was changed for 2007. The 2006 figures have therefore been re-calculated to permit comparisons (Figure 5.1.1). None of the erosion events occurred on more than 32% of holdings. With the exception of some movement between the 'never' and 'not applicable' categories, the results are similar for both years. Sediment being deposited on roads is the least common event, whilst the fact that the occurrence of sediment and discoloured water in ditches is more common than rills and gullies forming in fields suggests that in some cases the amount of sediment deposited is small. For each type of soil erosion, the frequency of occurrence increases with farm size.

To facilitate data interpretation some additional analyses have been carried out to investigate the frequency of occurrence of at least one of the soil erosion measures (Figure 5.1.2). At least one incidence of soil erosion happens on 12% of holdings every year and on a quarter of holdings at least every 3 years. This is a marginal increase on the frequencies reported in 2006. Soil erosion of some description is observed on over 50% of farms. The larger the farm the more likely it is that at least one form of soil erosion will be witnessed (Figure 5.1.3). Dairy and upland livestock farms are the most likely to experience at least one type of soil erosion on an annual basis (Figure 5.1.4). For the upland livestock farmers the steep gradients that often occur on their land enhance soil erosion, particularly if the soil is quite thin. Around 60% of cropping farms experience at least some soil erosion.

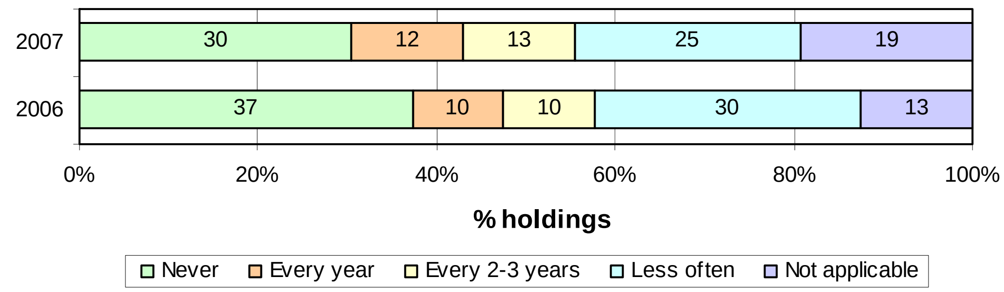


Figure 5.1.2: Frequency of occurrence of at least one of the following types of soil erosion: discoloured runoff enters ditches / watercourses; sediment is deposited in ditches / watercourses; sediment is deposited on roads; and gullies / rills are formed in fields.

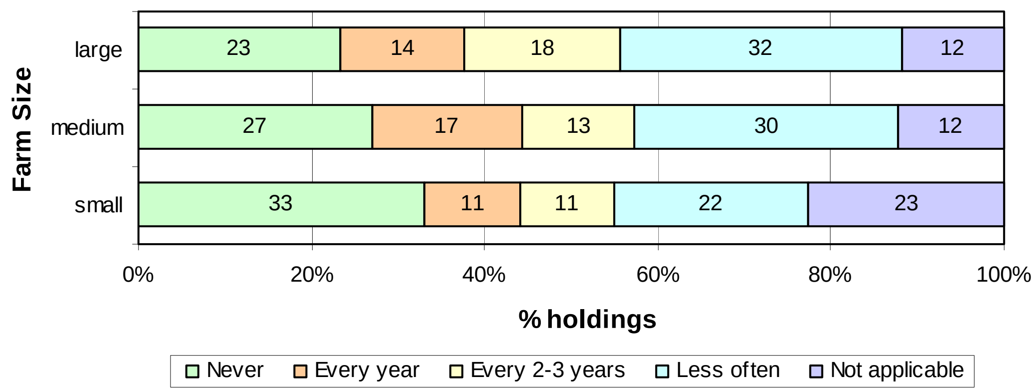


Figure 5.1.3: Frequency of occurrence of at least one of type of soil erosion by farm type. The types of soil erosion included are the same as for Figure 5.1.2.

In addition to problems associated with soil erosion, water quality can also be influenced by several other things including:

- the transfer of (potentially toxic) chemicals from agriculture - *e.g.,* from the dipping of sheep; and
- the transfer of organic material - e.g., manure / slurry, into the water bodies.

There are a large number of ways that farmers can make small changes to their regular practices to help maintain water quality and minimise soil erosion. Of these steps, some will be applicable to farmers who keep livestock (Figure 5.1.5) whilst others will be more appropriate to arable farmers (Figure 5.1.6). On the survey farmers were asked to indicate measures that they have taken and the measures that they plan to take. Far more farmers cited changes that they have made as opposed to changes that they intend to make so this section will focus on the actions that have been taken.

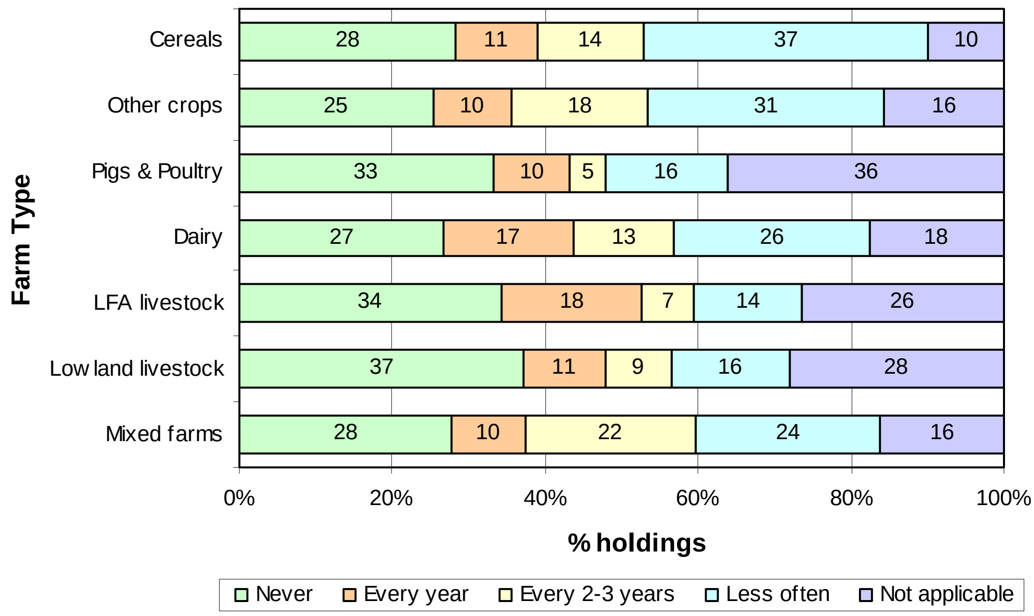


Figure 5.1.4: Frequency of occurrence of at least one of type of soil erosion by farm type. The types of soil erosion included are the same as for Figure 5.1.2.

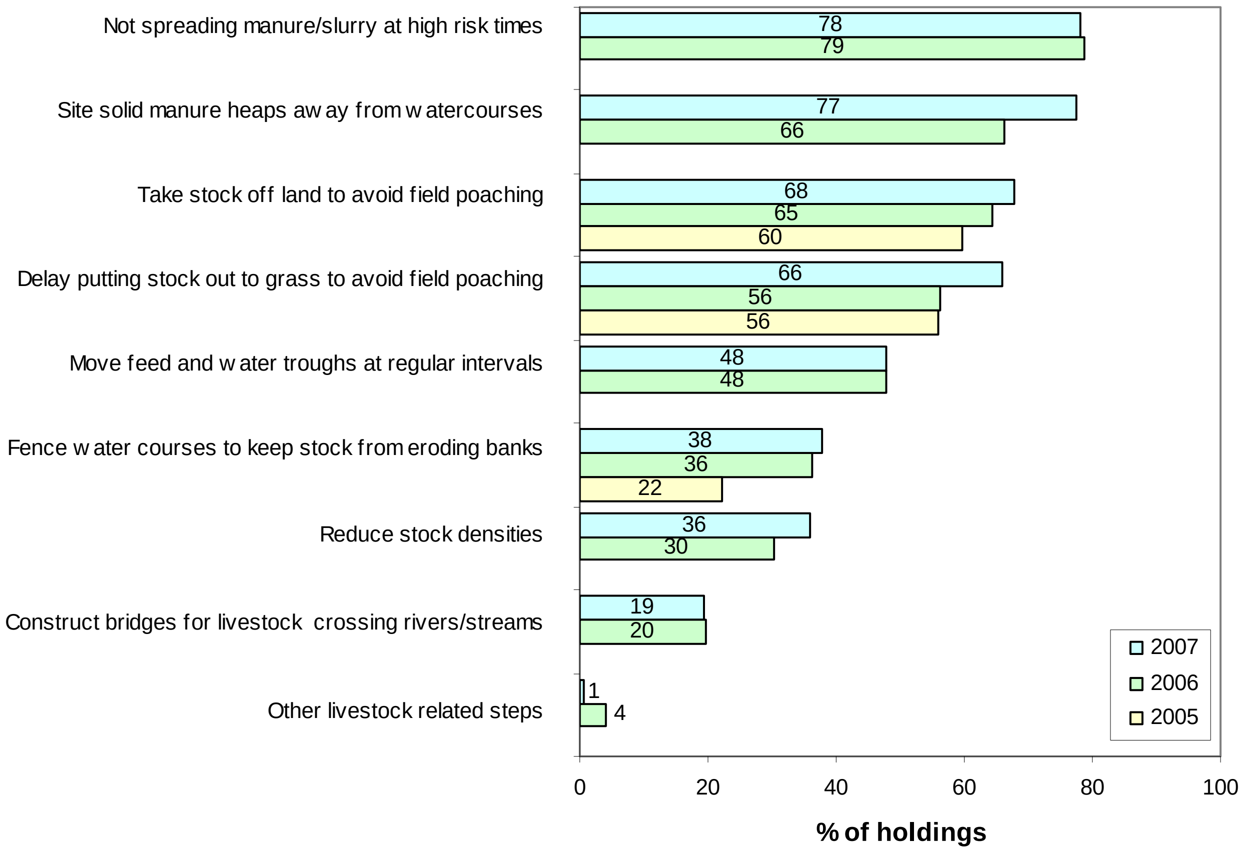


Figure 5.1.5: Livestock related changes to farming practices that may help to maintain water quality for England. This analysis only includes farmers who keep livestock.

