

# Evaluation of management plan options in Environmental Stewardship

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# Introduction

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the author's and do not necessarily represent those of Natural England.

## Background

This report was commissioned by Natural England to provide an understanding of the potential of Entry Level Stewardship (ELS) management plans to deliver environmental benefits, based on desk and field reviews of a sample of plans.

Following the introduction of the Rural Development Programme (England) in 2007 the management plan options have been removed from ELS.

However, the findings in this report have been used by Natural England, Defra and others to inform discussions during the review of progress of Entry Level Stewardship and will continue to inform future discussions about the development of the scheme.

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### Further information

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# Evaluation of Management Plan Options in Environmental Stewardship



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## Executive Summary

### 1. Introduction

Defra's Environmental Stewardship Scheme (ES), launched in March 2005, aims to achieve widespread environmental benefits, and includes natural resource protection as a primary objective. Within Environmental Stewardship, a major mechanism for addressing natural resource protection is through four Management Plan Options namely, the soil management plan, nutrient management plan, manure management plan and crop protection management plan. All four management plan options are voluntary measures within Entry Level Stewardship (ELS), and are intended to raise farmer awareness of resource protection issues and encourage them to optimise inputs and reduce environmental impacts.

These options have proved extremely popular within ELS and Natural England/Defra required an early evaluation of the degree to which management plans are likely to contribute to the achievement of scheme objectives. The overall objectives of the project were to evaluate whether current ES management plans are sufficiently robust to:

- Help farmers identify risk activities and/or situations where agricultural activities could result in adverse environmental impacts;
- Generate recommendations and actions for farmers that will address potential adverse agricultural impacts; and
- To assess the added value provided by including management plan options within ELS;
- To assess whether farmer behaviour is likely to be influenced as a result of the completion of management plans.
- To identify any refinements that may be needed and therefore to feed into enhancing future delivery of ES and other initiatives addressing diffuse pollution issues.

### 2. Methodology

The study was led and project managed by ADAS. All 5 stages of the project were designed and co-ordinated by the ADAS market research team, with inputs from ADAS technical experts and assessors. Advisers from Hutchinsons Environmental Services were subcontracted to conduct the on-farm assessments of the management plans and interviews with farmers.

#### 2.1 Desk Evaluation

This first stage of the project aimed to evaluate how well the plans had been completed and assess compliance with guidance on plan completion as issued by Defra. 169 plans were reviewed by ADAS assessors away from the farm (51 SMP, 35 NMP, 44 MMP and 39 CPMP). The resultant data was weighted by farm size and region to ensure it was representative of farms with each of the plan types.

#### 2.2 Farm Visit Review

In total 90 farms were visited and 198 plans reviewed in detail during this stage of the survey (NMP 48, MMP 45, SMP 55 and CPMP 50). Initially we planned to visit 50 farms and review up to 100 plans, however the sample was increased following the desk review stage, where the importance of being able to review farm records, talk to the farmers and access the complete plan was recognised.

The farm visit comprised firstly an interview with the farmer to understand attitudes to the plans, and likely or actual changes to farm practices and their awareness of

diffuse pollution. Secondly a structured questionnaire was used to record how well plans had been completed and assess the degree of compliance, by reviewing the plan and farm records, considering the on farm situation and talking to the farmer. The farm visit data was weighted to ensure it reflected the national profile of farms with a plan, in terms of region and farm size.

## **2.3 Consultation with Advisers**

The ADAS market research team conducted in depth, qualitative telephone interviews with 10 advisers. The advisers had all completed management plans, and were spread geographically and by company to ensure a mix of opinions were obtained.

## **2.4 National Survey of Farmers via the ADAS Farmers' Voice**

Questions were placed on the ADAS Farmers' Voice survey<sup>1</sup> to understand awareness of diffuse pollution, resource protection and other environmental issues amongst those with and without a management plan.

## **2.5 Review of the Performance Monitoring Data from the Environment Sensitive Farming (ESF) Advice Programme**

A review was conducted of relevant data from the first annual report for the ESF performance monitoring<sup>2</sup> to provide added insight to the project.

# **3. Detailed Findings**

## **3.1 Desk and Farm Visit Evaluations**

Given the difficulty in accurately assessing the plans within the desk review this section will focus primarily on the findings of the farm visit review unless otherwise indicated.

### **Crop Protection Management Plan**

- The Voluntary Initiative (VI) template had been used to prepare 99% of the CPMP and the majority of plans within the farm visit review (87%) had been completed in association with a BASIS qualified person as required by the ELS guidance.
- 65% had been updated since they were first produced; many of the remaining 35% were not yet due an update.
- 84% of the plans included crop management information for the current year, whilst 16% had information for the previous year only.
- All plans demonstrated that one or more cultural, biological or chemical control methods had been used on the farm. 25% employed full integrated crop management.
- 97% of plans reviewed within the farm visits indicated that the farmers complied with current pesticide storage regulations.
- 76% of the plans showed the operator held the relevant NPTC certificate, whilst derogations applied to 22%. 100% of the plans showed that the spray operator was registered with the National Register of Sprayer operators (NRoSO). Although the CPMP will have contributed to these trends, it is a requirement of crop assurance schemes and also promoted at VI events.
- The spray equipment is well maintained in line with the ELS guidance. 96% of plans show the equipment is calibrated/serviced regularly, and on 90% of farms

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<sup>1</sup> The ADAS Farmers' Voice is an annual survey conducted amongst a nationally representative sample of farmers across England and Wales.

<sup>2</sup> The ESF project is delivered and monitored by ADAS and contains feedback on changes in farmers' and advisers' awareness of diffuse pollution, use of and need for management plans and the proportion of respondents taking measures to reduce the environmental impact of agriculture.

the equipment is tested annually at a test centre operating under the National Sprayer Testing Scheme (NSTS). The latter is required by Assured Produce and is thus not driven by the CPMP alone.

- In most cases spent pesticide containers were disposed of responsibly in a manner that will not contaminate the environment, although in 12% of cases no disposal system appeared to be in place.
- With regard to the impact of the plan on farm practice, in many cases there had been little change as good practice was already being followed. The greatest levels of improvement were recorded for: a greater understanding of diffuse water pollution from agriculture (76%); an understanding of point and diffuse pollution (76%); and management/disposal of empty pesticide containers and packaging (68%). These issues have received a lot of publicity and training under the VI and have also been covered by ESF events.
- There were a number of cases where little improvement had been seen, although practice prior to ELS was poor or moderate. For example non-chemical control options, and pesticide mixing and handling facilities.

### **Manure Management Plan**

- 95% of the MMP's had a field risk map and were thus compliant with the guidance and the map was in colour in 93% of the plans.
- 91% of the farm visit plans had accurately recorded the presence of watercourses, whilst evidence was available to show that a proportion of maps did not accurately record the presence or absence of boreholes (25%) and springs (18%) on the farm.
- No-spreading strips were accurately recorded on 96% of plans with maps, which shows a high level of compliance with the guidance.
- The majority of plans with a field map had correctly assigned the risk categories (86%) to land on the farm. At least 86% of the plans with maps had used the correct colour for the risk category. Of those plans that had correctly marked orange risk areas on the map, 54% had used the correct 1, 2 and 3 markings.
- Approximately 88% of the plans with maps took soil type, slope or sensitive receptors into account when selecting risk categories.
- 11% of the farms had seen alterations to the drainage or subsoiling since the plan was prepared, however evidence was available to show that only 34% of those plans had been updated.
- 51% of farms had land in an NVZ. Of those farms within an NVZ and with sandy or shallow soil, 38% had these soils marked on the field map with cross-hatchings.
- In approximately 25% of plans the total area for spreading was not included.
- 20% of farms in the farm visit review did not accurately record whether or not the farm imported organic manures.
- Storage capacity for slurry had been calculated and was included within 24% of plans (slurry did not appear to be produced on 30% of farms). When included, this calculation seemed to be correct in 90% of cases.
- Only 30% of farms included a calculation for dirty water generation in the plan. A calculation for dirty water generation was absent in at least 40% of plans where dirty water may have been used.
- 64% of the plans, with figures for slurry and dirty water storage, had used accurate rainfall figures.



- 70% of plans, that included information on dirty water storage, included information on the roof and yard area, which may contribute to dirty water production.
- Only 17% of the dairy farms provided accurate information on the total parlour washings produced over the last 6 months.
- 90% of farms were applying manure in line with the risk categories identified on the farm in “most cases”.
- 14% of the farms within the farm visit review had taken on extra land since the plan was prepared, and 83% of those had updated the MMP.
- Considering many different farm practices relevant to the MMP, no change had been recorded in the majority of cases as good practice was already being followed. The greatest improvements were recorded for manure field application rates, dirty water field application rates, and manure spread or stored within 10m of a watercourse.
- Where poor or moderate practice was evident before the development of the plan, no improvement had been registered for slurry and dirty water storage on approximately 1/5 of the farms, although on the other 4/5 an improvement was registered.

### **Soil Management Plan**

- At least 45% and possibly up to 72% of the desk review plans had been completed by the farmer (or land manager), whilst 28% were completed by a consultant. Approximately half the plans produced in 2004/5 had not yet been updated.
- 68% of the farm visit farms had medium soils, whilst 34% had deep clay and 7% had light sand. This may suggest the plans are more attractive to those with fewer soil erosion problems i.e. those with deep clay.
- The vast majority of the farm visit plans had assigned the correct risk categories to the farm. However, 26% of the plans did not accurately record areas liable to flooding on the map.
- Although erosion was recorded by most, fewer plans had accurately recorded run-off and also specifically the direction of water run-off from fields (approximately ¼ did not accurately reflect run-off and direction of run-off).
- The farm visits showed that overall the field characteristics had been accurately recorded. 86% of the farm visit plans had accurately recorded features in “most cases”, whilst 7% recorded them accurately in some cases and only 6% did not record them accurately at all.
- The vast majority of farm visit plans accurately linked the map and field assessment (94%).
- 96% of plans from the farm visit review indicated that the management proposals for farms with grassland were appropriate. 98% of the plans had appropriate proposals for arable cropping. Where no management proposals had been included, in the farm visit plans, this was appropriate on all plans (82% in most cases, 18% in some cases).
- The majority of plans reviewed on farm, had identified most of the relevant impacts of their farming activity on the environment (90%).
- In the majority of cases (79%) the farm visit plans had provided all the appropriate recommendations to reduce the impact of farming on the environment, and all the recommendations were being implemented in 75% of the farms.

- Improved awareness of diffuse pollution was evident since the preparation of the SMP (farm visit review), (33% significant improvement, 47% some improvement) and all other aspects under consideration showed some level of improvement.
- In a few areas, river bank management, maintenance of field drainage systems and subsoiling/soil loosening to remove compaction, substantial proportions of plans showed no change to farm practice even though poor or moderate practice was evident prior to developing the plan.

### **Nutrient Management Plan**

- 69% of the plans were completed by October 2006. Of these 66% had been updated for the Harvest year 2007.
- 87% of plans had been completed in association with a FACTS qualified person and only 1% of plans had not used a recognised fertiliser recommendation system.
- The fertiliser plan was inappropriate for 13% of farms. Reasons for this included insufficient written evidence of planning and no account taken of nutrients from organic manure application.
- Only 6% of plans lacked evidence that soil analyses had been carried out in the last 3-5 years. Soil analysis had been taken into account within 90% of the plans.
- A high proportion of plans contained the appropriate information, particularly with regard to recording current crops (95%), and fertiliser application (89%). Organic manure application was less rigorously recorded as only 66%-76% of plans for farms that use manure had recorded information on the amount, type and timing of application.
- 5% of farms with organic manure had not taken organic manure nutrient supply into account, and in 22% of the plans insufficient evidence was available to make a judgement. Where organic manures are used the fertiliser plan had not been adjusted for the nitrogen supply from these manures in 24% of the NMPs.
- The soil nitrogen supply had not been assessed in each field for 23% of farm visit plans. The method most commonly used to assess the soil nitrogen supply was the field assessment method, based on soil type, previous cropping and excess winter rainfall (75%).
- The assessment of crop nitrogen requirement appeared incorrect on 13% of the farm visit plans. 14% of farms planned to put the same rate of nitrogen on all fields, however, in one third of cases, the farmer was justified in having a standard rate of nitrogen across all fields with the same cropping.
- 27% of the plans had recorded the application of greater amounts of either N, P or K than recommended by RB209. However no justification was provided for 1/5 of the plans concerned. Where evident, justification most often came in the form of advice from a FACTS qualified person.
- There was a high level of compliance with the need to keep clear records of cropping and organic manure and fertiliser application. 95% of plans had clear records of cropping for all or most fields, 73% of farms with livestock had clear records of organic manure application for all or some fields and 79% had clear records of fertiliser application for all or some fields.
- The NMP was implemented very closely in all fields for 77% of plans.
- Approximately 88% of plans had evidence to show the calibration and/or maintenance of fertiliser spreaders.
- Improvements had been seen for many farm practices and environmental issues, since the development of the plan, however the greatest improvement was recorded for improved awareness of diffuse nutrient pollution issues. The greatest significant improvement was recorded for the calculation of fertiliser application

plan. Current good practice was most evident for accuracy of fertiliser/manure spreading.

- 42% of farms had seen some or significant savings as a result of using a nutrient management plan and 26% had seen some or significantly better crop yields.

### 3.2 Farmer Survey

There was a great deal of support for the plans in principle as a tool to help protect the environment. However, a common criticism was that they were time consuming to prepare due to the detail required and a lack of clarity over what to include and how to present it.

The farmers were likely to have received help from an adviser, agronomist or agent when preparing the plan. However, the adviser was more likely to help the farmer complete the plan than complete it for him. The average cost to prepare the soil, manure and nutrient plans was in the region of £220-£270 per plan. The CPMP appeared to cost less (£120).

ELS events and the ELS handbook were considered very or fairly useful in the production of all plans. PLANET and MANNER were well received by the majority of users, although a few farmers did suggest they weren't very useful to them, which may suggest they had difficulty using or understanding the software. The Defra advice on manure management in the "Step by Step guide for farmers" was considered useful by 77% of the users. The guidance under the VI relevant to the crop protection management plan was very well received overall. The farmers were most likely to consider the help available to prepare the plans very or fairly good.