Similarly to 2006, the most popular livestock related change made by farmers that might help water quality is to refrain from spreading manure / slurry at high risk times (78% of farmers). The proportion of farmers who have sited solid manure heaps away from watercourses has increased from 66% to 77% between 2006 and 2007. On the whole the proportion of farmers who have made other livestock related changes to their practices changed little between 2006 and 2007. Understandably fewer farmers have made changes such as constructing bridges for livestock and fencing watercourse to prevent bank erosion since there is only a subset of farmers for whom these changes are applicable. Overall, 95% of farmers with livestock have made at least one livestock related change that may help to maintain water quality. Medium or large farms are more likely to have made each of the changes except for reducing stocking densities – which is more prevalent amongst the smaller farms (Figure 5.1.7).

The proportion of farmers who have undertaken hedgerow conservation (44%) and improved field drainage (34%) has increased marginally since 2006 (Figure 5.1.6). For each of the other changes identified in Figure 5.1.6, the changes are relatively small. Overall, 74% of farmers have made at least one of these arable or general changes to their farm practices. For each of the arable or general changes to farm practices, it is more likely that they will have taken place on large farms than small or medium ones. Understandably, it is the cereals and other cropping farms (arable farms) who are the most likely to make changes such as employing buffer strips, reducing arable cultivation, hedgerow conservation and improving field drainage (all > 45% of arable farms).

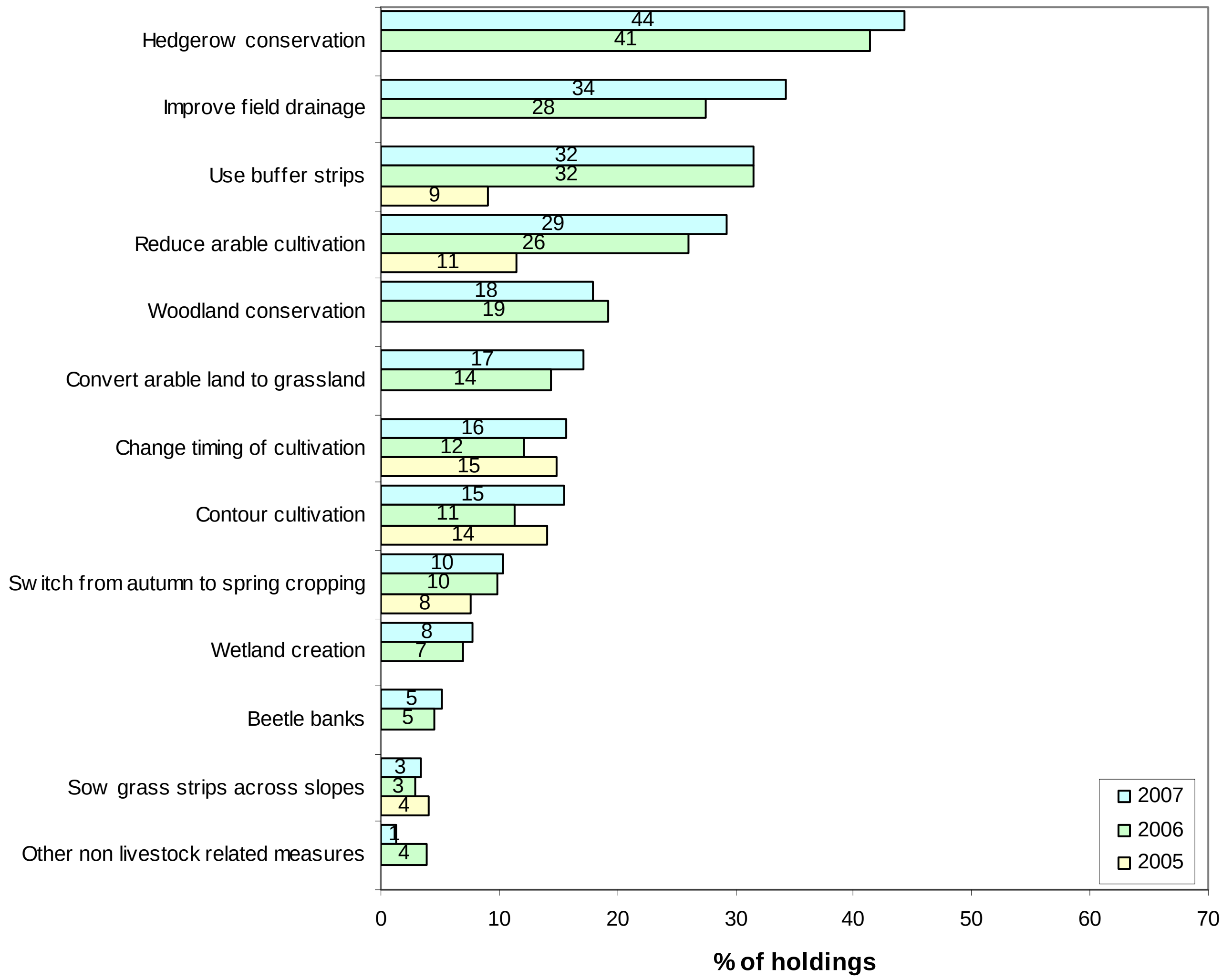


Figure 5.1.6: Arable and general farming practice changes that may help to maintain water quality for England. This analysis includes all farmers so the sample size is larger for 2007 than for 2006 hence reducing the sampling uncertainty.

Two of the less commonly used measures are the creation of beetle banks (Figure 5.1.8) and wetland habitats (Figure 5.1.9) which have been introduced by 5 and 8% of holdings respectively (Figure 5.1.6). Beetle banks have been created to combat some of the negative environmental impacts associated with increased field sizes. Insects like ground beetles over winter in hedgerows and fence-lines and increased field sizes mean that these insects can not spread into the centre of the crop. So when pests like cereal aphids and wheat blossom midges invade in early summer there are no predatory insects to prevent an out-break. This results in farmers needing to use insecticides. Beetle banks with tussocky grass can be installed into the centre of large fields with minimum disruption to normal practices and if maintained the need for insecticides will often be eliminated. Beetle banks can also help to limit soil erosion (if they run across slopes in the field) and provide both nesting and feeding habitats for partridges and skylarks.

Wetlands serve a dual function. Firstly, they provide an environment where food sources for wild birds, *e.g.,* earthworms, thrive and provides an ideal environment for wading birds such as lapwings. Secondly, they are of benefit environmentally since any nutrients removed from the soil and carried with water flowing over the field are deposited in these ponds rather than ending up in rivers and streams.

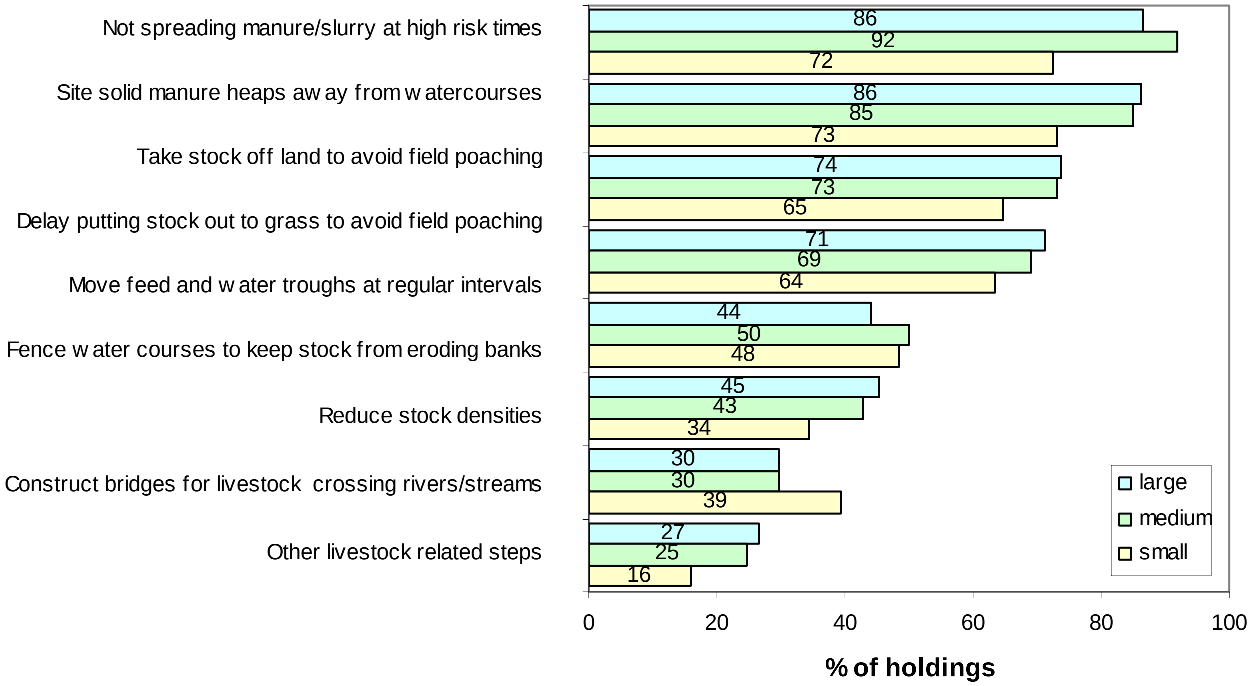


Figure 5.1.7: Livestock related changes to farming practices that may help to maintain water quality for England by farm size. This analysis only includes farmers who keep livestock.

Figure 5.1.8: A beetle bank on a Cambridgeshire farm.

Figure 5.1.9: A wetland on a Cambridgeshire farm.

5.2. Water Usage

In 2007 the FPS considered the topic of water usage for the first time. The idea was to obtain farmers attitudes to water usage, in particular, how they obtain the water used on their holding and their awareness of the schemes and publications that exists to help them use water more efficiently.

As businesses most farms should have water meters for their mains water, but in practice, some water companies have not metered all farms. Overall 76% of holdings have metered mains water and only 6% have un-metered mains water. Farmers are most likely to use mains metered water in the South East and Eastern regions (Figure 5.2.1). Whilst they are most likely to be un-metered in the Yorkshire and Humber region. For all farm types except upland livestock, more than three-quarters of farms have mains metered water. Only 36% of upland livestock farmers use mains metered. This is a function of their remote locations offering greater opportunities for private supply and their lower water usage than cropping farms puts them lower down the list of priorities for meters with water companies.

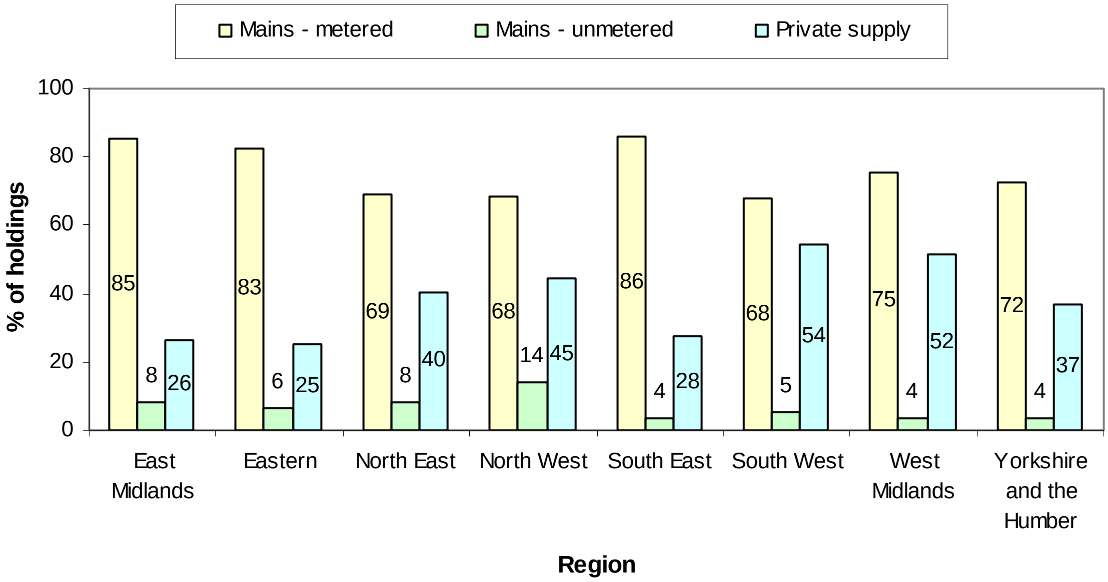


Figure 5.2.1: The type of water supplied to agricultural holdings by region. Farmers could tick more than one supply so the totals sum to more than 100%.

In both the South West and the West Midlands regions more than 50% of farmers obtain water from private supplies (Figure 5.2.1). There are 3 main ways of doing this:

1. for small volumes of water, rainwater can be collected and re-used;
2. where springs or streams cross the land, water can be abstracted for irrigation or diverted into livestock feeding troughs; and
3. if the farm is located over an aquifer, boreholes or wells can be sunk down into the aquifer to abstract water from this groundwater supply.

Obviously, the regions where there are aquifers offer much greater potential for private supplies given that the water is flowing beneath the ground over large areas rather than being confined to the existing drainage network as is the case for rivers and streams. The farm type most likely to use a private supply is the upland livestock farmers (77%), whilst only 22% of cereals farmers and 33% of the cropping farmers use a private supply (Figure 5.2.2). These figures reflect both the good accessibility that many upland farmers have to springs and streams and their low water usage relative to arable farms. As one may expect, medium and large farms are more likely to have metered mains water than small farms.

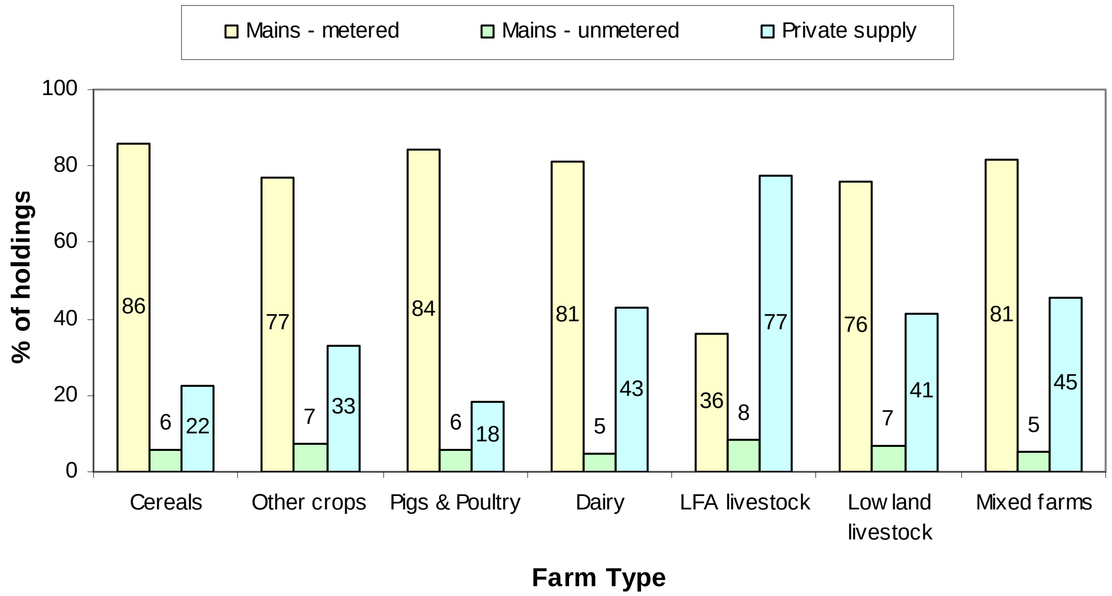


Figure 5.2.2: The type of water supplied to agricultural holdings by region. Farmers could tick more than one supply so the totals sum to more than 100%.

There are a range of schemes and publications that exists to help farmers use water in a more efficient manner. The 2007 FPS considered the awareness of farmers to 3 such products.

1. The Defra Code of Good Agricultural Practice: Water (the Water Code).[25] The Water, Air and Soil Codes are designed to provide practical guidance to help farmers and growers avoid causing pollution and to protect soil as their most valuable resource. These codes have now been updated into a single document which will be published on the Defra website in due course.
2. Waterwise on the Farm[26] is an Environment Agency publication that provides a simple guide to implementing a water management plan on the farm.
3. The Enhanced Capital Allowance Scheme[27] is a joint Defra / HM Revenue & Customs scheme that enables businesses to claim 100% first year capital allowances on investments in technologies and products that encourage sustainable water use. Businesses are now able to write off the whole cost of their investment against their taxable profits for the period during which they make the investment.

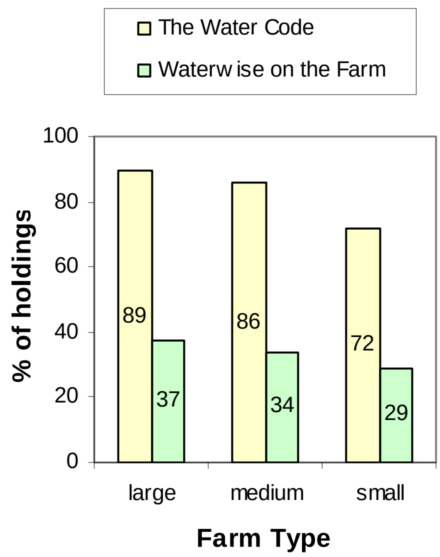


Figure 5.2.3: Awareness of efficient water usage publications by farm size.

[25] The water code is available at: http://www.defra.gov.uk/farm/environment/cogap/pdf/watercod.pdf
[26] Waterwise on the farm version 2 is available at: http://www.environment-agency.gov.uk/commondata/acrobat/geho0307blvhepweb_432285.pdf
[27] For further information on the capital allowance scheme see: http://www.eca-water.gov.uk/

Overall, 77% of farmers are aware of the Water Code, 31% are aware of Waterwise on the Farm and only 5% are aware of the Enhanced Capital Allowance Scheme. For each of the products, larger farms are more aware of the product than smaller farms (Figure 5.2.3). The difference in awareness is particularly noticeable for the Water Code as 89% of large farms compared to 72% of small farms are aware of its existence. The arable and dairy farmers are more aware of the Water Code than the grazing livestock and pig & poultry farmers (Figure 5.2.4). Similarly for Waterwise on the Farm, the awareness is greatest amongst the arable farms. Irrigation is one the biggest water uses within agriculture, so the arable farmers can potentially make the greatest savings (both economically and environmentally) through water efficiency measures. Similarly, dairy farmers use large volumes of water. It is therefore not surprising that these people are most aware of water efficiency publications.