The most frequently mentioned additional help recorded within an open ended question was a template or better indication of how the plan should be presented, followed by clearer specific guidance and clearer signposting to guidance.

On balance, the farmers found it fairly easy to complete the plans. The CPMP was rated as the easiest to complete. The key difficulty for other plans was knowing how to present the plan, what information was needed and concerns over repetition for each field. With the SMP, identifying and classifying soil types and assessing the degree of slope were also issues.

The time period over which the plans were prepared varied considerably. Time actually spent preparing the plan ranged from 1 hour to 2 full weeks. On balance the CPMP appeared to take the least time to prepare. Overall there did not seem to be a problem for farmers to complete the plan within a year of setting up the agreement.

Substantial proportions of the sample suggested that there would be a change in their farm practices as a result of the plan and where a change had been made on farm this was likely to have brought about a positive environmental difference. Where no benefit had been seen, this was primarily due to good practice currently being observed on the farm.

On balance the farmers felt it had been worthwhile preparing each of the plans, however they found the nutrient plan, followed by the crop protection plan the most worthwhile. 34% of farmers thought the soil management plan was not worthwhile, the highest proportion for all the plans. Anecdotal evidence indicates that some farmers feel that the SMP has little value to them as a management tool as they are already managing their soils appropriately. There is a feeling that the SMP merely documents what is already being done.

Based on an open question the main reason identified for preparing the plans was for ELS, either to comply, enter or gain points. Preparation of the plan for another scheme was also a major influence for the MMP and CPMP.

Substantial proportions of those with a NMP and a MMP had made savings. However 26%-39% of farmers felt they had incurred costs when preparing the plan. These most often seemed related to time to prepare the plan or change practices. If the farmer's time is considered a time cost, then the SMP, CPMP and MMP resulted in more farmers incurring a cost than making a saving, whilst more farmers made savings than incurred costs with the NMP, suggesting a net financial gain. (This assumption does not take into account costs to employ an adviser to help prepare the plan).

The majority of farmers had a good understanding of issues in relation to diffuse pollution and conservation, however the greatest level of understanding was recorded for the importance of good soil structure, followed by the conservation value of farmland habitats.

### **3.3 Consultation with Advisers**

The plans were considered quite straightforward and easy to complete, however they were thought to be time consuming. The SMP was considered the least straightforward as it was a newer initiative not covered by other schemes.

All the advisers used guidance to help complete the plans over and above the ELS handbook. Comments suggest that the information available is often not signposted clearly enough, is not readily accessible, or is too vague or brief. At the introduction of the plans, templates and more specific guidance would have been helpful to the advisers. A number of advisers had developed their own template or software to help.

The soil management plan seemed to take longer than the other plans to complete (SMP half to three days, other plans half a day). The length of time also varied by farm size.

The adviser's responses suggested that many (but not all) of the plans were not updated or referred to as often as would be hoped. However, in most cases the farmer was thought to be very aware of the information in the plans.

The advisers overall felt that the management plans helped farmers identify farm practices that have an adverse impact on the environment and that in the main the recommendations in the plans would be carried out on farm. The adviser's role was seen to be important in ensuring the farmer understands the environmental implications.

There were mixed views as to how worthwhile the plans would be to the farmer and the environment, however the majority of comments were positive and suggested that the plans were worthwhile "if done properly". There were, however some reservations due to the cost to the farmer and the fact that the plans may partly duplicate the requirements of NVZs, the farm assurance scheme and cross compliance. The plans in their current form were also thought difficult for the farmer to understand and thus potentially implement.

Potential improvements to the plans suggested included: clearer guidance; simpler shorter forms; templates; and greater advice delivery to farmers to increase understanding of the on-farm benefits as well as to the environment.

### **3.4 ADAS Farmers' Voice**

Farmers with a management plan were significantly more likely to have a greater understanding of diffuse pollution, the nutrient value of manures, and the importance of good soil structure than farmers without a plan. As there were no differences in the results between those in ELS and those not in ES, this suggests that it is the management plan which is having the positive difference and not just being part of the entry level scheme.

### 3.5 Review of ESF Data

An area the ESF campaign continues to make the most impact is in directing both land managers and advisers to look for opportunities to tackle diffuse pollution problems through ELS. Since the events, a 56% increase was demonstrated in the proportion of land managers with or intending to have a soil management plan. A similar situation was also evident for nutrient and crop protection management plans.

## 4. Conclusions

The key driver for the production of all management plans is to gain points for ELS, which should ultimately result in financial benefit to the farmer. Subject to this, farmers have chosen specific plan options within their ELS agreements for various reasons, typically falling into one of three categories: firstly because there are particular resource management issues on the farm, such as the farm is in an NVZ; secondly because the plans are seen as an 'easy option' as much of the information has already been gathered for farm assurance schemes or the VI and little change is required; or thirdly because farmers are not able or willing to gain sufficient points for ELS in any other way. Dependent on the reasons for management plans having been chosen, the value of the plans as an ELS option and the extent to which they provide additional environmental benefits and meet resource protection objectives will vary greatly.

Generally, if completed in line with the Defra guidance and in association with a qualified person, the management plans produced as part of an ELS agreement should be robust enough to identify most risk activities or situations present on the farm; however in practice our review identified a number of shortcomings that mean that plans produced are of variable quality with many currently not sufficiently robust to identify all risks. Hence there is potential for the plans to be much more effective than those currently being produced.

Despite this, we found evidence that plans are generating changes to on farm practice and helping to improve understanding of diffuse pollution and reduce adverse impacts of farming on the environment. The findings of the farm visit review clearly demonstrated improvements in farm practice amongst a significant proportion of farms since plans had been prepared. Even if such improvement may only be amongst 10-20% of farms for any specific action, this represents a significant number of holdings and as such a potentially substantial benefit to the environment.

Looking at the individual ELS options, there is at present wide variation in the presentation and content of the plans being prepared, with the exception of the CPMP. The latter follows the format of the VI, which gives the farmer and adviser a clear format to follow. However, because of the overlap between the ELS CPMP and plans prepared for the VI and other schemes, it is questionable whether this plan in its current form provides added value as an ELS option.

The Soil Management Plan was criticised the most heavily by farmers and advisers due to a lack of specific guidance and associated template. Although the link between the soil protection review (SPR) and SMP was not explicitly addressed through this project, feedback from advisers is that farmers do not see the SMP as a duplication of effort made in completing the SPR. It seems that farmers find the SPR easy to complete, but do not find it valuable to their specific farm situation. Farmers do see the SMP as specific to their situation but some do not feel that it adds value to their management as they see it as simply documenting the management that is already taking place; notwithstanding that that management may not always be appropriate. It seems that farmers are still thinking primarily of soil management in terms of yield and quality rather than risk of diffuse pollution, possibly as they are not seeing the impact



of diffuse pollution. If farmers consider the SMP as simply a record of what is already taking place, rather than as a tool for improving their environmental performance the additionality of the plans will be limited.

With MMP some farmers also believe that the plan is simply a formalisation and record of what they are already doing; however for a significant number of farms, the production and implementation of a plan has resulted in real change and a greater understanding and awareness of pollution issues on farm. Although MMP are a requirement of some farm assurance schemes (FABBEL), they would as a result generally only have been completed by livestock farmers. Arable and dairy farmers are unlikely to have completed MMP previously, unless possibly as a requirement of the Environment Agency. Therefore, the inclusion of MMPs within ELS should raise considerable additional awareness of the need to manage organic manures appropriately and to take account of their nutrient values. There is clear evidence that while many farmers believe that their practices have not changed, behaviour of a significant proportion has been influenced as a result of producing the plan.

Until 2007 NMPs have not usually been a requirement of farm assurance schemes and so the plans seen during this study are unlikely to have been prepared for any scheme other than ELS. Feedback from advisers indicates that farm assurance schemes now sometimes require justification for nutrient use, although not necessarily on a field by field basis. As with the CPMP, there may be a risk that in the future the focus of assurance schemes could move away from nutrient planning and therefore ELS plans could be the only NMPs updated annually.

Across all plans, the study has identified that current guidance available for management plans is often considered:

- Too vague/non-specific.
- Fragmented - not available from one source.
- Not readily accessible to all farmers and advisers - often only available in electronic format.
- Sometimes out of date.
- Lacks readily accessible templates of maps and plans and lacks clear examples of best practice

There is evidence to suggest that many plans are currently not updated annually, which increases the chance that new or emerging risks may not be identified. Similarly, effectiveness would be increased if farmers completed plans at the outset of an agreement, which would allow the plan process to influence option choice; if farmers complete the plan at the end of their agreement year the result will likely be a record of what took place that year rather than a plan for the year ahead, and will therefore be less likely to influence actions.

Although many plans contain the required information, the variation in the quality and content of the soil, manure and nutrient plans particularly would suggest the need for checks to ensure compliance and thus that they are effective at identifying most risks. This study has also shown that in assessing plans, an on farm assessment must be carried out in order to fully understand the risks on the farm, and to check figures used as the basis for calculations. Often each plan requires additional information or explanation to be assessed independently off the farm. Given the level of technical detail within each plan, they can only be checked by a suitably qualified person.

Attitudes amongst farmers and advisers toward the likely influence of the plans are in the main positive, even if the main motivation for completing a plan is financial. Responses to questions posed in the ADAS Farmers' Voice survey also showed a

significantly greater understanding of environmental issues associated with the impact of agriculture amongst those with a management plan, compared to those farmers without a plan. But as some plans can also be prepared to meet the requirements of other schemes, it can be difficult to disentangle the extent to which ELS management plans alone have influenced farmer behaviour. The changes made so far are likely to be as a result of the combined effect of all relevant schemes and initiatives.

## **5. Recommendations**

Environmental Stewardship is an incentive scheme that offers payments to farmers in return for the provision of environmental benefits. The role of ES in providing such environmental benefits needs to be considered against the context of the CAP and the associated standards set out for cross-compliance. Clearly, there is an expectation that incentive schemes should deliver a level of benefit that exceeds that required through cross-compliance.

The study has clearly demonstrated that management plans have value, albeit the way current plans are being delivered results in variation in quality and thence impact. When formulated and implemented as intended, however, it is clear that management plans are a robust mechanism for contributing to Defra's objective of reducing diffuse pollution from agriculture. However, this study has identified several issues around plan content and compliance that need to be addressed if these benefits are to be maximised. Furthermore, issues have been identified that question the level to which some management plans are providing additional value beyond what is already being provided to meet the needs of cross compliance, farm assurance schemes and the VI.

Given recognition that management plans can serve a useful purpose, it is essentially a policy decision where they sit within the delivery framework. This study has identified that should the plans remain as an incentive scheme option, some changes to delivery might be required and these are set out below. However, it is also clearly an option to make delivery of one or more of the plans a cross compliance requirement of either an ELS agreement or of the Single Payment scheme, and thence to remove the incentive element. Ongoing and future changes to the regulatory framework and associated legislation are likely to result in greater levels of resource protection and may begin to remove some of the need to incentivise practice change for resource protection.

Should management plans be retained as an incentive scheme option the structure of the plans and the way in which they are delivered should be reviewed. Strategic changes to the plans could include combining the plans into a single resource protection plan, as is the case with the Tir Cynnal scheme in Wales. Plans could also be linked more closely to the ELS application process and completed with the FER, which would ensure they are in place at the start of an agreement and have the potential to influence the overall choice of options. It may also be that a mechanism for confirming compliance could be put in place, such as the plans being signed off each year by a suitably qualified adviser. Measures such as this would help ensure the plans provided a greater level of environmental benefit.

This study has identified that in theory management plans produced as part of an ELS agreement should be sufficiently robust to identify risk activities and/or situations; however in practice most plans are not yet compliant in all requirements. Several refinements to the management plan guidance may be needed to address this. These are as follows:

## 5.1 Applicable to all Plans

All ELS handbook guidance needs to be reviewed and updated and made more specific to avoid confusion.

The evaluation has highlighted the need for a central location where information on the four plans can be reviewed and downloaded or requested in hard copy. Some consideration must be given to farmers who do not have access to the Internet and require hard copies of the supporting information: a number of the documents associated with the plans are only available electronically. Hard copies of key documents should ideally be provided to those with a particular plan in their agreement or at minimum should be available without delay on request.

NE should consider making all plan specific guidance available in one pack to those that have selected a particular plan for their agreement. Templates/methods should be provided for all plan types in hard copy and electronically. These could include prepared agreement specific maps and keys for soil and manure plans. Worked examples of the plans could be produced for typical farming situations and to demonstrate 'best practice'.

It is desirable that electronic versions of the plans are designed so that they share common information such as field names numbers and sizes to make the plans easier to produce and update help ensure that all relevant fields are included.

It is clearly important that plans are updated regularly. Information to demonstrate the value of regular updating should be provided. A system should be in place to check that plans have been updated, for example plans being signed off by a suitably qualified adviser.

Correct soil classification is very important for manure, nutrient and soil plans. Further training/ information is required for farmers and advisers. A lack of understanding of the importance of soil structure and permeability has also been highlighted. Poor soil structure will dramatically increase the risk of soil erosion and run-off following applications of manures and other nutrients. Soil 'knowledge' could be covered in training/advice courses for agreement holders.

NE should consider whether more commonality between schemes (e.g. Farm Assurance) could be achieved to reduce farmer workload. Plan templates could be based on the plans for other schemes or a format acceptable to all developed. Where there is a clear template to follow and the ELS plan and plan for the other scheme are similar the plan would be reviewed more frequently. This is true of the CPMP. The nutrient and manure plans however appear to vary considerably from others already existing in industry, possibly resulting in confusion for the farmer. The SMP is less likely to be prepared for other schemes, and requires significant effort and understanding by the farmer or adviser to develop an initial plan.

The plans need to be assessed to ensure they are compliant and relevant to the farm. A system of inspection should be introduced; however any inspection should be done on farm and by a suitably qualified person.