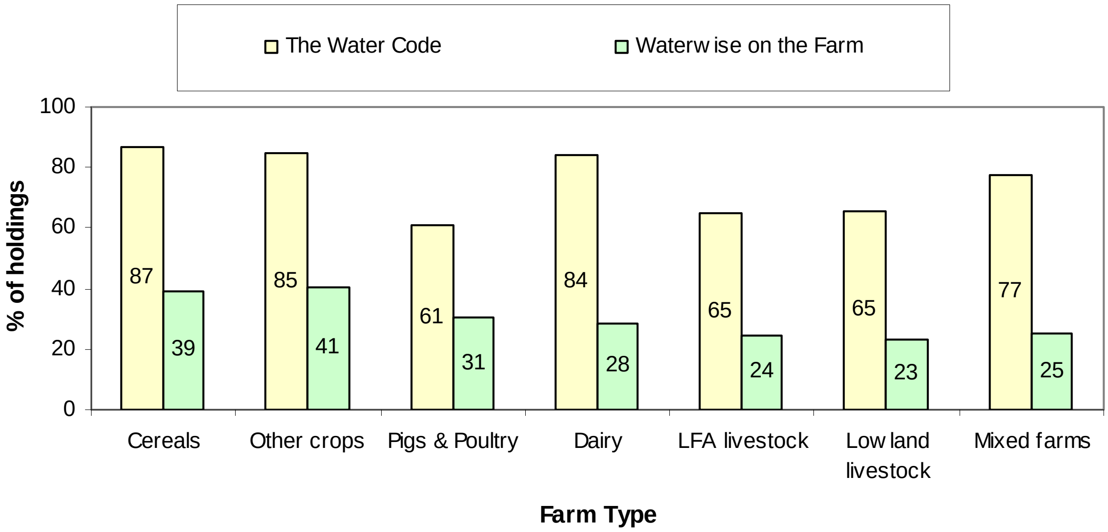


Figure 5.2.4: Awareness of efficient water usage publications by farm type.

6. Economics of Modern Farming

The Curry Report on the future of farming and food, chaired by Sir Don Curry, considered three forms of sustainability – economic, environmental and social sustainability. Most FPS topics focus on environmental sustainability (Chapters 3, 4 & 5), but this section focuses on some economic aspects, and of course the two topics are strongly linked. FPS has traditionally considered 2 or 3 topics that focus on the economic side of modern farming and this year we: continue to include farmer co-operatives (6.1); include financial risk management for the first time since 2004 (6.2); and have a new section on environmental production systems (6.3).

6.1. Farmer Co-operatives / Farmer Controlled Businesses (FCBs)

The vast majority of farm businesses are small in size and employ very few staff. In many cases these one or two staff members will be part of the family. Whilst this offers the advantage of independence for the farmers, they suffer from small economies of scale and a lack of bargaining power when dealing with large companies such as the major supermarket chains. It can be useful therefore for farmers to operate as one larger business, a farmer co-operative (or a farmer controlled business (FCB)), for some purposes for example selling produce.

The FPS has included a question on FCBs for each of the last 4 years (Appendix 5: The FPS Topic Timeline) which asks whether farmers have bought or sold inputs via FCBs in the last 12 months (the previous financial year). Data collected on the FPS between 2004 and 2006 suggested the proportion of farmers using FCBs was increasing (Figure 6.1.1).

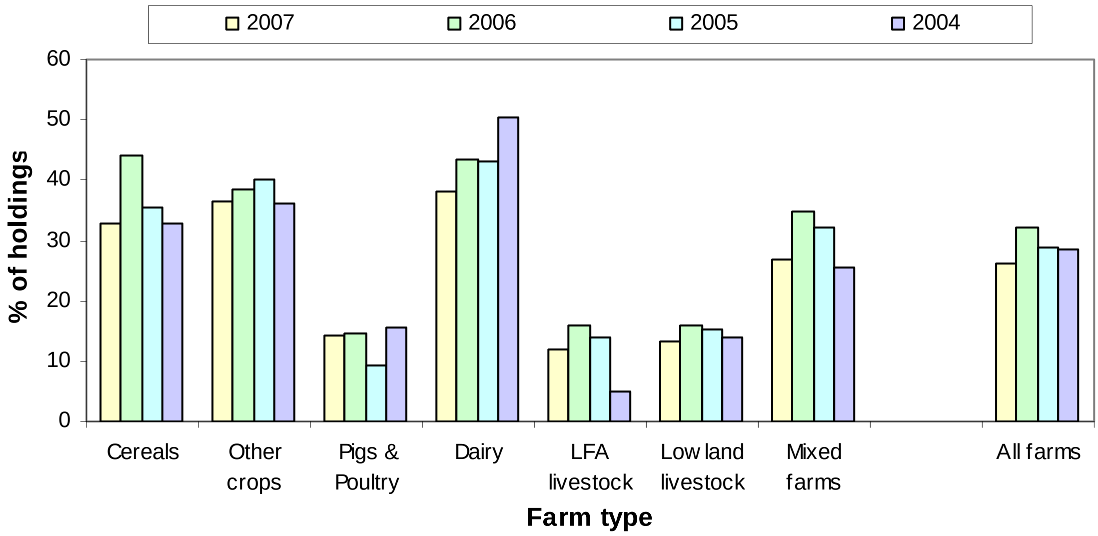


Figure 6.1.1: The proportion of farmers using FCBs for by buying inputs or selling outputs (2004 to 2007). Note the years are financial years from April to March the following year (the year displayed on the chart).

The FCB sector in England is dwarfed by those in Europe and the USA, with the biggest FCB in the USA having a higher turnover than all of those in England combined[28] (EFFP, 2006). In 2006, the EFFP believed that there is room for further expansion of the FCB sector in England, particularly in the sectors where it is less prevalent, but the figures from FPS 2007 do not appear to support this as the latest figures show that only 26% of farmers used FCBs between April 2006 and March 2007 (Figure 6.1.1). Due to the sample designs for previous FPSs, 2007 is the first time that 6 thousands identical forms have been sent out. As a result we obtained over 2,500 responses to the FCB questions, which

[28] EFFP (2006). FCB sector grows by a third in two years, English Farming & Food Partnerships (EFFP), 45 Ludgate Hill, London. www.effp.com

is almost double the number obtained in 2004 and 2006 and around 700 more than in 2005. The 2007 figures are therefore the most accurate FCB data to date.

The proportion of farmers using FCBs is smaller in 2007 than in 2006 for all farm types, with the biggest decreases being for cereals (11%), mixed farms (8%) and dairy farms (5%). In 2004, 50% of dairy farmers used FCBs, but this year only 38% used them. The strong increase between 2005 and 2006 was largely driven by the increase for the cereals sector, which looking at the 2007 data looks too strong. The 2006 estimate for cereal farms had a 95% confidence interval of ± 6% meaning that the true 2006 figure for all farms could have been 29%, which is similar to the 2004 and 2005 figures and only 1% outside the confidence interval for the 2007 value (Figure 6.1.2). When impact of sampling has been removed, the 2004, 2005 and 2007 figures are very similar whilst the 2006 figure is marginally higher.

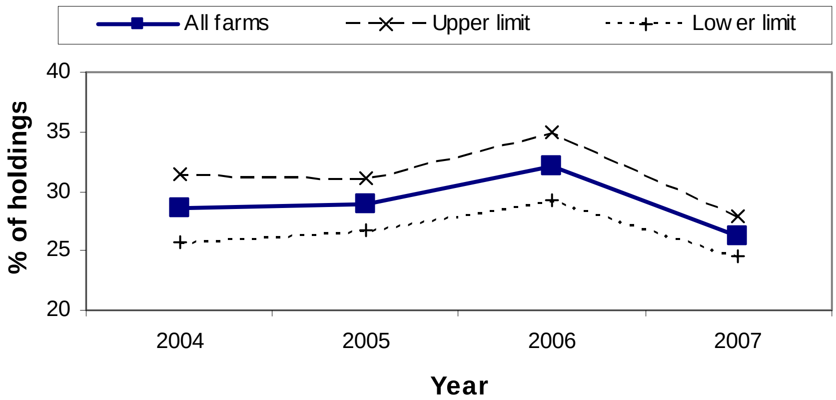


Figure 6.1.2: The proportion of farmers using FCBs for buying inputs or selling outputs in England (2004 to 2007). The dashed lines mark the upper and lower bounds of the 95% confidence interval for each year.

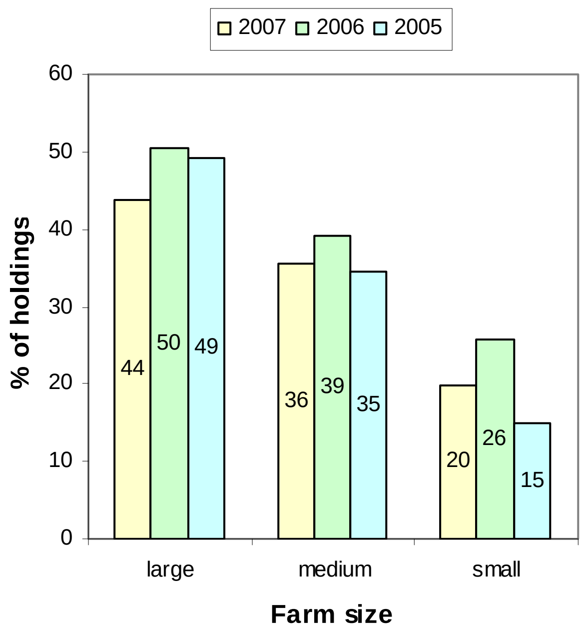


Figure 6.1.3: The proportion of farmers using FCBs for buying inputs or selling outputs by farm size. Results are not available for 2004 since farm size on this survey was not based on SLRs.

As may be expected, the larger the farm the more likely they are to use FCBs (Figure 6.1.3), with 44% of large farms using FCBs but only 1 in 5 small farms. This is similar to the pattern found in FPS 2005 and FPS 2006.

Where farmers are using FCBs to purchase goods, 40% of their goods (by value) are purchased via a FCB (Figure 6.1.4). This is around 2% lower than in 2006 but 4% higher than in 2005. There is a decrease for most farm types except upland and lowland livestock farms – the LFA livestock figures are quite volatile due to small sample sizes (15 to 25 depending on the year). Similarly to the proportion of farmers using FCBs, there is a strong decrease in the amount of inputs bought via FCBs in the cereals sector. A quarter of arable farmers purchase 80% of their inputs via FCBs (Figure 6.1.5). Whist for dairy farms half of the farmers sampled purchased 20% or less of their inputs via a FCB.

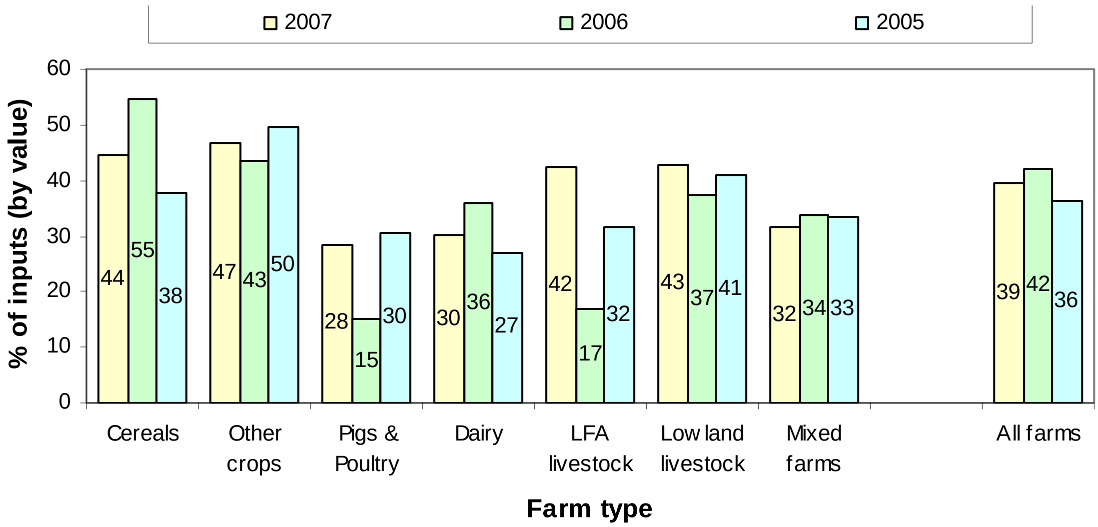


Figure 6.1.4: The mean % value of inputs bought via FCBs for those holdings that make use of them.

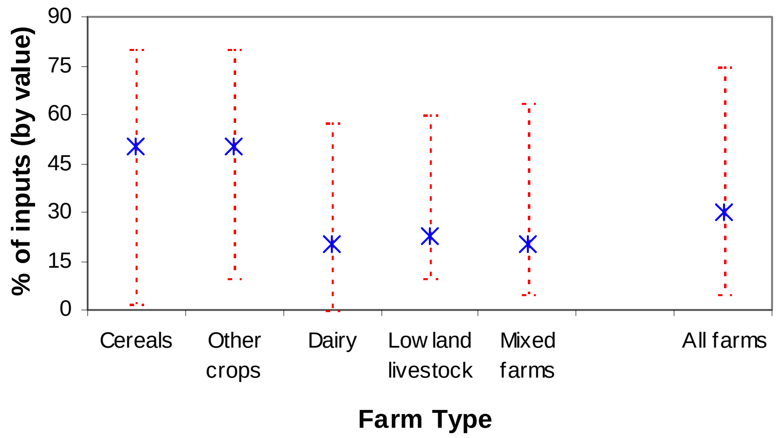


Figure 6.1.5: The median, upper and lower quartile % value of inputs bought via FCBs for those holdings that make use of them. The crosses make the median value and the dashed lines extend to the upper and lower quartiles. Note this only includes farm types with at least 40 responses.

Farmers were also asked about selling produce through FCBs – this question was last asked on the 2005 survey. Overall, farmers who use FCBs sold 41% of their produce through FCBs (Figure 6.1.6). This is marginally less than was recorded in 2005 when farmers sold 42% of their produce in this manner.

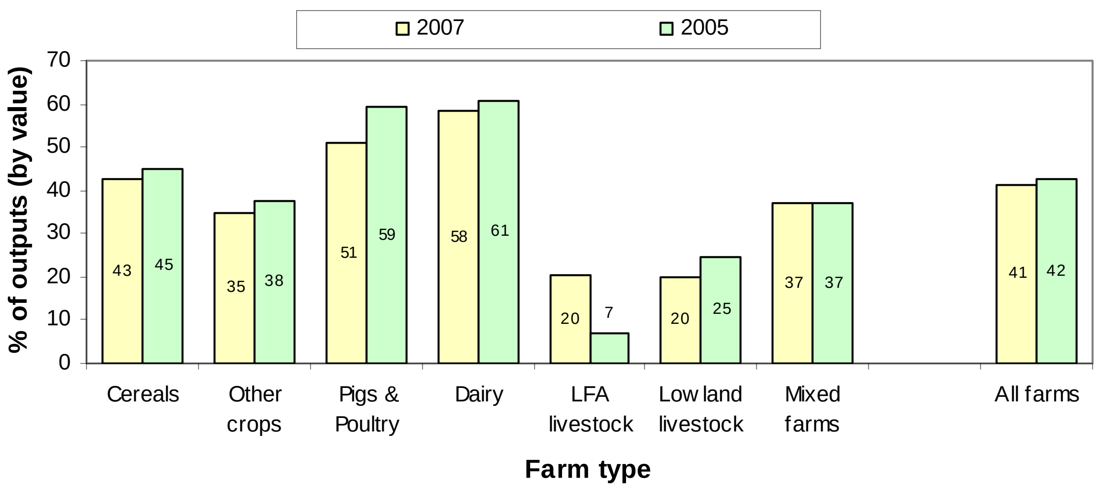


Figure 6.1.6: The mean % value of outputs sold via FCBs for those holdings that make use of them.

With the exception of LFA livestock, all farm types are showing a decrease in the value of their sales through FCBs. Considering only those farm types with at least 40 responses, reveals that the dairy sector sell more outputs through FCBs than any other sector. Half of the dairy farmers using FCBs sell at least 80% of their outputs through them (Figure 6.1.7). Whilst most cereal holdings sell a small amount of outputs through FCBs, a quarter actually sell at least 80% of their produce in this manner.

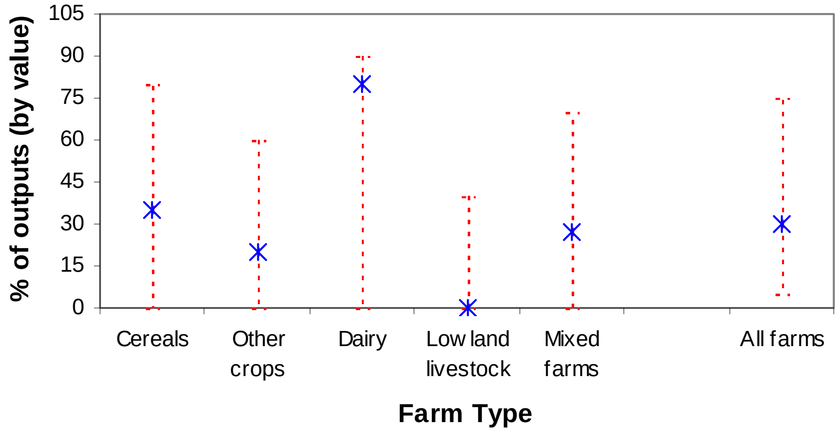


Figure 6.1.7: The median, upper and lower quartile % value of outputs sold via FCBs for those holdings that make use of them. The crosses make the median value and the dashed lines extend to the upper and lower quartiles. Note this only includes farm types with at least 40 responses.

6.2. Environmental Production Systems

This is a brand new topic to the FPS. In recent years farmers have made considerable changes to their production systems. In the past, agricultural policy tended to encourage farmers to favour agricultural production over conservation. Much of the subsidies that they received were linked to their agricultural output, while a smaller amount was channelled into environmental schemes such as the Countryside Stewardship Scheme. The reform of the Common Agricultural Policy (CAP) has seen this situation being reversed. Subsidies linked to production have been abandoned in favour of a Single Farm Payment, to be eligible for which one must maintain the land in Good Agricultural and Environmental Condition (GAEC). The idea behind this section was to see what factors may influence farmers to adapt their production methods to make them more environmentally friendly and what barriers may be stopping them from making a change.

A financial incentive would encourage three quarters of farmers to change to a production system with a stronger environmental focus (Figure 6.2.1). The medium and large farms are much more likely to be encouraged by a financial incentive than the smaller farms. Only 40% of holdings would make changes to comply with environmental regulations, although the figure is as high as 52% for large holdings. Financial incentives seem to be more important to arable, dairy and mixed farmers than livestock farmers as reasons to change their production methods, but these farm types are also the most likely to make changes to comply with regulations (Figure 6.2.2). Around 15% of farmers consider that access to specialist markets would encourage them to change their production methods. This figure varies little with farm type or farm size.

Farmers were also asked what prevents them from making these changes. The most common reasons were financial ones (Figure 6.2.3): the actual cost of making the changes (71% of holdings that said they could make changes); and no guarantee of extra profits (58% of holdings). More than half of farmers were concerned about an increase in the number of inspections and the complexity of managing the farm. The distribution of barriers to change are similar for each of the farm types to the overall picture for England, but the number of barriers facing larger farms (2.7) is larger than for medium (2.5) or small farms (2.3). The cost of change is the most important barrier for all farm types, but cereals and dairy holdings are the most concerned about the increased number of inspections (Figure 6.2.4).