Ensuring that the farmers believe improvements are likely as a result of preparing the plan, and also ensuring they understand the impact of agricultural practice on the environment is an important step in encouraging farmers to change high risk practices. Continued education and awareness raising amongst farmers is needed.

## 5.2 Crop Protection Management Plan

This seems to be the plan with the fewest problems and it illustrates that a simple template approach can provide the greatest compliance with scheme requirements. There is a risk however that the VI template could encourage a farmer to indicate an



answer that they see to be 'correct' without the answer actually being most accurate within the context of their farm or farming practices.

The future of the VI is unknown, but whether or not that initiative continues, it seems likely that some form of CPMP will continue to be a requirement of Farm Assurance schemes. However, feedback from advisers suggests that assurance inspections are currently less concerned with CPMP and as a result the plans are not necessarily being updated annually for assurance purposes. It is recommended that either consideration should be given to developing a methodology/format for CPMPs that could more fully meet the requirements of ELS or that the status of the CPMP as a paid option within ELS is re-evaluated as it is difficult to see where this plan in its current form can provide added value.

### 5.3 Manure Management Plan

A number of the problems associated with producing a manure management plan: calculations, map colours, boreholes, dirty water, could be addressed by a revision of the document, "The Manure Management Plan, A Step by Step Guide for Farmers" to make it easier to understand and complete. PLANET should be signposted as a reference source for local rainfall figures.

The development of a decision tree to help determine the risk category for each parcel of land is recommended. Also, given that advisers are already producing or helping to produce a high proportion of MMPs, it should be a requirement that a suitably qualified adviser at the very least checks the plan. The former "National Farm Waste Management Plan Register" could be resurrected for this purpose.

From 2008 written risk assessment procedures to identify suitable locations for spreading organic manures will be required under the draft NVZ Action Programme as a cross-compliance measure within NVZs. The assessments are likely to consider runoff risk associated with times, slope, weather conditions and other factors currently addressed through MMPs. Therefore, it would seem that beyond 2008, there would be no added value from MMPs in ELS in NVZs.

### 5.4 Soil Management Plan

The importance of soil management plans in dealing with diffuse pollution, the effects of climate change, flooding, and lessening the impact of the Water Framework Directive needs greater emphasis. The different types of soil erosion also need to be clearly defined and explained. Enhanced run-off is the most common form of erosion occurring on all soil types, but there is evidence that it is being overlooked in current plans.

Websites where archaeological features can be identified e.g. [www.magic.gov.uk](http://www.magic.gov.uk) should be clearly signposted to ensure that these are highlighted in the plans.

Good soil structure will reduce the likelihood of soil erosion and it is also a very important component of productivity. This point must be emphasised to farmers through guidance and via advice.

The guidance document 'Producing a Soil Management Plan for ELS' includes an example field-by-field assessment, it does not include a template or method for producing the SMP. It is recommended that a method for the field-by-field assessment should be provided with the option of completing this either electronically or as a hard copy.

The quality and completeness of maps could be improved by providing farmers with a field plan including a standardised key i.e. a similar format to that provided for the Farm Environmental Record. Besides showing risk categories, the key would prompt

inclusion of information such as wind erosion, field drainage etc. which was missing from many of the maps in the survey.

If SMPs are failing to be an attractive option to many of the farms most vulnerable to erosion i.e. those with light sand soils, this could be addressed by requiring all farms entered into ELS to complete an SMP or basing the points awarded on a risk score.

Because of the absence of equivalent assessment frameworks in other schemes, and the important contribution towards assessing risk of soil run-off etc, this plan has the potential to provide the highest level of additionality. However, this plan is also the hardest to complete and therefore to ensure that the full benefits of the plan are achieved it is recommended that guidance should be improved and that a mechanism to check quality and completeness be put in place.

## 5.5 Nutrient Management Plan

The importance of accurate information, including manure use and up to date soil samples needs to be emphasised to farmers to produce accurate plans. A substantial proportion of farmers are still not accounting for the nutrient value of manures and this needs to be addressed.

A greater availability of templates, example plans and clearer guidance would help farmers to complete the plans. A FACTS-qualified adviser or equivalent must be involved in the production of a nutrient management plan, either in its completion or in its approval.

This study has shown that some existing nutrient management plans are failing to consider nutrients supplied by manures, whether produced on-farm or imported. This may be because farmers view manures as being separate from manufactured fertilisers as there is a separate plan for manures and they may not have opted to complete that plan. Similarly, but with the exception of some fully organic farms, the majority of farms using organic manures will also apply manufactured fertilisers, but may not be considering their impact if they only opted to complete a MMP. The objective of the NMP and MMP is to appropriately plan for and manage nutrient supply. Therefore it would seem that nutrient supply could be managed through one single plan for both organic and manufactured fertilisers. This would also appear to simplify the plan process.

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## 1. Background and Objectives

Defra's Environmental Stewardship (ES) scheme, launched in March 2005, is a national agri-environment scheme that aims to achieve widespread environmental benefits beyond those achieved through the Single Payment Scheme. All farms claiming Single Payment are required to comply with legal requirements, such as Nitrate Vulnerable Zone (NVZ) Action Programme Measures, and the Wildlife and Countryside Act 1981; these are known as Statutory Management Requirements (SMRs). Single Payment claimants are also asked to demonstrate that they are keeping land in Good Agricultural and Environmental Condition (GAEC) by complying with standards. Examples of GAEC standards are: not burning specific crop residues (GAEC 4); and controlling the spread of specific weeds (GAEC 11). Meeting these requirements is described in the Common Agricultural Policy (CAP) legislation as 'cross compliance'. The Environmental Stewardship scheme is designed to provide environmental gains beyond cross compliance and can reward farms for the additional gains. The environmental 'reach' of ES has been strengthened by comparison with previous agri-environment schemes through the inclusion of natural resource protection as a primary scheme objective.

The scheme has three elements, Entry Level Stewardship (ELS), Organic Entry Level Stewardship (OELS) and Higher Level Stewardship (HLS). ELS and OELS are whole farm schemes aimed at encouraging a large number of farmers and land managers across England to deliver simple but effective environmental management. HLS is a discretionary scheme that aims to deliver significant environmental benefits in high priority areas.

Within Environmental Stewardship four Management Plan Options have been included to contribute to delivery of the natural resource protection objective. These are the:

- Soil management plan (SMP)
- Nutrient management plan (NMP)
- Manure management plan (MMP)
- Crop protection management plan (CPMP)

Each of these options contributes 2-3 points per hectare towards a threshold level of environmental delivery that qualifies for scheme entry. All four management plan options are voluntary, although the soils, nutrient and manure management plans are mandatory for those farmers selecting resource protection options in HLS. Plans are intended to raise farmer's awareness of resource protection issues and encourage them to optimise inputs and reduce the environmental impacts of farming activity.

Management plans of this nature, and indeed the inclusion of 'resource protection' as an objective, are an innovative addition to agri-environment schemes, although the overall concept is not new, with management plans having previously been an element of industry initiatives such as the Voluntary Initiative (VI). Defra/Natural England required an early evaluation of the effectiveness of Management Plans in order to evaluate the extent to which, through developing a plan, farmers have assessed in a structured way the potential impacts of their farming activities on the environment. Defra also wished to assess to what extent well constructed and implemented plans will meet some of its objectives for reducing diffuse water pollution from agriculture and for more sustainable management of soils.

Management plan options have proven to be very popular within Entry Level Stewardship (ELS) and have been taken up in large numbers, hence it is important to consider whether they are providing value for money.

ADAS were commissioned by Natural England to conduct an evaluation of the management plan options in Environmental Stewardship. The overall objectives of the project were to evaluate whether current ES management plans are sufficiently robust to:

1. Help farmers identify risk activities and/or situations where agricultural activities could result in adverse environmental impacts;
2. Generate recommendations and actions for farmers that will address potential adverse agricultural impacts;

And;

3. To assess the added value provided by including management plan options within ELS;
4. To assess the extent to which completion of a management plan helps in the selection and targeting of HLS options\*.
5. To assess whether farmer behaviour is likely to be influenced as a result of the completion of management plans.
6. To identify any refinements that may be needed and therefore to feed into enhancing future delivery of ES and other initiatives addressing diffuse pollution issues.

This project was therefore, to achieve a comprehensive evaluation of the degree to which management plans are likely to contribute to the achievement of Defra objectives.

\*This objective was removed after the project start up, due to the low number of management plans within HLS agreements that were available for review at the time of the study.

## 2. Method

In order to meet the project objectives, the study was conducted in a number of discrete stages:

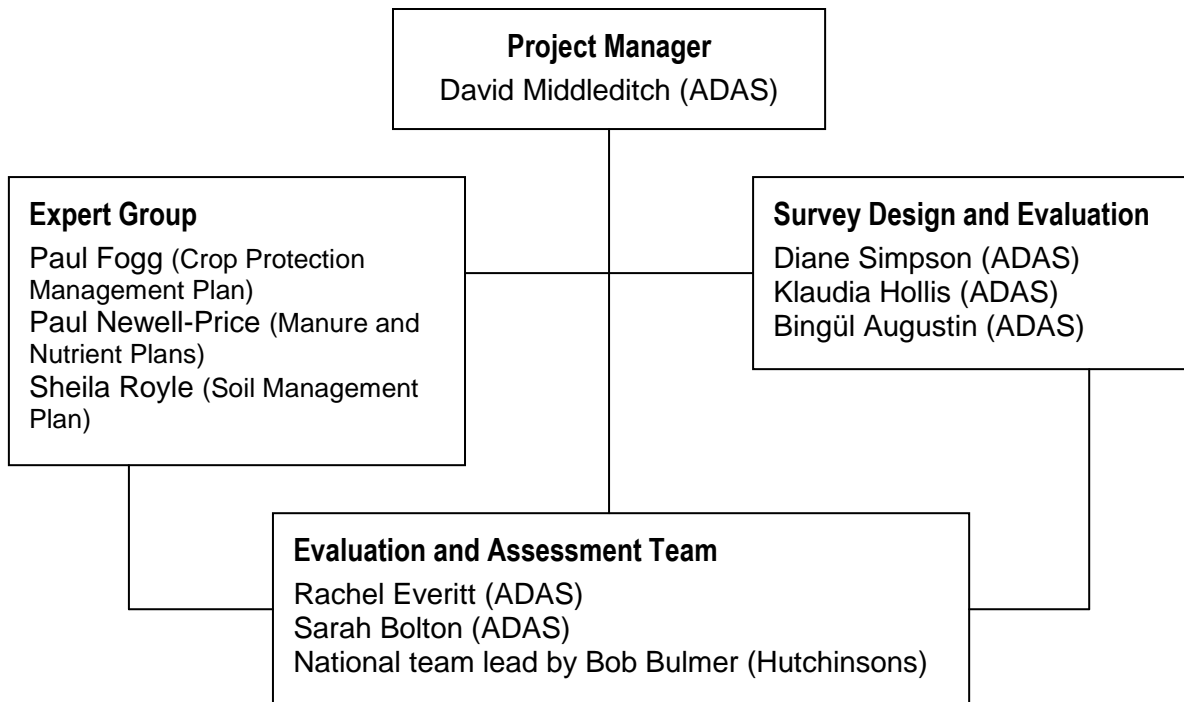
1. Desk evaluation of management plans
2. Farm visit, including review of management plans and interviews with the farmer
3. Consultation with advisers
4. National survey of farmers via the ADAS Farmers' Voice
5. Review of the performance monitoring data from the Environment Sensitive Farming (ESF) advice programme

These stages are discussed in detail below.

The study was led and project managed by ADAS. All 5 stages of the project were designed and co-ordinated by the ADAS market research team, working closely with the ADAS project manager. A team of ADAS experts was called upon to ensure the development of appropriate survey questionnaires and provide interpretation of the survey data. A team of ADAS assessors reviewed the management plans during the desk review stage, whilst advisers from Hutchinsons Environmental Services were subcontracted to conduct the on-farm assessments of the management plans and interviews with farmers.

For clarity given the complex nature of the project, the structure of the project team is detailed in figure 1.

**Figure 1: Project Team**





## 2.1 Desk Evaluation

This first stage of the project aimed to evaluate how well the plans had been completed and to assess compliance with guidance on plan completion as issued by Defra. Compliance was assessed against the requirements or suggestions included within the ELS handbook.

A sample of 500 plans, stratified to provide roughly equal examples of each plan, and to ensure a representative distribution of regions and farm sizes was selected by ADAS. Natural England requested plans via letter from 488 of these farms, with the intention of obtaining about 350 plans for desk review. In the event, 169 plans were returned to Natural England and these were forwarded to ADAS for evaluation. The total sample was spread across the plan types as shown below:

**Table 1: Number of Each Plan Type within the Desk Evaluation Sample**

Soil management plan	51
Nutrient management plan	35
Manure management plan	44
Crop protection management plan	39

The initial intention was to review 350 plans. However, this plan was subsequently changed and the sample reduced, firstly due to the initial shortfall in plans submitted to Natural England, and secondly, because the early stages of the review highlighted the difficulties of accurately assessing the plans away from the farm. The main reason being that the farmers did not always send all the information required to evaluate the plan; either the plan itself could be incomplete, or missing supporting material ie. maps or associated records necessary to undertake a comprehensive evaluation. The nutrient management plan proved the most difficult to assess in this way. For example when a plan had been produced based on the PLANET software, typically only a small proportion of the relevant data output needed to assess the plan was submitted.

A questionnaire specific to each plan type was developed in conjunction with ADAS specialists, for use by the ADAS advisers when reviewing the plans. The questionnaires can be found in Appendix 1.

The questionnaire covered issues relevant to each plan as detailed by the guidance notes, for example does the plan contain a map, do the fertiliser application rates appear logical etc.

The data for each plan was weighted to ensure the sample profile reflected the national profile for each plan in terms of region and farm size. The actual and weighted sample details for each plan are shown in Annex Section 1.

All data was entered into QPSMR a data analysis package designed for the market research industry, which enabled the data to be collated and tabulated for analysis and evaluation.