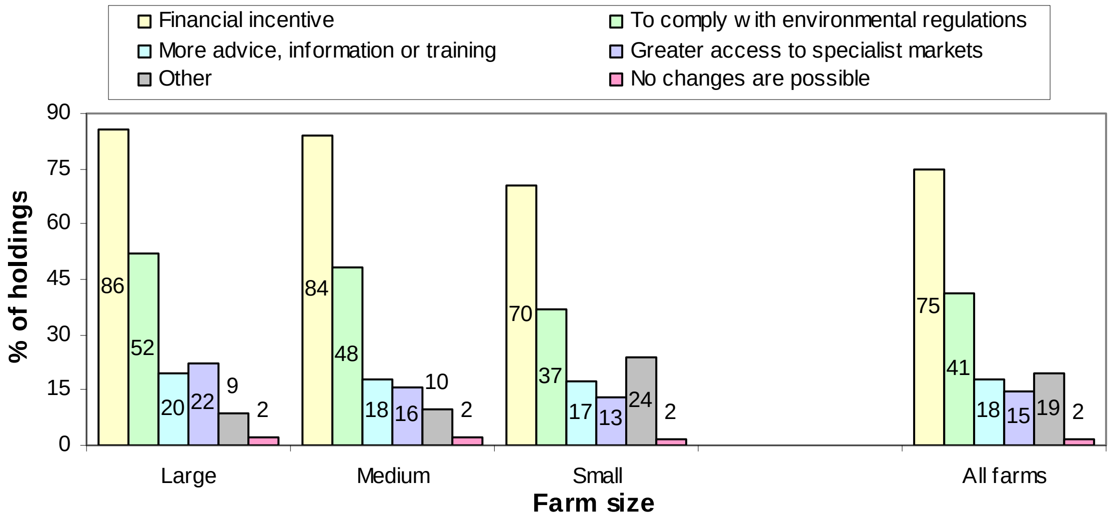


Figure 6.2.1: Factors that may encourage farmers to change their production methods to one with a stronger environmental focus by farm type.

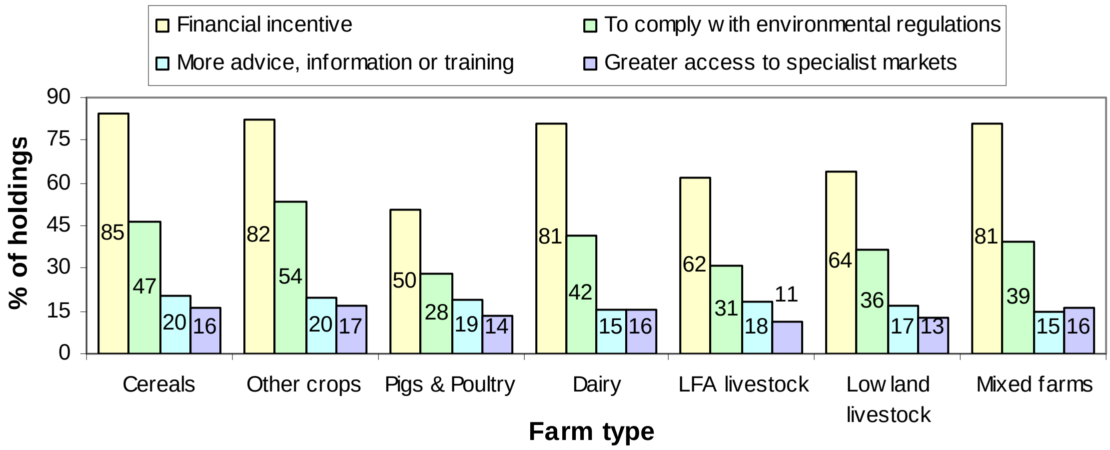


Figure 6.2.2: Factors that may encourage farmers to change their production methods to one with a stronger environmental focus by farm type. Only the 4 most popular factors are included.

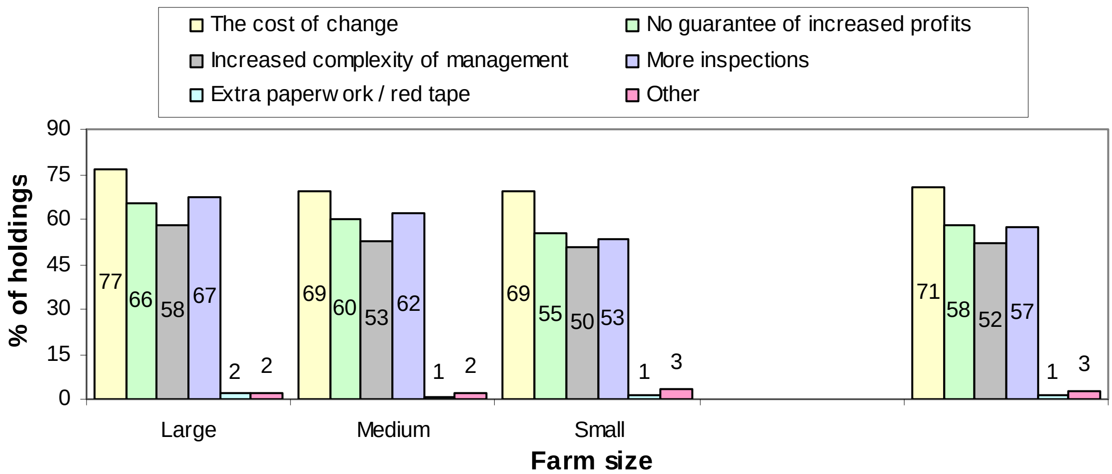


Figure 6.2.3: Factors that may prevent farmers from changing their production methods to one with a stronger environmental focus by farm type. This only includes holdings who felt that they could make changes.

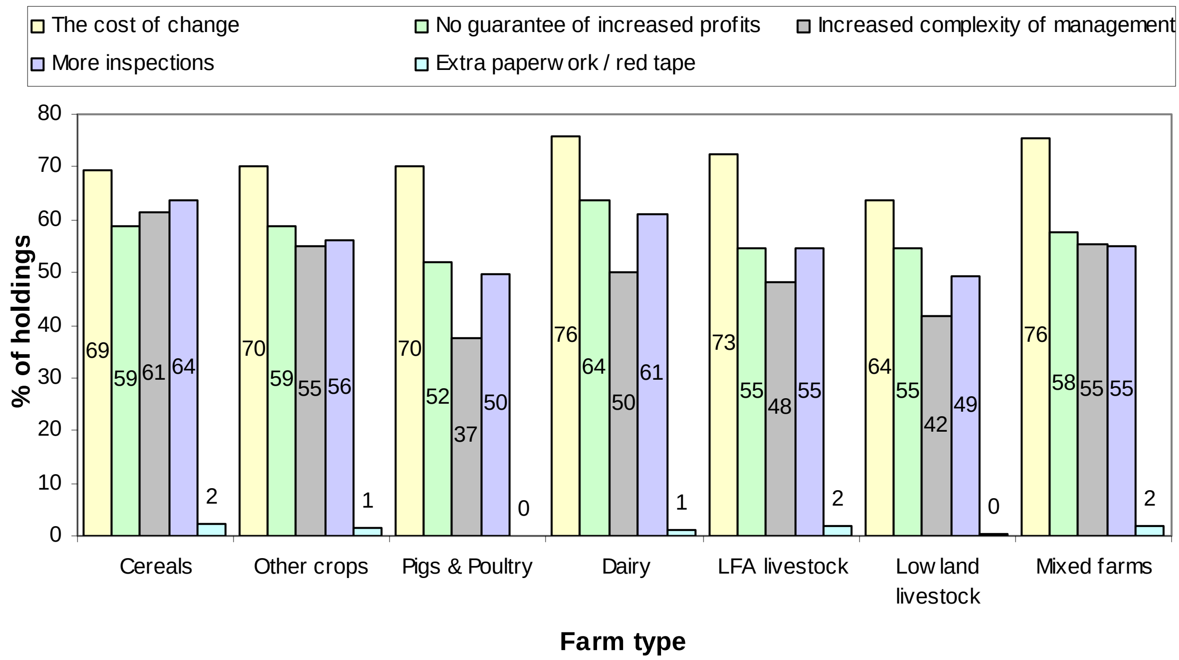


Figure 6.2.4: Factors that may prevent farmers from changing their production methods to one with a stronger environmental focus by farm type. This only includes holdings who felt that they could make changes. The other reason category has been excluded from this graph.

6.3. Financial Risk Management

All businesses face risks, and farming is no exception. In fact farming could be considered as being particularly vulnerable to risk. Some of the more obvious (direct) risks and some of the less obvious (indirect) risks are discussed in Table 6.3.1.

Table 6.3.1: Some examples of direct and indirect risks in farming.

Direct risks	Indirect risks
• Farmers are vulnerable to unpredictable (and sometimes extreme) weather events, for example the flooding during the early summer of 2007 that effected many parts of the country including Yorkshire and Worcestershire and resulted in a much lower cereals harvest than previous years.	• Weather in other parts of the world influences global markets, which can cause the price of commodities such as cereals to vary considerably
• Disease outbreaks such as Foot and Mouth or Blue Tongue can result in the culling of a farmer's stock should one of their (or their neighbours) stock become infected. Additionally, farmers in the wider region are affected because following an outbreak, restrictions on animal movements are put in place, and hence livestock farmers can not sell their produce.	• Negative press reports following disease outbreaks. For example, BSE can cause shoppers to change their habits and as a result the price a farmer receives for their produce and their number of sales is dramatically reduced.
• Crops can also suffer from diseases which depending on its severity can either reduce the yields or kill the crop.	• Many farmers are not just supplying UK owned companies, so the price they receive can vary with exchange rates.

In most cases the farmer has no control over these risks but they have been dealing with them for centuries – but often in an ad hoc manner. In the past the CAP offered systems of price support and subsidies, which provided some cushioning from these risks to the industry. Now that this cushion has been removed the emphasis is being placed on the farmer to protect themselves but this needs to be done in a systematic way using the various financial risk management tools available.

Financial risk management was covered in FPS 2004 (Appendix 5: The FPS Topic Timeline) and the results showed that, with the exception of arable farmers using forward contracts, the uptake of financial risk management tools was quite low. This situation has not changed greatly in the last 3 years (Figure 6.3.1). There has been an increase in the proportion of cropping farmers who use forward contracts (up from 29% to 35%), but the proportion who use crop insurance has fallen. Crop insurance would not usually guard against flooding, so even if those farmers affected this summer had insured their crops, the policy would not have paid out. So if a farmer perceives the biggest risk to his crop is from such extreme weather he is unlikely to consider crop insurance a worthwhile investment. Last year a number of farmers sold grain using forward contacts with an agreed price which at the time looked very competitive but by autumn 2007 world grain stocks were at a low level, hence prices were high. Many of these farmers could have got a much better price for their grain had they agreed a price for it much later. For livestock farmers there has been a marginal increase in the proportion who have animal health insurance.

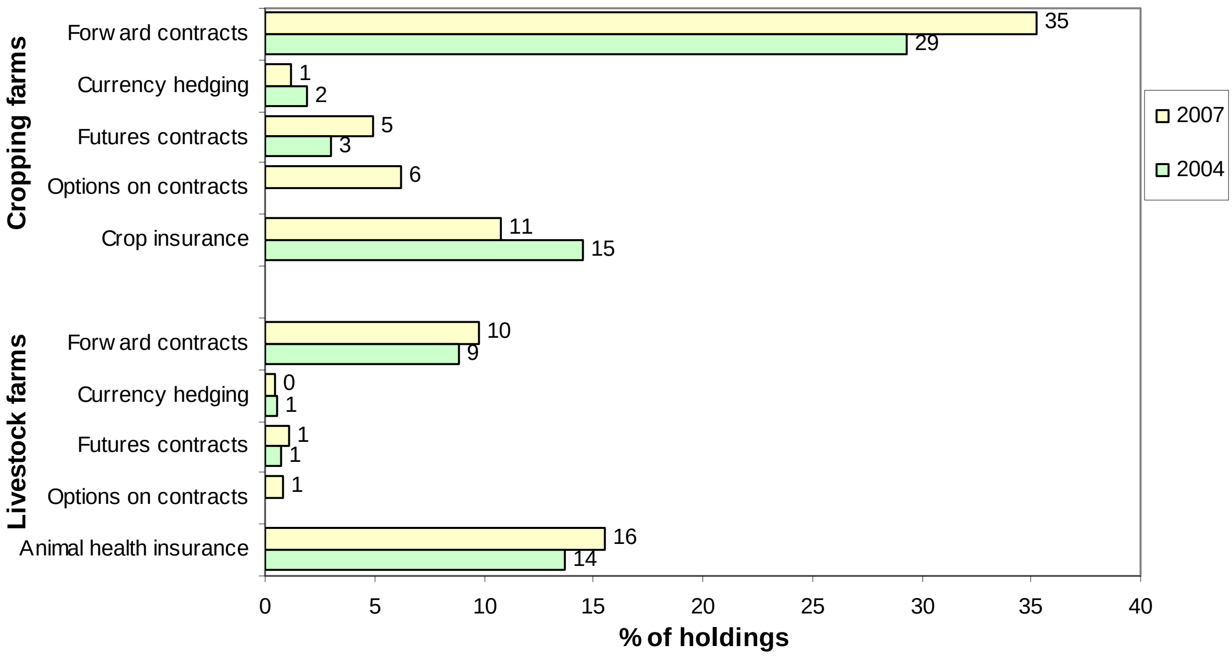
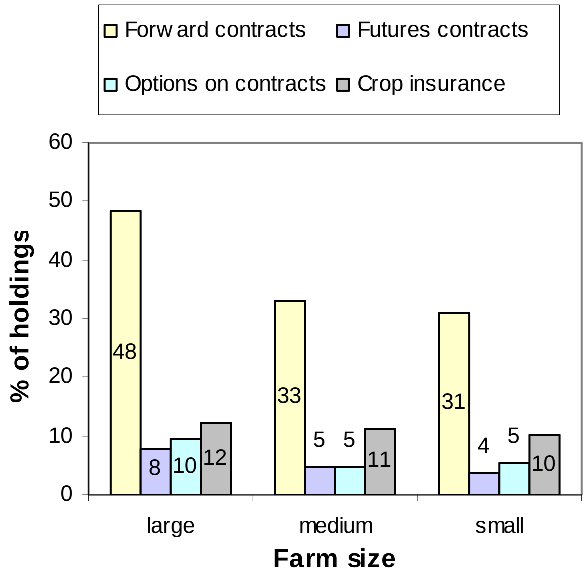


Figure 6.3.1: The proportion of cropping (top) and livestock (bottom) holdings who make use of financial risk management tools. Options on contracts was not included as a possible response in 2004.

As one might expect, the bigger the farm, the more likely they are to use financial risk management tools (Figure 6.3.2 and Figure 6.3.3). Although for cropping farms there is little difference between small and medium farms.

Focusing on just the cropping farms shows that there are differences in the uptake of financial risk management tools with region (Figure 6.3.4). The South West region has the largest uptake with 65% of cropping farms using forward contracts and 21% using crop insurance. Both of these figures are far larger than equivalent figures for the West Midlands (49% and 16% respectively), which has the second biggest uptake. The Yorkshire and Humber region has the lowest uptake.



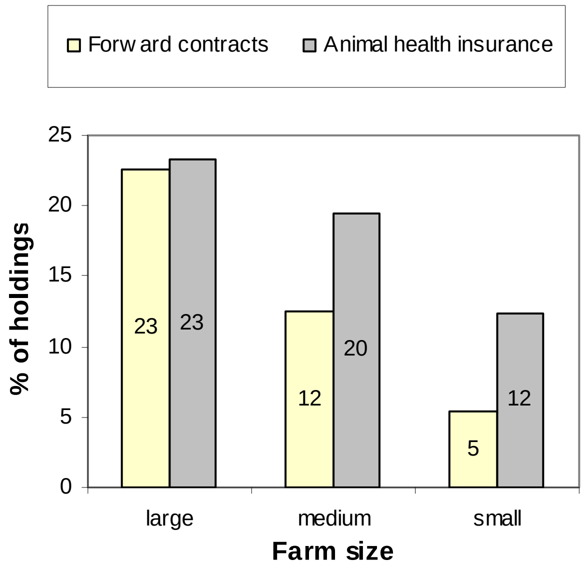


Figure 6.3.2: The uptake of financial risk management tools on cropping farms by farm type – only includes tools where at least 2% of cropping farmers use the tool.

Figure 6.3.3: The uptake of financial risk management tools on livestock farms by farm type – only includes tools where at least 2% of livestock farmers use the tool.

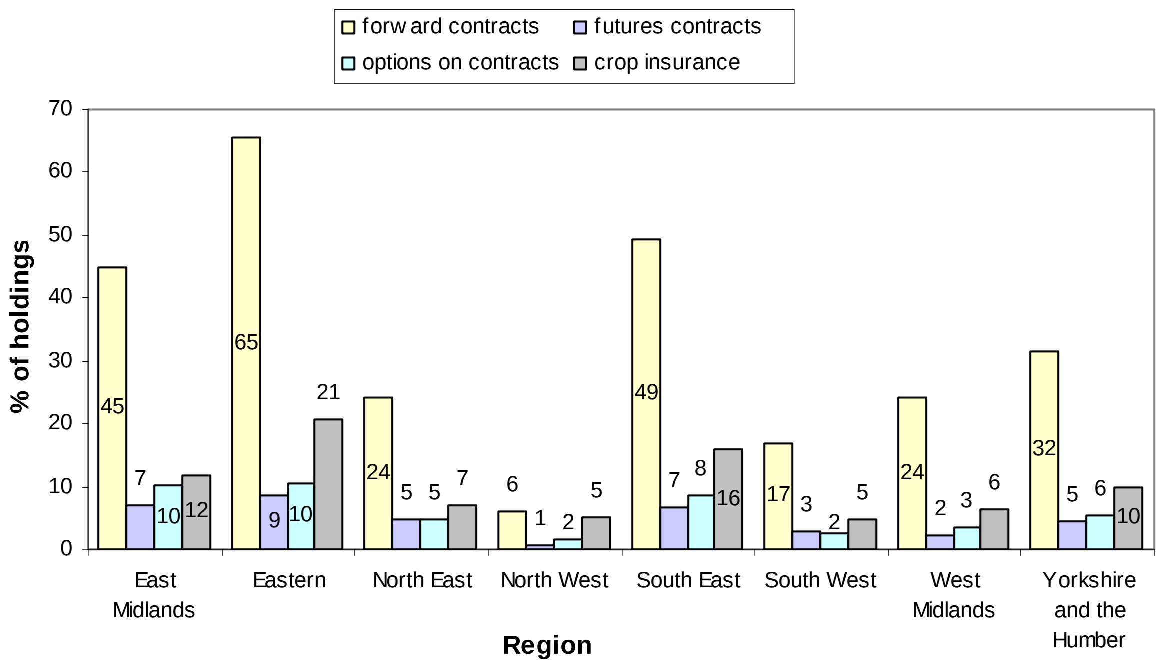


Figure 6.3.4: The uptake of financial risk management tools on cropping farms by region. Only includes options where at least 5% of cropping farms in England are using the tool (5% equates to approximately 100 survey responses).