## 2.2 Farm Visit Review of Management Plans and Interviews with the Farmer

In total 90 farms were visited and 198 plans reviewed in detail during this stage of the survey. The numbers of each plan type reviewed are shown in the table below.

**Table 2: Number of Each Plan Type within the Farm Visit Review Sample**

Soil management plan	55
Nutrient management plan	48
Manure management plan	45
Crop protection management plan	50

Initially the intention was to visit 50 farms and review up to 100 plans in the field. However the sample was increased following the desk review stage, where the importance of being able to review farm records, talk to the farmers and access the complete plan was recognised. It was therefore agreed that greater effort should be put into farm visits, rather than to put further effort into obtaining plans for desk evaluation to meet the sample size originally planned. The majority (60) of the farms visited had already submitted plans for the desk review. An additional 30 farms were sourced from the initial sample selected for the desk review, whose farmers had not replied to the survey and a further 8 contacts known to Hutchinsons. The farm visit also aimed to review more than one plan per farm whereas the desk reviewed only considered one per farm.

The farm visit comprised two stages, firstly an interview with the farmer to obtain general information about their attitudes to the plans, including their perceived value, their reasons for completing a plan, the ease of completion and also their opinions on likely or actual changes to farm practices and awareness of diffuse pollution. This interview utilised a questionnaire designed by the ADAS market research team and administered by Hutchinsons. The questionnaire comprised a high proportion of open questions to ensure a detailed understanding of the issues associated with the plans was achieved. The questionnaire asked the farmer about all plans relevant to his farm and collected information specific to each plan type. This questionnaire can be found at Appendix 3.

The second stage of the farm visit involved the Hutchinsons adviser undertaking a detailed review of one or more of the management plans held by the farm, using a structured questionnaire designed by the ADAS market research team. Where possible all the plans held by each farm were reviewed. As for the desk review stage the aim of this element of the study was to assess how well the plans had been completed and to assess the degree of compliance with the plan requirements. This stage differed from the desk review in that the assessor reviewed farm records, considered the on farm situation and also talked to the farmer in order to gather evidence to enable him to complete the questionnaire. In this way the assessor was able to judge qualitatively whether the information in the plan was appropriate for the farm. Questions were also included to indicate whether farming practices designed to reduce environmental impact, had been adopted or improved since the introduction of the plan.

In almost all cases the advisers were able to walk the farm and inspect fields. This was particularly important when assessing SMP and NMP where issues associated

with slope, receptors and soil texture could be assessed and compared with how they had been recorded or addressed in the plans. Facilities for manure storage were also assessed. Most farmers were generous with their time during the visit and seemed to appreciate the opportunity to get advice and clarification on some issues.

The site visits lasted up to 4 hours, but varied according to the number of plans that were reviewed. The farm visit questionnaires can be found in Appendix 2.

The farm visit data was again weighted to ensure it reflected the national profile of farms with a plan, in terms of region and farm size. The actual and weighted sample is detailed within Annex Section 1.

## **2.3 Consultation with Advisers**

In depth, qualitative telephone interviews were conducted with 10 farm advisers by the ADAS market research team. The advisers were selected from lists provided by ADAS farm consultants, and were chosen to obtain a spread of geographic areas and parent companies, to ensure that a mix of opinions were obtained. All advisers selected for interview had completed management plans on behalf of farmers. All four plan types were covered across the sample. In line with the Market Research Society Code of Conduct the names of the advisers cannot be revealed, however they included a mix of independent consultants and representatives of larger companies and consultancies including TAG, Procam, Frank Knight and Berrys.

Each adviser was initially contacted via telephone by the ADAS market research team to gain agreement to take part in the interview and to confirm they had completed or helped farmers complete one or more management plans. A mutually convenient time and date for the interview was then arranged.

The interview operated within the framework of a topic guide prepared by the ADAS market research team, which ensured consistency cross the interviews but allowed pertinent issues to be explored as they arose.

Each interview lasted approximately 40 minutes.

## **2.4 National Survey of Farmers via the ADAS Farmers' Voice**

The ADAS Farmers' Voice is an annual survey conducted amongst a representative sample of farmers across England and Wales.

Questions were placed on the ADAS Farmers' Voice survey 2007 to obtain background information on awareness of diffuse pollution, resource protection and other environmental issues amongst those with and without a management plan.

The questions used within this survey can be found in Appendix 5.

## **2.5 Review of the Performance Monitoring Data from the Environment Sensitive Farming (ESF) Advice Programme**

The ESF project is delivered and monitored by ADAS and contains feedback on changes in farmers' and advisers' awareness of diffuse pollution, use of and need for management plans and the proportion of respondents taking measures to reduce the environmental impact of agriculture.

A review was conducted of relevant data from the first annual report for the ESF performance monitoring to provide added insight and context to the project and its findings.

### 3. Detailed Findings

The findings of the evaluation are presented by plan type, with a section for each drawing on information from both the desk and on-farm reviews. Further sections review the data from the farmer and adviser interviews, and briefly discuss the ADAS Farmers' Voice and ESF data.

#### 3.1 Desk and Farm Visit Evaluation - Crop Protection Management Plan (CPMP)

In order for a crop protection management plan to be compliant in relation to the guidance within the ELS handbook (page 85) it must:

- Be documented.
- Be produced in conjunction with a qualified BASIS agronomist.
- Be site specific.
- Be updated annually.
- Make full use of biological, cultural and chemical methods that can be economically and practically implemented on your farm.
- Consider farm location, soil type, previous cropping, rotations and any pesticide resistance issues.
- Adopt non-chemical control options whenever economic or practical. Include the use of rotations, cultivations and resistant varieties and encourage natural predators by incorporating beetle banks and field margins.
- Inspect crops regularly and identify weeds, pests and diseases. Cultural and/or chemical techniques should be used and the environmental impact of each choice assessed.
- Select a pesticide that effectively controls weeds, pests or diseases. The chosen pesticide should minimise impacts on crop pest predators and non-target organisms. Neighbouring crops, wildlife habitats and watercourses should be taken into account before finalising pesticide choice.
- Minimise environmental impact by spraying under optimum conditions. Avoid field margins and watercourses and minimise spray drift. Always leave hedge bottoms unsprayed. Where appropriate, undertake a Local Environment Risk Assessment for Pesticides (LERAPS).
- Keep accurate records. These must be the justification for a particular course of action.
- Regularly maintain all spray machinery in accordance with the manufacturer's instructions.
- Store pesticides in accordance with the Green Code (available from Defra Publications, PB 3528<sup>3</sup>) and Health and Safety Executive requirements.
- Dispose of any surplus pesticide waste and containers in a responsible manner so as not to contaminate the environment.
- A crop protection management plan completed for other schemes (such as a farm assurance scheme or the Voluntary Initiative (VI)) will count as a crop protection

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<sup>3</sup> This publication has now been replaced with the "Code of Practice for Using Plant Protection Products 2006", Defra publications PB11090.

management plan under this option, providing it includes all the requirements described above.

The questions within the desk and farm visit evaluation forms were developed to be able to judge the plans against these guidelines. The VI Crop Protection Management Plan was used as a guide to the development of the questionnaires.

### **Recognised Scheme**

The Voluntary Initiative (VI) format had been used to prepare 99% of the farm visit plans. The LEAF approach was however also used by a few farmers, 7%. (The percentages add to over 100% as farmers had prepared crop protection plans for more than one scheme). The use of the VI has resulted in a good level of consistency across the plans under consideration and an overall high level of compliance with the guidance set out in the ELS handbook, as will be demonstrated throughout this section of the report.

### **BASIS Qualified Agronomist**

The majority of plans (87%) reviewed during the farm visit had been completed by or in association with a BASIS qualified person and in most cases (88%) this was an agronomist or consultant. In only 10% of cases was this person the farmer.

13% of the plans reviewed at the farm visit stage were not, as far as the assessor could ascertain, completed by or in conjunction with a qualified BASIS agronomist.

During the desk review it had not been easy to confirm whether or not a BASIS qualified person had been involved. This is possibly as it is not a requirement of the VI to complete this document with a BASIS qualified person. There was some evidence for 72% of the plans, that the farmer had received help in completing the plan, in the form of a letter or the VI summary page, however this did not usually identify the qualifications of the person concerned. For 23% of the plans it was possible to identify that help had been received from a BASIS qualified person. Only 5% of the plans provided no indication at all of the possible involvement of a BASIS qualified person, which is actually in line with the findings of the farm visit stage.

### **Site Specific and Map of the Farm**

99% of the plans reviewed during the farm visits were clearly site specific. There was however doubt over the remaining 1%, which suggests a more generic plan was produced.

94% of the farm visit sample produced a map of the farm with the plan. 6% did not have a map; however it should be noted that this is not a requirement of the CPMP based on the guidance within the ELS handbook. Maps were not however, usually included with the plans that were submitted for the desk appraisal.

### **Updating the Plan**

65% of the farm visit sample had updated the plan since it had first been produced, however 35% had not done so. The largest proportion of the plans had been produced in 2006 (47%), and these plans were the least likely to have been updated (38% had been updated, 62% had not been updated). It could be that farmers are waiting until later in the year to update their plan. If the plan was completed in late 2006 for the 2007 cropping year it would not have been updated yet, and thus would still be compliant.

### **Inclusion of Current and Previous Year Crop Management Information**

Only 56% of plans assessed on farm visits included crop management information for the current and previous year. 28% had information for the current year only, whilst 16% had information for the previous year only. For those farmers in the first year of the scheme there is no requirement to have previous year records as they were not then in ELS. All should however include at least the current year's records.

42% of the sample had prepared the plan for the 2006 harvest year, whilst 55% had clearly prepared it for the 2007 harvest year.

The desk review had suggested a less positive situation with only 22% appearing to provide both current and previous year's information; however the farm visit results should be viewed as the more reliable given the ability to question the farmers and review other documents.

### **Use of Cultural Control Methods**

All the plans studied within the farm visit review demonstrated that one or more cultural biological or chemical methods had been used on the farm. Thus all plans complied with this element as no specific requirements are placed on which methods should be used on different farms. 96% and 93% respectively used crop rotation including use of break crops/set-aside, and/or crop varieties selected for pest and/or disease resistance. The latter can however be considered as standard practice and not necessarily methods that have been adopted since or as a result of the completion of the management plan. 81% used field margins, buffer strips or beetle banks to encourage beneficial species, which should be seen as a positive. Ideally these figures should be compared to farms who do not currently have a CPMP to demonstrate differences in behaviour likely to be brought about by the plan; however this data is unavailable. 25% were employing full, integrated crop management (ICM).

### **How Pesticide Selection/Use Decisions are Made**

All the plans considered within the field visits made pesticide selection/use decisions based on one or more of the options listed within the evaluation form. Encouragingly high proportions used several of the options listed. Nearly all the plans (98%) showed evidence that a BASIS qualified agronomist recommended the timing/treatment of applications, and 95% make frequent crop inspections to determine appropriate timing/treatment. This is reasonably consistent with the desk evidence where 100% of the plans appeared to make decisions based on these two criteria.

89% and 77% respectively of the plans reviewed during field visits selected pesticides with regard to their environmental impact/impact on non-target species and/or knowledge of resistance issues on the farm. This was much higher than had been apparent at the desk review stage, where without the opportunity to investigate the on farm situation this question had scored 61% and 20% respectively.

Based on the farm visit review, only 28% were using environmental information sheets where available, . However the evidence from the desk stage suggested a higher proportion of 55%. It is possible that there is confusion over exactly what an EIS is. There is also potentially an element of the farmer when filling in a template response wanting to be seen to be doing the "right thing" and adding this information to the VI form. EIS does however, appear in two boxes on the VI form, one on its own "G6" and it is also mentioned in "B4" with the application times and optimum conditions as well as buffer zones. There are therefore two opportunities for the use of environmental information sheets to be recorded.



### **Use of Contractors**

86% of the plans considered within the farm visits indicated that the farmer carried out his own spraying, whilst only 14% used a contractor.

### **Pesticide Storage**

97% of plans reviewed within the farm visits indicated that the farmers complied with current pesticide storage regulations, as the store was either built to BASIS standards (12%) or was locked, bunded and frost proof (85%). No storage information was recorded for the remaining plan, where this lack of information could suggest a lack of compliance or at the very least an absence of on-farm storage. A similarly high level of compliance was recorded during the desk review. This high level of compliance is not surprising given that safe storage is a legal requirement and poor storage would be picked up during an inspection under farm assurance schemes.

A question placed on the desk evaluation (but not on the farm evaluation) provided evidence to show that at least 95% of those who completed the plans were aware of the Code of Practice for using Plant Protection Products i.e. the Green Code.

### **Training of Spray Operators**

90% of the plans reviewed during the farm visits and 93% of those within the desk review showed that the spray operators had been properly trained in the application of pesticides. 9% of the plans reviewed on farm and a similar proportion of the desk review plans did not provide evidence that the operator was trained. It is possible that these farmers were experienced spray operators but had received no formal training and were operating within the “grandfather rights”<sup>4</sup>.

76% of the plans reviewed on farm visit indicated the operators held the relevant NPTC certificate, whilst derogations applied for a further 22% of the plans. 9% of plans from the desk stage and 2% from the farm visit review provided no evidence to show the operators held the NPTC certificate. Overall this is a positive result and shows the benefit of the various assurance schemes, which appear to have encouraged farmers to take further training.

100% of the plans within the farm visit review showed that the spray operator was registered with the National Register of Sprayer Operators (NRoSO) to ensure continuing professional development. Without the opportunity to review the plans on farm and speak to the farmers, the desk study had indicated that only 81% of the plans showed the operator was NRoSO registered.

This universal uptake (as demonstrated by the farm visits) is likely to have been encouraged by the Voluntary Initiative, who have held relevant events. Within the crop assurance scheme farmers do however have to gain this registration. The NSTS (National Sprayer Testing Scheme) and NRoSO are also critical failure points under the assured food standards (Red Tractor) scheme.

Thus the CPMP itself has not necessarily driven this uptake. CPMPs are being considered by assured food standards but at present are not a critical failure point.

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<sup>2</sup>The law says that contractors who apply agricultural pesticides commercially, and all operators born after 31 December 1964, are required to have a certificate of competence. The right to apply pesticides without an operator's certificate of competence, because the operator was born before 31 December 1964, is known as 'grandfather rights'. A trained operator can therefore be someone who does not have a certificate of competence but who has attended some training courses and has "grandfather rights". Assurance schemes often require all spray operators to have undergone training regardless of whether or not they qualify for 'grandfather rights'



### **Maintaining and Using Spray Equipment**

The review of the plans clearly shows that the spray equipment is well maintained in line with the guidance in the ELS handbook. 96% of the plans from the farm visits and 97% from the desk review provide evidence to suggest that the equipment is calibrated/serviced regularly. Furthermore 90% of the farm visit plans indicated that application equipment is tested annually at a test centre operating under the National Sprayer Testing Scheme (NSTS). This figure had been lower at the desk review (74%) stage. There is no clear evidence to suggest this difference was due to anything else but the difficulty in identifying the appropriate evidence in the plan reviewed away from the farm.

Having equipment tested annually under the NSTS is actually a pre-requisite for Assured Produce, and thus is not driven by the CPMP alone.

Evidence was found in 69% of the plans reviewed during the farm visits, to show that low drift nozzles were used whenever possible. Low drift nozzles were not used on 27% of the farms, whilst no clear evidence was available on a further 4%. Similar results were found during the desk review, although the proportion thought to be using low drift nozzles was 75%. Thus whilst there is a high proportion of farms using low drift nozzles a significant proportion are not doing so. Although the study did not explore why this was the case it is possible that these farms do not have this type of nozzle, do not feel that they work or the farmers are choosing spray conditions which do not necessitate the use of low drift nozzles. The VI CPMP options detail good practice as “use low drift technology when spraying adjacent to sensitive areas”, best practice would be “except where efficacy will be impaired use appropriate low drift technology whenever possible”.

Evidence was absent on many plans reviewed during the desk stage to indicate whether sprayers are kept under cover when not in use. Only 54% of the desk plans had evidence to show the sprayers were kept under cover. The appropriate place on the VI form was often left blank by the farmer, perhaps suggesting it has been missed given that when this issue was investigated on farm, the sprayer was kept under cover in 90% of cases.

### **Spray Application**

Climatic conditions were clearly considered by the farmer before spraying based on discussions with the farmer during the farm visit review (94% considered climatic conditions). This figure was only recorded at 34% during the desk review, with a lack of evidence on the remainder of the plans. Although this is a requirement of the CPMP, as stated within the ELS handbook, there is no clear question on the VI form that records this information. Weather conditions are mentioned in the context of reducing spray drift in the VI. The ELS requirement however refers to optimum conditions. It is possible that as weather conditions are so variable the farmers didn't know how to address it within the form. As a minimum farmers should consider wind speed, forecast of rainfall and soil moisture conditions.

Label restrictions were being complied with by at least 96% of the farm visit sample, for example for compulsory buffer zones. Based only on a review of the plan in the desk stage evidence was only found to suggest that 56% of the farms complied with label restrictions. This is clearly not the case and it is once again due to this question not being directly addressed on the VI form. It is possible that the VI CPMP took it as read that farmers would follow the label, as it is legal requirement.

A LERAP had been completed for 83% of the farms for which plans had been reviewed in the farm visit stage. No LERAP appeared however to have been

completed for the remaining 17%. The desk review had suggested that LERAPS had been completed for 99% of the farms.

Farmers do not have to complete a LERAP. The LERAP only enables them to reduce the width of the no spray buffer zone, based on local conditions. The BEST option under the VI CPMP is as follows: 5m no-spray zone applied for all products. The VI form makes it clear what is best practice and therefore how farmers should be responding. Hence, some farmers may have ticked that they are completing LERAPS as they think they should do be doing so, but this was found not to be the case during the assessor's visit.

### **After Spraying**

Evidence was available to determine that the sprayer is washed out in the field on 88% of the farms for which plans were reviewed during the farm visits. Where the sprayer was definitely not washed out before leaving the field (6%), the washings were disposed of on a bunded concrete area in the case of two farms, which may be acceptable; however it was not possible to determine where the washings went afterwards. On another farm the sprayer was washed down in the yard, the washings collected with the dirty water and used to irrigate the field. The latter is clearly not acceptable as it may cause environmental contamination and as such does not comply with the guidelines within the ELS handbook. The desk review had also provided evidence to suggest that sprayers were washed down before leaving the field in over 80% of cases. This represents best practice.

In most cases spent pesticide containers were disposed of responsibly in a manner that would not contaminate the environment. 51% of the farm review plans showed that containers were recycled using a recognised collection scheme; for 13% of plans containers were collected by a specialised waste contractor; in 6% containers were sent for disposal at an approved site; in 7% of cases the contractor removed them and in 1% of plans they were returned to the supplier for refilling. In 12% of cases however no disposal system appeared to be in place, for example the containers were described as "piling up at the moment", and "plan to have them collected by a waste contractor". On 13% of the farms the containers had been burnt, a procedure, which has been illegal since 15<sup>th</sup> May 2007. The numbers add to over 100% suggesting some farmers use more than one method of disposal.

The desk review had suggested full compliance with requirements re disposal, with 20% of plans indicating that containers were sent for disposal by a specialist waste contractor. Several plans in the desk stage stated that the containers were cleaned and disposed of in line with the Green Code<sup>5</sup> (40%), or in line with EA advice (17%).

The desk and farm visit reviews clearly indicated that full records were being kept on pesticide application and storage (98% and 99% for the desk and farm visit reviews respectively). This point was easy to establish on the desk review of the plans, as there was a box to be ticked on the VI form to indicate full records were kept. The farm survey review provided evidence to support this result.

### **Implementation of the Plan**

All plans studied within the on farm review had evidence that records were available to provide justification for a particular course of action e.g. selection of crop variety or

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<sup>5</sup> The old "Green Code" has now been superseded and certain options, particularly relating to disposal are no longer legal, for example burning.

pesticide programmes, operator training, continued professional development (CPD), equipment testing, or LERAP assessments. This shows compliance with ELS requirements for a CPMP and engagement with the VI.

Examples of where records had been kept included agronomist recommendations, NroSO/NPTC certification and agrochemical recommendation records.

30% of the farm review plans showed that records to provide justification for actions were held on software and these were considered to be good in terms of completeness, clarity and accuracy. 98% of the records were kept in hard copy, with the majority (91%) again receiving a “good” rating for completeness, clarity and accuracy. The remaining records were rated as reasonable (7%). Clearly many records were kept on both hard copy and on software. Based on ADAS experience, often but not always the agronomist will keep electronic records and the farmer will have the printout.

### **Impact of ELS Crop Protection Management Plan on Farm Practice**

During the farm visit review assessors were asked to indicate whether the CPMP had had an impact on farm practice, by indicating whether there had been no change/improvement, some improvement or significant improvement for a number of issues since the preparation of the plan. The assessors were asked to use evidence from the plan, other farm records and discussions with the farmer to help make their judgement.

**Table 3: Impact of ELS CPMP on Farm Practice (Farm Visit)**

	No change as already good practice before ELS	No improvement Poor/moderate practice before ELS	Some improvement	Significant improvement	Weighted base (no replies excluded)
Management/disposal of empty pesticide containers and packaging	27%	6%	28%	40%	49
An understanding of point source pollution	21%	2%	46%	30%	49
Management/disposal of pesticide waste and washings	49%	9%	22%	20%	49
CPD of sprayer operator (NRoSO) member	73%	2%	7%	19%	48
Equipment testing/calibration e.g. NSTS	67%	2%	12%	19%	49
Greater understanding of diffuse water pollution from agriculture (DWPA)	22%	2%	60%	16%	49
Use of low drift technology	74%	11%	6%	9%	47
Pesticide mixing handling area/facilities	54%	18%	21%	7%	49
Consideration for potential environment impact from using pesticides	58%	0%	35%	7%	49
Competence of sprayer operator (NPTC qualified)	78%	7%	9%	6%	48
Use of BASIS qualified advice	92%	3%	3%	2%	49
Cropping – non- chemical control options	73%	21%	5%	1%	49
Pesticide storage	88%	2%	9%	1%	46
In field washing	82%	2%	15%	0%	49
Soil and climatic condition considered before spraying	88%	6%	6%	0%	49
Cropping – awareness of resistance issues	90%	0%	10%	0%	49
Crop rotation	93%	4%	3%	0%	49
Crop variety selection	94%	0%	6%	0%	49
Crop inspections to determine appropriate timing of treatment	98%	0%	2%	0%	49

In many cases there had been little change or improvement as good practice was already being followed, for example in the use of BASIS qualified advice, crop variety selection, crop inspections to determine the appropriate timing for treatment, crop rotation and awareness of resistance issues.

The greatest levels of improvement were recorded for increased understanding of point and diffuse pollution (76% showed improvement) and for a greater understanding of diffuse water pollution from agriculture (DWPA) (76%). Consideration of the potential environmental impact of using pesticides had improved across 42% of farms. These are very encouraging results in terms of facilitating a potential future reduction in diffuse pollution. Notable improvements were also recorded for management/disposal of empty pesticide containers and packaging (68%); management/disposal of pesticide waste and washings (44%); CPD of sprayer operator; equipment testing and calibration (26%). The issues identified above have received a lot of publicity and training under the VI and have also been covered within ESF events. This suggests that a sustained approach is needed to bring about change.

With regard to the management/disposal of empty pesticide containers and packaging and the management /disposal of pesticide waste and washings, many farmers have had to make changes to comply with requirements arising from the introduction of the Agricultural Waste Regulations.

In a few cases, little improvement had been seen, and where practice prior to ELS was poor or moderate. For example the use of non-chemical control options, and pesticide mixing and handling facilities. With regard to the low uptake of non-chemical control options, this could perhaps result from requiring more fundamental changes to farming systems or perhaps as a result of a lack of awareness of the possible options. Given that 90+% use BASIS qualified advice to select appropriate crop protection products, and given that a large number of the agronomists providing the advice also sell pesticides it may not be surprising that they are less likely to recommend non-chemical control methods. However, non-chemical control measures also include practices such as crop rotation and variety selection and for these >90% were already doing the right thing.

Improvement in pesticide handling facilities may often need capital investment, which is why farmers have been slow to implement change. Also low cost options, for example Biobeds, were not given exemption from the Agricultural Waste Regulations until 2<sup>nd</sup> May 2007.

It must be remembered that real improvements in practice or understanding on a relatively small proportion of farms, for example 10%, would represent a large number of holdings and would be likely to have a worthwhile positive impact on the environment.

### **3.2 Desk and Farm Visit Evaluation - Manure Management Plan (MMP)**

As detailed within the ELS Handbook, a manure management plan must:

- Be documented.
- Include a field risk map (risk of causing water pollution) and an assessment of the need for any extra slurry or dirty water storage.
- Identify areas where animal manures should never be spread. These non-spreading areas must be marked on a farm map (in red).
- Identify areas where animal manures should not be spread under certain conditions or where application rates should be restricted. These very high-risk (orange) and high-risk areas (yellow) must be marked on the map. The remaining areas must be marked as lower risk (green).

- Identify on the map any areas in NVZs affected by the closed (non-spreading) periods.
- Calculate the minimum area of land needed for spreading animal manures. The maximum field application of total Nitrogen from spread manures must be limited to 250kg per ha per year. Outside NVZs, the amount of total nitrogen in livestock manure applied in any one year across the whole farm must be limited to 250 kg/ha. Within NVZs, total manure N must be limited to 250 kg/ha for all the grassland on farm, and 170 kg/ha for all the arable land on farm.
- Identify the area of land needed for spreading sewage sludge or other organic wastes if these materials are brought onto the farm.
- Assess whether the extra storage is needed for slurry or dirty water. Use the risk map (coloured) and experience of spreading over winter period to identify whether extra storage is needed to minimise the risk of causing water pollution.
- Update the risk map if extra land is taken on.
- Update the storage assessment if slurry or dirty water production increases.
- Use the plan to help field spreading and minimise the risk of causing pollution.
- A manure management plan completed for other schemes (such as farm assurance scheme or LEAF) will count as a manure management plan under this option, providing it includes all the requirements described above.

The desk and field visit evaluation forms were designed to assess the plan against the above criteria. The Manure Management Plan, Step by Step Guide for Farmers (Defra, 2003), was the main document used for guidance to develop the questionnaire.

### **Field Risk Map**

The desk and farm visit reviews of the manure management plan both showed that almost all (93% and 95% respectively) of the plans had a field risk map. Thus compliance with this requirement is high; however a small proportion of farms did not appear to have produced the map. The absence of a map suggests that these farmers have not gone through the appropriate process of determining where they can or can't spread, particularly over the winter period, which could result in higher levels of pollution than would otherwise be recorded.

There was evidence to show the map had been produced in colour in most cases (desk 99%, field 93%), with a very small proportion of farms producing a black and white map. Only 2% of plans from the farm visit review did not have a colour map, whilst no information was recorded by the assessors for a further 5%.

### **Presence of Water Courses, Field Sizes, Boundaries, Boreholes, Springs/Wells and No-spreading Strips on the Field Map**

Although the desk review suggested that only three quarters (78%) of the plans had water courses marked on the map, the farm visit review showed that in 91% of cases the on farm situation was correctly recorded in terms of the presence of watercourses, rivers, ditches and ponds. 9% of the farm visit plans had not accurately mapped the presence of watercourses. One of the main objectives of the plan is to prevent the direct spreading of organic manure into watercourses. Clearly, if 9% of plans do not have all watercourses marked on them, it is not only a serious omission, but it also makes it impossible to assess whether no spreading zones have been allocated accurately.



Based on evidence from the farm visit survey, the field sizes marked on the map, on the whole, accurately reflect the on farm situation (93%). This information is needed to calculate the amount of manure that could be spread over each field. Evidence for field sizes was less easily identifiable from the desk review, however the question here specifically asked whether the field areas were marked in hectares. 68% of the desk review plans had field areas marked as ha, whilst 32% did not.