In FPS 2004, it was found that most farmers who did not use risk management tools had simply never considered them, and even now 3 years later still a third of farmers have not considered them (Figure 6.3.5). Similarly, more than a third of cropping farmers consider them not necessary. There are still (at least) 14% of farmers not using risk management tools because they do not understand them. These figures tend to highlight the fact that there is still a general lack of awareness among farmers of the benefits to be gained from financial risk management.

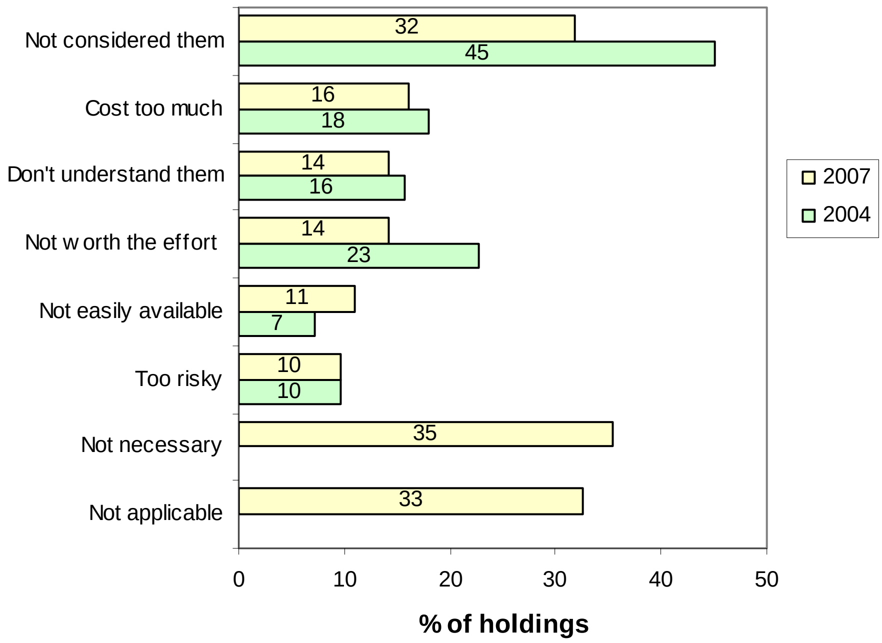


Figure 6.3.5: The reason why farmers do not use risk management tools. Not necessary and not applicable were not available as responses in 2004. Farmers could tick more than one option so the responses sum to more than 100%.

7. Appendices

7.1. Appendix 1: The level of coverage for the main crop types in the FPS population

	Crop area (ha)						Number of holdings
	Total crops	Wheat	Barley	Oats	Winter OSR	Total vegetables	
Cereals	2,064,337	1,062,863	262,007	55,996	335,762	1,016	17,447
Other crops	910,791	383,364	140,798	11,270	69,663	95,506	8,091
Pigs & Poultry	25,132	11,931	4,672	226	2,037	139	3,268
Dairy	169,392	47,421	33,496	3,477	2,075	73	11,462
LFA livestock	8,979	1,072	4,380	668	59	20	8,109
Lowland livestock	45,922	9,360	17,096	2,430	635	14	14,258
Mixed farms	382,989	156,723	85,851	16,757	32,095	1,948	6,571
Large	1,681,630	772,705	230,519	36,729	215,763	76,197	12,499
Medium	588,712	277,302	95,351	16,656	72,441	9,669	9,174
Small	1,337,201	622,727	222,429	37,438	154,123	12,849	47,533
All farms in the FPS population	**3,607,543**	**1,672,733**	**548,299**	**90,824**	**442,326**	**98,716**	**69,206**
All farms in England	**3,694,635**	**1,709,042**	**565,030**	**93,049**	**446,817**	**105,571**	**3,694,635**
% of the English population	98%	98%	97%	98%	99%	94%	35%

Note that these figures are as at June 2006. They are from the June Survey of Agriculture and Horticulture and only include crops from the holdings that exceed the FPS thresholds.

7.2. Appendix 2: The level of coverage for the main livestock types offered by the FPS population

	Number of animals						Number of holdings
	Total cattle	Main dairy herd	Main beef herd	Other cattle	Total pigs	Total sheep	
Cereals	339,195	14,230	88,238	236,728	265,108	1,170,373	17,447
Other crops	219,967	19,899	52,891	147,178	443,790	680,880	8,091
Pigs & Poultry	18,043	2,443	4,113	11,486	2,096,128	68,924	3,268
Dairy	2,093,567	1,484,472	38,071	571,024	45,744	1,146,363	11,462
LFA livestock	558,281	54,555	284,448	305,649	7,810	5,515,153	8,109
Lowland livestock	1,039,817	16,391	236,241	700,814	34,205	4,438,636	14,258
Mixed farms	752,035	186,077	134,146	431,812	1,091,026	2,003,842	6,571
Large	2,258,090	1,066,422	264,263	927,405	2,485,850	5,680,378	12,499
Medium	951,652	352,549	149,784	449,320	505,495	2,879,980	9,174
Small	1,811,163	359,096	424,101	1,027,966	992,466	6,463,812	47,533
All farms in the FPS population	**5,020,905**	**1,778,067**	**838,147**	**2,404,691**	**3,983,812**	**15,024,171**	**69,206**
All farms in England	**5,378,028**	**1,815,470**	**955,612**	**2,606,946**	**4,057,433**	**15,673,409**	**200,381**
% of the English population	93%	98%	88%	92%	98%	96%	35%

Note that these figures are as at June 2006 and from the June Survey of Agriculture and Horticulture and only include livestock from the holdings that exceed the FPS thresholds. The main dairy and beef herds include heifers in (first) calf and herd replacements.

7.3. Appendix 3: The Main Farm Types Included Within Each Robust Type

Robust Type	Main Farm Types Included
Cereals	Cereals
Other Crops	General Cropping Specialist Fruit Specialist Glass Specialist Hardy Nursery Stock
Pigs & Poultry	Specialist Pigs Specialist Poultry
Dairy	Dairy - LFA Dairy - Lowland
Grazing Livestock (LFA)	Specialist Sheep - SDA Specialist Beef - SDA Mixed Grazing Livestock - SDA Various Grazing Livestock - DA
Grazing Livestock (Lowland)	Various Grazing Livestock - Lowland
Mixed	Cropping & Dairy Cropping Cattle & Sheep Cropping Pig & Poultry Cropping & Mixed Livestock Mixed Livestock Specialist Set-Aside Specialist Grass & Forage Specialist Horses Non-Classifiable - Fallow Non- Classifiable - Other

Notes:

LFA = Less Favourable Area

SDA = Severely Disadvantaged Area

DA = Disadvantaged Area
This classification has combined some robust types together, *e.g.*, Pigs & Poultry.
Other crops is the same as general cropping and horticulture that was used in previous years.

7.4. Appendix 4: What is a Standard Labour Requirement (SLR) unit?

	Crop area (ha) or the number of livestock implied by 1 SLR
Cereals	95
Oilseeds	125
Hops	30
Sugar Beet	60
Field peas & beans	190
Main crop potatoes	20
Early potatoes	15
Outdoor vegetables and salad	19
Other peas and beans	3.8
Vining peas	75
Top and soft fruit	4.2
HNS	1.25
Mushrooms	0.25
Fodder crops	315
Set aside	1,900
Grassland	475
Rough grazing	1,265
Dairy cows	50
Beef cows	160
Other cattle	210
Ewes and rams (lowland)	365
Ewes and rams (LFA)	450
Other sheep (lowland)	575
Other sheep (LFA)	730
Sows	136
Finishing & rearing pigs	1,000
Piglets (<20kg)	9,500
Table fowl	47,500
Laying hens	11,175
Growing pullets	15,800
Other poultry	42,000
Horse	13
Goats	95
Deer	125

7.5. Appendix 5: The FPS Topic Timeline

This table is a summary of each of the topics included on FPS and the years in which they featured on the form.	**2007**	**2006**		**2005**		**2004**	
	General (6k forms)	General (3k forms)	Livestock (3k forms)	General (4k forms)	Small holdings (2k forms)	General (3k forms)	Livestock (3k forms)
Animal health and biosecurity	✔				✔		✔
Application of green manures		✔					
Application of organic materials		✔					
Avian Influenza guidance	✔		✔				
Carcase disposal				✔	✔		✔
Castration of lambs				✔			
Cattle grazing practices			✔	✔			
Cattle housing	✔		✔				
Codes of practice	✔				✔	✔	
Computer usage		✔					
Cultivation equipment		✔		✔		✔	
Disposal of waste materials					✔	✔	
Environmental production systems	✔					✔	
Farmer co-operatives / FCBs	✔	✔		✔	✔	✔	
Financial risk management	✔					✔	
Footbaths	✔		✔				
Forms and regulations		✔		✔			
Fuel oil storage						✔	
Grass rotation		✔				✔	
Hard standings			✔				
Hedge row management		✔		✔	✔	✔	
Historic farm buildings		✔				✔	
Inspection of movement records				✔			
Local environmental risk assessment plans						✔	
Manure / slurry spreading							✔
Manure storage			✔				✔
Nutrient management	✔	✔					
Pesticide sprayers		✔		✔		✔	
Pig housing			✔				
Poultry housing			✔				
Sheep housing			✔	✔			
Silage							✔
Slurry storage	✔		✔				✔
Soil erosion	✔	✔	✔	✔			
Soil types		✔		✔		✔	
Transport of animals			✔	✔	✔		
Veterinary services	✔						
Water quality	✔	✔	✔	✔	✔		
Water usage	✔						
Wildlife habitats	✔						