The desk review showed that all plans had field boundaries on the map, and the farm visit review confirmed that these boundaries accurately reflected the on farm situation. (Desk 100%, field visit 100%).

Only 8% of the plans reviewed in the desk stage showed the position of boreholes, however it must be remembered that not all farms will have boreholes.

The farm visit review therefore aimed to check if the recording or lack of recording of boreholes was accurate. For almost half the plans (49%) the presence or absence of boreholes was correctly represented, in 26% of cases it was not possible to find evidence to answer this question with confidence, most likely because the farmer did not know if boreholes were present on his land. **For 25% of the plans however the presence or absence of boreholes had not been correctly recorded.**

Farmers should not spread within 50m of boreholes, and thus not identifying them and taking them into account when planning manure spreading could potentially result in greater diffuse pollution than otherwise would occur.

15% of the desk reviewed plans had wells or springs marked on them, but from this stage of the project it was not possible to tell how many farms did in fact have wells or springs. The subsequent farm visit review suggested that in 50% of cases the map accurately reflected the on farm situation regarding the presence or absence of wells. **In 18% of cases, within the farm visit, it was found that this information did not reflect accurately whether there was or was not a spring or well on the farm.** For a further 31% of plans it was not possible to tell whether the map was accurate.

Farmers should not spread manure within 50m of a spring or well, and thus not identifying their presence places doubt over the ability of the plan to help the farmer control diffuse pollution.

Based on the farm visit review no-spreading strips were accurately recorded on the field map for at least 96% of the plans. Only 2%, i.e. 1 plan did not accurately reflect the on farm situation for this feature. For a further 2% sufficient evidence wasn't available to answer the question. This is a direct requirement of the guidance within the ELS handbook and thus the outcome is generally very positive. A very small proportion of farms however are not complying with guidance and could therefore be causing more diffuse pollution than would otherwise be the case. This question was asked in a slightly different way in the desk review which had showed that 71% of plans with watercourses appear to have included the non-spreading strip alongside the watercourse.

### **Risk Categories**

79% of the plans that had a map reviewed during the desk stage clearly showed risk categories for different areas of land. Evidence of these risk categories was however not available for the remaining 21%.

Within the desk review a third (32%) of those who had identified different risk categories on the map had not provided a legend to show what these categories were. (68% who had identified risk categories had provided a legend).

Both the desk and farm visit reviews considered whether the colours used for each of the risk categories were correct. For example whether red was used for no-spreading and orange used for very high risk. The results from the farm review were more positive than the desk survey, in that the correct colour for each risk category was more likely to have been used. This is likely to have been a reflection of the ease of assessing the plans on farm compared to during a desk review, particularly as the legend was missing from some plans. During the farm visit the assessor could question the farmers and be confident of recording the correct response. Based on the farm visit the majority of all plans had used the correct colour, however a small proportion of farms had not done so.

The following table details the proportion of plans from the farm visit that had used the correct colours. The bases include only those farms on which the relevant risk category is recorded.

**Table 4: Use of Correct Risk Category Colour (Farm Visit)**

	Used correct colour	Did not use correct colour	Weighted Base
Red – no spreading	94%	6%	35
Orange – very high risk	92%	8%	22
Yellow – high risk	93%	7%	26
Green – lower risk	90%	10%	29
White – areas not normally used for spreading	87%	13%	35

For 86% of the plans (assessed during the farm visits) the risk categories were usually assigned correctly. 8% only assigned the correct colours in some cases, whereas 5% did not assign the correct colours at all. (no evidence was provided by the assessor for the remaining plan). Again the overall situation was positive, although in a small proportion of plans the information had not been recorded correctly.

In two cases the farmer had used his own colour scheme, which for one plan had actually been approved by an Assured Combinable Crop Scheme (ACCS) inspection. (This inspection should have been an opportunity to correct the colour scheme). One map only had the no-spread areas and one had confused the yellow and green colour codes, the farmer being unaware that yellow applies to fields or part fields with effective pipes or mole drains. On some plans non-spreading areas were marked in orange instead of red, and other areas currently marked as white areas should have been classified as orange, yellow or green.

The farm visit questionnaire aimed to understand if tenancy agreements, abatement notices due to smell, set-aside land, SSSIs or ESAs had been taken into account when identifying no-spreading areas. Of all the plans 17% had no-spreading areas due to set-aside land, 7% due to SSSIs and 11% due to ESAs. Tenancy agreements and abatement notices due to smell did not influence no-spreading areas for the plans under consideration. These issues were thus not major influences on no-spreading



areas, but had been taken into account where necessary. Only 6% of the plans had omitted no-spreading areas that the assessors thought should be on the map.

It is important that the risk categories take into account soil type, slope and their proximity to a sensitive receptor, to ensure the correct risk category is chosen. It was difficult to establish this during the desk review due to an absence of the required information, for at least 44% of the plans. The farm visit provided much clearer evidence on which to base a judgement. Approximately 88% of the plans took soil type, slope or sensitive receptors into account. Only 1-2 plans appeared not to have done.

**Table 5: Whether the Risk Categories took Soil Type, Slope and Proximity to Sensitive Receptor into Account**

	Yes	No	No answer/not applicable
Soil type	88%	2%	9%
Slope	87%	4%	9%
Sensitive receptor	89%	3%	8%

*Weighted base: Plans with map, 40*

Of the 20 plans reviewed at farm visit with orange risk categories marked correctly on the map, 54% had used the 1, 2, and 3 markings appropriately. 12% had not used these markings at all. For the remaining 34% the 1, 2 and 3 markings were either absent or there was insufficient evidence available to make an assessment of correct usage. These figures suggest there is an issue over the correct use of the markings within the orange category and this is possibly a result of confusion amongst farmers. This point was reinforced by the desk review results where only 12% of the orange areas had 1, 2 and 3 markings included on the map.

Within the farm visit review, 11% of the farms on which plans had been prepared had either seen alterations to the drainage or subsoiling since the plan was prepared. However evidence from the farm visit suggested that only a third of these plans had been updated. Not updating the plans and spreading slurry on recently drained (or subsoiled over drains) soils over winter could significantly increase the risks of diffuse pollution.

### **Nitrate Vulnerable Zones**

Both the desk and farm visit reviews indicated that approximately half the farms had land in an NVZ area (desk 55%, field 51%). Of the 9 farms visited that were within an NVZ area and had sandy or shallow soils, only 38% had these soils marked on the field map with cross hatchings. In the majority of cases (72%) sandy and shallow soils appeared to have been accurately recorded. However, this was not always the case (23% only accurately identified the sandy or shallow soils in some cases, whilst 5% did not accurately identify them at all).

It is important that farms in NVZs with high available N manure mark shallow and sandy soils on the plan and avoid spreading slurry on these soils over the closed periods. This should reduce the risk of nitrate leaching over the winter.

In most cases it was not possible to tell whether the plans reviewed in the desk survey had sandy or shallow soils, as a soil map was included with only 6% of the plans.

### Area Available for Spreading

Both the desk and farm visit reviews showed that in approximately 25% of plans the total area available for spreading was not included. This should have been presented because it is important to demonstrate that sufficient land is available to spread all the manure produced on farm, as well as any imported manure, sewage sludge or organic waste. Where the appropriate information was available the farm review assessors agreed with the total area for spreading as recorded in 93% of cases.

Based on the farm visit review the overall sizes for each risk category appeared correct “in most cases” for the majority of plans (93%). The calculation of the area needed to spread farm generated manure seemed logical for 87% of the plans based on evidence obtained during the visit and the number of livestock on the farm. In only 6% of plans did the calculation of the area needed to spread farm generated manure not seem logical, although no replies were recorded for a further 6%. The desk review suggested that the majority of sizes for the risk categories were incorrect (red 67%, orange 79%, yellow 93% and green 70%), which shows the difficulty in assessing this away from the farm. The farm visit data was much more reliable.

80% of the plans within the desk review with evidence of livestock on the farm showed the total area needed to spread farm generated manure. The calculation used was thought to be logical in 87% of these. 84% of the desk review plans that had recorded the area for spreading farm generated manure showed the figures used to calculate it.

Unlike the desk review, the farm visits indicated that only a very small proportion had potentially not calculated the total area needed to spread farm generated manure, at maximum this could have been only 6%. Thus this calculation is likely to have been carried out, but is perhaps not recorded clearly on the plan in all cases, thus suggesting the best place to assess a plan is on farm unless the plan requirements stipulate clearly that this information must be included.

36% of farms in the farm visit review imported organic manures and in each case the amount of land calculated for spreading this seemed accurate. **The assessors felt that over 20% of the farm visit plans did not accurately record whether or not the farm imported organic manures.** This is an important omission, as without this information it is not possible to calculate the amount of land required for spreading.

It was less evident from the desk reviews that the farms imported manure, only 23% of plans clearly indicated this. Half these plans stated the amount of land remaining to spread the off farm organic manure.

### Calculating Storage Capacity

The storage capacity for slurry had been calculated and was included within 24% of the farm visit plans and 16% of the desk review plans. There is no clear difference in these figures given the small base sizes. Slurry would not of course be produced on all farms, and the proportion of farms this applies to is estimated at approximately 30% given the level of no response in the farm visit survey and assessment of the plans in the desk review.

Of the plans within the farm visit survey where the calculation for slurry was included, the calculation appeared correct in almost all cases (90%).

Considering all the plans in the desk and farm visit reviews 20-30% included a calculation for dirty water storage capacity. In at least 40% of farm visit plans the calculation was missing; however not all farms will have had dirty water. None of the farm visit plans contained an apparently incorrect calculation for dirty water.

Assessing whether the storage capacity for either slurry or dirty water was sufficient was less easy during the desk review and could be confirmed in only 65% of the plans. (A joint question was asked covering slurry and dirty water.)

From the farm visit review the calculation for dirty water storage capacity where included and appropriate, was most likely to be based on a definitive calculation (64%) rather than a best estimate (32%).

45% (note low base) and 70% of plans included in the desk and farm reviews respectively who had provided information on dirty water storage had included information on the roof and yard area, which would contribute to dirty water production. None of the farm visit plans appeared to provide inaccurate information on dirty water production.

29% (note low base) of all the farm visit plans that had included information on roof and yard area, had included farm buildings on the field map to illustrate roof and concrete areas, however an additional 12% had produced a separate map to illustrate this. The remainder did not appear to have included the buildings on a map (59%).

20% of the farms included within the farm visit review were dairy farms (evidence from question 3 of the farm visit questionnaire). Only one of these farms (17%) provided apparently accurate information on the total amount of parlour washings produced over the 6 winter months. The remainder either did not provide any information (48%) or the assessor was unable to judge whether the information was accurate and thus did not record an answer to the question (36%). The desk review also suggests that few dairy farms provided this information (of the 5 farms to which this question applied, only 1 plan provided the required information). Information on the volume of parlour washings and how these are managed are essential to an effective manure management plan, as parlour washings have a very high pollution potential.

Based on the desk review only one plan appeared to have specified the total winter volume of dirty water. In the case of this plan, the figures used to make the calculation were included and the calculation itself seemed to have been carried out correctly. 93% of the farm visit plans that included a winter volume of dirty water figure had provided a figure which seemed sensible for the farm. Only one of the farm visit plans (7%) provided figures which seemed inaccurate.

35% of the desk review farms which had recorded the storage capacity for slurry and/or dirty water included an average winter rainfall figure, which would have been used to calculate the winter volume of dirty water and also slurry. The farm visit review identified that **64% of the plans with figures for slurry and dirty water storage, had used accurate rainfall figures to calculate the dirty water and slurry volumes**, indicating this type of information was used more commonly than suggested by the desk review. Where accurate rainfall figures had been used (farm visit review) these had been sourced most frequently from a local weather station (68%), but also from the farm's own rain gauge (18%), and MANNER (14%).

7% of the farm visit plans, where information was provided, had not calculated a minimum area for spreading dirty water using data that seemed sensible for the farm.

Only 38% of the desk review plans that had provided information on slurry had indicated whether the farm had sufficient storage for slurry. The remaining 62% did not provide this information.

The farm visit review suggested that only two plans (18%) did not have sufficient storage for slurry (note low base). The assessors found no plans where they

disagreed with the assessment of whether the farm had sufficient storage for slurry, however in some cases it was difficult to make an accurate assessment.

Of those desk review plans that included information for dirty water storage, only 27% indicated whether or not the farm had sufficient storage for dirty water. Again the farm visit reviews found more information on storage of dirty water and the assessors agreed with the information in 88% of those plans that stated whether or not the farm had sufficient storage. Again none of the assessors on the farm visit actually disagreed with the information, but in some cases information was missing from the plan (12%).

### **Manure Application**

The on farm assessors felt that 90% of the farms were applying manure in line with the risk categories identified on the farm in most cases. For 10% of the farms it was impossible to tell if this was the case.

### **Changes to the Farm Since the Development of the Plan**

14% of the farms considered within the farm visits had taken on extra land since the plan was first prepared. However a large proportion of these farms (83%), had not updated their MMP. It is important that any new land is assessed in terms of its risk of run-off to any watercourses.

No increases appeared to have occurred in the production of slurry or dirty water since the preparation of the plans and thus no changes would be required to the amount of land required.

### **Impact of the ELS Manure Management Plan on Farm Practice**

During the farm visit the assessors were asked to assess the impact of the ELS MMP on farm practice, by indicating whether there had been no change or improvement, some improvement or significant improvement on the farm for a number of issues. The assessors were asked to use evidence from the plan, other farm records and discussions with the farmer to help make their judgement.

**Table 6: Impact of the ELS Manure Management Plan on Farm Practice (Farm Visit)**

	No change as already good practice before ELS	No improvement Poor/moderate practice before ELS	Some improvement	Significant improvement	Weighted base (no replies excluded)
Manure field application rates	67%	2%	14%	17%	40
Dirty water field application rates	76%	0%	11%	13%	23
Manure spread or stored within 10m of a water course	71%	0%	17%	12%	39
Number of fields spread each year	76%	2%	12%	10%	39
Slurry field application rates	85%	0%	10%	6%	17
Dirty water storage capacity	69%	20%	5%	6%	28
Spreading manure on very high risk areas in winter	80%	0%	14%	6%	36
Slurry storage capacity	71%	19%	6%	4%	24

Base: all MMPs

Considering all the farm practices listed in the table above, in the majority of cases there had been no change on farm as good practice was already being followed. However improvements had been registered in specific areas for a significant proportion of the farms. The greatest improvements were recorded for manure field applications rates (17% significant improvement, 14% some improvement), dirty water field application rates (13% significant improvement, 11% some improvement) and manure spread or stored within 10m of a watercourse (significant improvement 12%, some improvement 17%).

Where poor or moderate practice was evident before the development of the plan, no improvement had been registered for slurry storage capacity in 19% of cases and no improvement was seen in dirty water storage capacity in 20% of cases.

Thus adoption of the plan appeared to have helped encourage improvements in many aspects of manure management; however there appeared to have been relatively little impact on the areas where the greatest improvements were needed i.e. dirty water and slurry storage capacity.

### 3.3 Desk and Farm Visit Evaluation - Soil Management Plan (SMP)

A soil management plan (SMP) should set out how land will be managed to reduce the risk of soil erosion and maintain good soil structure. The ELS handbook stipulates that a SMP must be documented and included the following steps:

- Obtain and read the Defra publications on controlling run-off and erosion (appendix 1 of the handbook). In addition you may wish to refer to the Environment Agency publications also listed, and to the Linking Environment and Farming (LEAF) Audit at [www.leaf.org](http://www.leaf.org).

- Using the Defra field guide (available from Defra publications, see appendix 1 of the handbook) or the advice of a consultant, prepare an assessment of the risks of run-off and erosion for your whole farm. Produce a map showing the risk class for each field or part field.
- Record on a field by field basis the steps you will take during the coming year to minimise the risk of run-off and soil erosion, including how you will manage the soil to ensure good structure and maintain the infiltration of rainfall.
- Repeat the field by field assessment each year incorporating the experiences of previous years.

The SMP should provide benefits or protection beyond those of the Single Payment Scheme (SPS) Soil Protection Review (SPR), which is a cross compliance requirement. By 2007, SPS claimants should be producing a simple 'risk-based' SPR and then implementing actions identified to protect soils on their land. The SPR should be updated annually.

Questions used to evaluate the plans within both the desk and farm visits were based on the information within the ELS handbook but also the more detailed guidance available within the document "Producing a Soil Management Plan for Environmental Stewardship" prepared by Defra RDS.

#### **Who the Plan was Prepared by**

For the soil management plan there is a requirement for the farmers to either refer to the Defra field guide when preparing the plan or to consult an adviser or independent consultant. The desk review suggested that at least 45% of the plans were completed by the farmer or land agent (this figure could potentially rise to 72% as it was not possible to determine who had completed the plan in a further 27% of cases). 28% had clearly been completed by a consultant.

**Table 7: When the Plan was Produced (Farm Visit)**

Date plan produced	
2004	2%
2005	24%
2006	61%
2007	12%
<i>Weighted Base</i>	<i>50</i>

Based on the information from the farm visit almost two thirds of the soil management plans had been prepared in 2006, whilst 26% had been prepared previously. 12% had been prepared very recently within 2007. The majority of the 2006 plans had been prepared during the final quarter of the year i.e. from October to December (32%).

At least 60% of the plans reviewed by farm visit had not yet been updated but this high figure is not surprising given how recently a number of the plans had been produced. Approximately half the plans produced in 2004/5 had not been updated.



## Soil Types

To help the assessors understand the on farm situation, soil type was recorded during the farm visit review. Many of the farms recorded more than one soil type as would be expected. 68% of the farms considered during the farm visit had medium soils, whilst 34% had deep clay and 7% light sand. Although a good cross section of soil types were recorded the proportion with deep clay was higher than would be expected nationally whilst the light sand soils appeared under represented. The heavier clay soils are unlikely to suffer from erosion problems, whilst erosion will be more common on the sandy soils. There is therefore a suggestion, although the evidence is not conclusive, that the soil management plan option is a more attractive proposition to those with a lesser potential for soil erosion problems.

**Table 8: Soil Type (Farm Visit)**

Soil Type	
Light sand	7%
Shallow	8%
Medium	68%
Deep clay	34%
Deep fertile silty	13%
Organic	3%
Peaty	4%
<i>Weighted base</i>	<i>50</i>

## Map Showing the Risk Class for Each Field or Part Field

Only 68% of the plans reviewed during the desk stage included a map, which suggests that 32% of the plans were non-compliant. This result does not however reflect the true on farm situation, as experience during the farm visits demonstrated that the majority of plans have a map. In the case of the desk review a number of plans had not been submitted with the field by field assessments. This may have been because the farmers misunderstood the request or that they were reluctant to part with maps. Although not asked directly in the farm visit review, only 3 plans (6%), did not have a map. Thus compliance with this element is high.

## Risk Categories for Run-off and Erosion

70% of the plans reviewed during the desk stage identified risk categories for either run-off or erosion. Only 21% provided risk categories for both run-off and erosion, 7% provided run-off risk only and 42% erosion risk only. The guidance does not specifically require the assessment of both run-off and erosion risk and the soil type would influence the relative importance of run-off or erosion categories on the farm. In a further 9% of plans it was difficult to tell whether this information was included. 20% did not have risk categories for run-off or erosion.

The desk review showed that in 59% of cases the risk categories had been developed using the Defra method, although for a further 29% of plans it was difficult to tell which method had been used. 12% had used another method, including Farm Plan. One plan did not use risk categories but showed cropping, soil type and drainage.

The desk review indicated that 76% of the maps had clearly identifiable risk categories (65% very clear, 11% fairly clear). 25% of the plans were not thought to clearly identify the risk categories (not very clear 8%, not at all clear 17%). The assessment of these plans via a desk review is likely to have resulted in fewer plans appearing to have clearly identified risk categories, for example as a small number of maps were black and white photocopies.

81% of the desk reviewed plans had a key for the risk categories, whilst 16% did not. This is not a requirement of the guidance, but does indicate that the plans are in the main clear and well laid out.

30% of the maps available for inspection during the desk review jointly showed both run-off and erosion risks. 4% addressed only run-off and 37% erosion only. 3% had run-off and flood risk, whilst for all others it was not possible to determine what the map contained (25%). Feedback from the ADAS experts and assessors suggests that there could be some confusion amongst farmers over the terminology and what actually constitutes run-off and erosion, particularly as terms like soil wash, dirty water and run-off can all be used with the same meaning.

### **Use of Risk Categories**

Based on the results of the farm visit review the risk categories used on each farm appeared overall to be accurate, i.e. they have been assigned to the right areas. 82% of the plans had appropriate risk categories in most cases (i.e. for most fields), whilst a further 11% had used the right risks categories in some cases. Only 5% of plans did not appear to have used appropriate risk categories at all. Information was unavailable for the remaining farm, most likely as the map was missing from the plan. The reasons why the risk categories were considered inappropriate included failure to take account of the risks associated with moderately sloping land.

It was clear from the farm visit reviews that almost all (93%) of the plans had risk categories based on inherent site characteristics in most cases. A further 3% based the categories on inherent characteristics in some cases. The remainder did not have a map showing risk categories (4%).

The desk review could only clearly identify that 63% of plans had risk categories based on inherent site characteristics, however once again this is a reflection on the ability to accurately assess plans away from the farm.

### **Desk Review**

Based on the results of the desk review only 17% of plans had marked observed run-off and/or erosion on the map (83% had not). This may suggest that farmers have not fully understood or grasped the importance of this issue, however run-off would have to be quite severe to be noticed, and would only happen infrequently which may suggest this figure is in fact a reasonable reflection of the situation on farm.

65% of the maps considered in the desk review had included arrows to show the direction of water run-off from fields, whilst 35% had not. The latter is quite high given that most farms will have some sloping land and will experience run-off from fields.

83% of the maps submitted in the desk review appeared to show the main watercourses or rivers, whilst 96% had marked tracks and roads. Not all farms will of course have watercourses.

25% of the desk review plans had identified areas liable to flooding, which may be a reasonable reflection of the number of farms that would be subject to flooding.



However the results of the farm visit review did suggest that a number of plans had not recorded this accurately (see table 8).

None of the desk review plans showed simple measures that could be taken to stop or divert runoff from fields e.g. moving gateways or other access points, but it was not possible in most cases to determine if indeed any measures were actually needed. The 'field-by field' assessments included measures that were not shown or not appropriate to show on the maps. 17% of the maps reviewed on the desk did however indicate whether wind erosion was a problem. 2% showed that it was a problem and 15% that it was not. In all other cases the map did not indicate whether there was a problem or not.

Only 22% of the map keys within the desk review indicated whether under-drainage was a problem or not and all these maps showed that it was a problem. The remaining 78% should have indicated whether it was an issue.

Only 10% of the desk review maps identified whether archaeological or historical features were present or not, with 6% saying they were present, whilst 4% indicated they were not. The remaining 90% did not provide the required information to show whether these features were present or absent.

Whilst inclusion on the map of wind erosion, underdrainage, archaeological features and measures to stop or divert run-off are not specified as a requirements in the ELS Handbook, they are included in the recommended steps listed in the Defra guidance "Producing a Soil Management Plan for Environmental Stewardship".

The following table details the proportion of plans which reflected the on-farm situation for many of the issues discussed above. Farmers visited were in most cases generous with their time and the advisers were able to walk the farm and assess fields.

**Table 9: Farm Visit - Does the map accurately reflect the on farm situation?**

	Yes	No	Not stated
Run off	76%	23%	1%
Erosion	89%	10%	1%
Direction of water run-off from fields	75%	24%	1%
Roads and trackways	89%	10%	1%
Presence of watercourses/rivers/ponds and ditches	79%	18%	2%
Areas liable to flooding	58%	26%	16%
Presence of under drainage systems	42%	52%	6%
Presence of archaeological or historical features	45%	42%	14%
Position, name and/or grid reference for individual fields	83%	12%	5%

Encouragingly the majority of the maps, based on the farm visit review, accurately reflected the on farm situation for most of the issues listed above. However a significant proportion of plans did not accurately reflect the farm situation for all issues. The most problematic areas appear to be the presence of under drainage systems (52%) and the presence of archaeological or historical features (42%). It

could be that the farmer found it difficult to identify these features or did not recognise the importance of including them on the map.

26% of the farm visit plans did not accurately record areas liable to flooding on the map. An awareness of flood risk across the farm would of course have a major impact on the farmer's understanding of the soil erosion risk.

Although erosion was recorded by most, but not all the farm visit plans (10% did not accurately record it), fewer plans had accurately recorded run-off and also specifically the direction of water run-off from fields (23% and 24% respectively did not reflect the on farm situation). These figures appear high given that an understanding of these issues is fundamental to reducing diffuse pollution.

44% of the farm visit maps included measures to reduce /divert runoff, with the majority of these measures (82%) being judged as appropriate by the assessors. Only 18% (4 plans) were inappropriate or had at least recorded the information in the wrong place as in one case the information was on the field assessment rather than the map.

The farm visit review also suggested that the fields in the main have been accurately identified (89% in most cases, 7% in all cases) i.e. that the grid references matched the situation on farm. However, 4% of plans seemed to have all fields identified incorrectly.

#### **Field by Field Assessment (Desk Review)**

Although not an actual requirement of the plan, 45% of the plans within the desk review included a general summary of farm practices for example rotations, cultivations and sub-soiling policy which could impact on risks of run-off and erosion and help to put the farming system in context.

Most but not all of the soil management plans reviewed during the desk stage, included a field assessment or at least sent the field assessment to Natural England for review, (89%). 11% did not include the field assessment, which suggests a misunderstanding over the required content of the plan. One farm submitted a map of their land drains, whilst another sent a photocopy of their ELS Farm Environmental Record instead of a map or field assessment.

Where a field assessment had been included, individual fields had been identified on all plans. The majority did so by field name (or number), (86%), but also by Rural Land Registry (51%) and by field grid references (10%). Identifying individual fields is important in order to comply with the guidance in the ELS handbook to conduct field by field assessments and record how they will manage run-off and erosion on a field by field basis.

The desk review showed that the message about making assessments on a field by field basis has been received and understood by the farmers. 81% of those with a field assessment had assessed fields separately, whilst an additional 18% had grouped fields, but clearly identified which fields were included. Only 1 plan (1%) had incorrectly assessed the whole farm as one.

As detailed in the "Producing a Soil Management Plan" document, 81% of the desk review plans recorded field characteristics such as run-off/erosion and physical characteristics by individual field, (78% did so for every individual field, whilst 3% did so for some individual fields). A further 18% provided this information by groups of fields, which is not as shown in the example in the guidance document but should be

acceptable if field characteristics and management genuinely are uniform within the groupings.

A similar pattern was observed for management issues within the desk review where 76% recorded these by individual field (60% for every individual field and 16% for some individual fields) as required by the guidance, "Producing a Soil Management Plan". 15% provided this information but only by groups of fields and 9% did not provide management issues at all. Overall 91% provided information on management issues in some form, which demonstrates the farmers are thinking about the issues which are likely to influence run-off and erosion.

With regard to management proposals, as explored within the desk review, 94% included these in their plan, which is again encouraging as farmers are planning actions to deal with the issues likely to influence erosion and run-off. The remainder did not include proposals but it is possible that they would not be necessary on all farms. The 94% breaks down as follows: 55% gave management proposals for every individual field and 23% for some individual fields as required by the guidance. 16% provided proposals by groups of fields.

79% of the desk review plans left space for recording issues arising over the year (61% for every field, and 18% for groups of fields), whilst 20% did not provide space at all, which may suggest that these plans are unlikely to be reviewed or amended throughout the year.

### **Field Characteristics (Desk Review)**

The example in the guidance indicates that information on the risk of run-off and erosion, soil type, slope, soil structure and soil permeability are recorded for all fields. For the majority of plans within the desk review soil type was recorded for all fields (92%), and as such this requirement is understood by most farmers. Based on the desk review, the risk of run-off and erosion was recorded in the field assessment for all fields by 85% and for some fields by a further 3%, which is positive given the lower figures recorded for inclusion of this information on the map. 84% provided information on slope by field, either for all (74%) or some fields (10%). Although this information was missing from 17% of plans it is not possible to determine from the desk review whether or not these farms had sloping land. The more detailed soil characteristics, i.e. soil structure and permeability, which would also be important in assessing potential for erosion and run-off, were far less commonly recorded than the features mentioned previously. 59% did not record soil structure, whilst 83% did not record soil permeability. It is likely that few farmers will have assessed soil structure on an individual field basis due to the effort involved in digging soil pits. They probably also lack confidence in assessing structure. The term soil permeability may not be well understood and also may be difficult for farmers to assess.

**Table 10: Recording of Field Characteristics (Desk Review)**

	For all fields	Some fields	Not recorded in the plan
Risk of run-off and erosion	85%	3%	11%
Soil type	92%	2%	5%
Slope	74%	10%	17%
Soil structure	34%	6%	59%
Soil permeability	12%	5%	83%

*NB Percentages may not add to 100% due to rounding, Base: All desk SMPs*

It was not possible to determine from the desk review how field characteristics were recorded, for example whether an inspection pit was dug, whether it was made from memory or via a surface assessment. It was also difficult to assess whether the soil type had been accurately recorded.

**Accuracy of Recording Field Characteristics (Farm Visit Review)**

The farm visit review showed that overall field characteristics had been recorded accurately on the plans. (93% of plans recorded characteristics accurately in all cases, 5% in some cases). Only 2% did not record any characteristics accurately. Soil type and run-off erosion were the features noted as not being recorded accurately.

**Presence of Features (Desk Review)**

**Table 11: Recording Features (Desk Review)**

	Yes	No	Not stated
Presence of archaeological/historic features	20%	71%	10%
Proximity to watercourses	66%	26%	8%
Proximity to roads	34%	55%	11%
Proximity to housing	16%	72%	11%

*Base: All desk SMPs*

Within the desk review only 20% of the field assessments showed the presence of archaeological or historic features; however there is no evidence to confirm whether or not these features were present on the farm. The same also applies to watercourses, however 66% had referenced them within the field assessment. The high proportion of plans with this information suggests that many farmers appreciate that watercourses are at risk, and increase the potential for diffuse pollution. Far fewer desk review plans, 34% and 16% respectively, referred to roads or housing, which may suggest that farmers are less likely to make the link between these features and the risk of run-off.

From responses to another question 59% of the desk review plans had recorded a history of flooding or run-off generally. This issue would not be relevant to all farms and suggests the farmers are recognising flooding or run-off as an issue relevant to soil management.

The majority (86%) of the plans had recorded features accurately in “most cases”, based on the findings of the farm visit review. A further 7% recorded these features accurately some of the time. Only 6% did not record them accurately at all.

### **Link Between the Map and Field Characteristics and Features (Field Visit Review)**

The field review showed an accurate link between the map and the field assessment for field characteristics and features. 86% of the maps linked accurately for these characteristics and features most of the time, whilst 8% linked some of the time. Only 6% did not provide an accurate link, but it must be remembered that up to 3 of the plans did not have a map, which accounts for this 6%.

### **Management Issues (Desk and Field Review)**

The desk review showed that most plans considered management issues, which appeared appropriate to the field/soil conditions based on the evidence in the plans and on the map. 55% of plans considered management issues that were appropriate in most cases, whilst 19% considered issues which were appropriate in some cases. All the plans considered some appropriate issues. For several plans however (18%) it was difficult to tell if the issues were appropriate. A small number of plans did not include consideration of management issues in the field assessment (9%).

The desk review plans were more likely to identify if there were no management issues for each field than just leave blank space on the plan, which can be seen as positive. 57% of plans identified where no issues were present, whilst 18% did not provide any information. The remainder (25%) had issues for all fields. Unfortunately it was difficult during the desk review to establish whether the absence of issues was in fact an accurate reflection of the on farm situation. The farm visit review however, suggested that management issues included in the plans or indeed the lack of management issues, were broadly appropriate. The issues or lack of issues were appropriate in most cases for 91% of the farm visit plans, whilst they were appropriate in some cases for 6% of the plans. Only one plan (3%) had issues recorded incorrectly in all cases.

### **Management Proposals (Desk and Field Review)**

#### **1. Farms with Grassland**

Proposals included within the plans for farms with grassland, considered in the desk review, appeared to be appropriate in most cases (75%), whilst 10% were appropriate in some cases. The reason why proposals were only appropriate in some cases for one plan, were because of issues such as proximity to a sensitive receptor, slope or position of gate/trackways. Proposals were absent for some grass fields in 2 plans. The farm visit survey supported this finding as 96% of plans had proposals that were appropriate in most cases.

#### **2. Farms with Arable Cropping**

Where management proposals were included for farms with arable cropping they were considered to be appropriate by the desk review assessors in most (67%) or some cases (4%). For 27% of the plans it was difficult to tell whether they were appropriate. Where proposals were inappropriate (i.e. within the 5% of plans) this was due to issues such as slope, proximity to sensitive receptors or position of gates/trackways. The farm visit review again supported this finding as all but one plan had appropriate proposals in most (92%) or some cases (6%). In the case of this one

plan, all the fields had not been inspected individually, although appropriate action was in place to rectify this.

### **3. All Farms**

The desk survey showed that the plans were likely to indicate if no changes were needed to management practice. 53% of the plans indicated no changes were needed. This is positive as it indicates that the farmers may have referred to the soil management plan template as produced by Defra. These changes seemed broadly appropriate however it was very difficult to judge this based on a desk assessment (40% appropriate in most cases, 7% appropriate in some cases, 52% difficult to tell/not answered). 13% did not provide information to confirm that no changes were needed. The remainder of desk review plans (33%) had provided proposals for all fields.

The farm visit review also indicated that where no management proposals were needed or only minor changes to farm practices were needed, these were appropriate in most cases for 82% of the plans and appropriate in some cases in 18% of the plans. There were some instances where the proposals were inappropriate because some fields identified as low risk should have been moderate risk, or as tramlines should be considered across slope rather than up and down the slope.

#### **Impact of Soil Management Plans on Farm Practice (Desk and Farm Visit Review)**

The majority of plans reviewed on farm had identified most of the relevant impacts of their farming activity on the environment (90%), whilst a further 7% of plans had identified some of the relevant impacts. Only 1 plan (3%) had not identified any relevant impacts.

The plans within the farm visit review had also in the majority of cases (79%) provided all the appropriate recommendations to reduce the impact of farming on the environment. A further 5% had provided some of the appropriate recommendations. 13% did not require changes to their farm practice.

It was not easy to make a judgement from the desk review as to which farms were implementing recommendations; however the available evidence suggested that at least 43% were doing so. All of the recommendations recorded on the plan were being implemented on 75% of the farms within the farm visit review, whilst most were being implemented on a further 20%, which is clearly a positive outcome. Information was not available to judge the recommendations on the remainder of the farms within the farm visit review.

The most frequent examples of recommendations, identified from the farm visit review, that had been implemented included buffer strips put in place, cultivation to avoid erosion, tramlines across slopes, drilling across slopes, reseeding, and alleviation of compaction.

Where the information was available to make a judgement, the assessors felt that most of the recommendations had been appropriately implemented (91% of all those farm visit plans where recommendations had been provided).

Within the farm visit review the assessors were asked to assess the impact of the ELS SMP on farm practice, by indicating whether there had been no change or improvement, some improvement or significant improvement on the farm for a number of issues. The assessors were asked to use evidence from the plan, other farm



records and discussions with the farmer to help make their judgement. The results of this exercise are shown in the following table.

**Table 12: Impact of the ELS SMP on Farm Practice (Farm Visit)**

	No change as already good practice before ELS	No improvement Poor/moderate practice before ELS	Some improvement	Significant improvement	Weighted base (no replies excluded)
Establishing buffer strips	35%	0%	23%	42%	46
Improved awareness of diffuse pollution	20%	0%	47%	33%	48
River bank management	56%	12%	21%	12%	40
Subsoiling/soil loosening to remove compaction	72%	8%	11%	10%	48
Cultivations for seedbed preparation	61%	0%	29%	10%	49
Cross slope drilling/planting	62%	2%	30%	7%	41
Use of tramlines	75%	2%	16%	7%	46
Choice of cropping/enterprises	83%	0%	13%	4%	50
Time of drilling	82%	0%	16%	2%	48
Maintenance of field drainage systems	82%	11%	6%	1%	43

Base: All SMPs

NB: Percentages may not add to 100% due to rounding

The greatest improvement in farm practice since the preparation of the SMP was in establishing buffer strips (42% significant improvement and 23% some improvement). However it is likely that the majority of these were established because of the adoption of Buffer Strip Options (EE1-8) within ELS rather than specifically to address issues identified by completing a soil management plan.

Improved awareness of diffuse pollution also scored highly (33% significant improvement, 47% some improvement) and all other aspects under consideration showed some level of improvement. These results are therefore overall very encouraging. An increase in awareness of the risk of diffuse pollution is supported by the performance monitoring results from conservation advice best practice events, (Jan-March quarterly report).

It was only with regard to river bank management (12%), maintenance of field drainage systems (11%) and subsoiling/soil loosening to alleviate compaction (8%), that substantial proportions of plans showed no change to farm practice even though poor or moderate practice was evident prior to developing the plan. There is clearly more work to be done here to improve farm practice in relation to these issues. Having said this, the largest proportion of farms had not made changes as they were already following good practice.



With regard to use of tramlines, choice of cropping/enterprises, time of drilling the majority of farms had not made changes as they were following good practice prior to the introduction of the SMP, although improvements were still recorded for some farms.

### **3.4 Desk and Farm Visit Evaluation - Nutrient Management Plan (NMP)**

The ELS handbook states that the Nutrient Management Plan should take into account all sources of nutrient supply as well as soil nutrient status and the influence of soil type, rainfall and irrigation. The plan should follow a recognised fertiliser recommendation system and should be prepared in conjunction with a FACTS qualified person. A nutrient plan must be documented and include the following steps:

- Maintain an up-to-date soil analysis. Soils must be analysed for pH, P, K and Mg every three to five years.
- Assess the nutrient requirement of the crop using a recognised fertiliser recommendation system.
- Assess the nutrient supply from organic manures.
- Calculate the need for fertiliser nutrients by deducting the contribution from organic manures from the crop nutrient requirement.
- Spread organic manures and fertilisers accurately and as uniformly as possible. Equipment should be in good working order and recently calibrated.
- Keep clear field records of cropping, organic manure and fertiliser applications. This will aid future decisions on nutrient management and demonstrate the practical outcome of the plan.
- Update the plan at the start of each cropping year.
- A nutrient management plan completed for other schemes (such as farm assurance scheme or LEAF) will count as a nutrient management plan under this option providing it includes all the steps described above.

#### **Desk Versus Farm Visit Review**

During the desk review it was extremely difficult to accurately assess the nutrient management plans against the guidance within the handbook, primarily as all the information necessary to make judgements was not available to the assessors. This information was either in a part of the plan not submitted or contained within other farm records that had not been requested. Farmers had often only submitted part of their plan, for example for a few fields, which was typically in the form of electronic print out from a package such as PLANET.

The following analysis will refer to the desk review where appropriate, however the emphasis for the evaluation will be placed on the findings of the farm visit review.

#### **Year the Plan was Produced**

Considering the farms within the farm visit review, their ELS agreements had been taken out primarily in 2005 (77%), whilst 21% were taken out in 2006. 1% was taken out more recently in 2007.

The majority of farm visit NMPs had been completed from 2005 onwards (2005 26%, 2006 52%, 2007 6%. 5% had initially been completed before the launch of the ELS pilot in 2001/02.. These plans will have been completed as part of another scheme

such as LEAF or a farm assurance scheme. No information was recorded for 12% of the plans.

The farm visit plans reviewed were for either the 2006 (47%) or 2007 harvest year (53%).

Information on the month and year of completion was used by the assessors to judge whether the plan should have been updated since its development. 69% of the farm visit plans were completed before end September 2006 of which 66% had been updated and 27% had not been updated. A substantial proportion of the plans should therefore have been updated and thus are not currently complying with the guidance. The plan should be updated by March of the current Harvest Year, e.g. for crops to be harvested in 2007, the plan should really have been updated by March 2007.

### **FACTS Qualified Person**

In line with the requirements of the guidance 87% of the plans from the farm visit had been completed in association with a FACTS qualified person. 13% however had not and as such may not appear to comply with the guidance. The handbook is somewhat ambiguous here, however as it states “should” rather than “must” be prepared by a FACTS qualified person. These figures are however more encouraging than those recorded during the desk review where evidence was only found to suggest 45% had been completed with a FACTS qualified person.

Where a FACTS qualified person had been used (farm visit review), this was the farmer in only 9% of cases, suggesting that an adviser had been employed by the other farms.

### **Soil Analyses**

Soil analyses must be conducted every 3-5 years for pH, P, K and Mg. Almost all of the plans within the farm visit review had some evidence of these analyses, **only 6% lacked evidence of a soil test for any field**. The appropriate analyses were available for 55% of the plans for all of the fields, 27% had analyses for most of the fields and 11% for some of the fields. There was evidence that soil analyses had been fully taken into account within 90% of the plans. 4% had conducted analyses but had not taken them into account, whilst the remainder had not conducted the analysis.

The desk review results were less positive given the difficulty in finding the required evidence. Here 21% of the plans appeared not to have undertaken the appropriate analysis within the last 3-5 years on any fields.

### **Use of Cropping Information and Organic Manure Use to Develop the Plan**

90% of the plans within the farm visit review had clearly used cropping information to develop the plan, however for 10% there was insufficient evidence to draw a conclusion.

Amongst all the farms, within the farm visit, that used organic manures on the farm 74% had taken this into account when developing the NMP. Although this represents the majority of plans a substantial proportion of plans either had not used this information or there was insufficient evidence available to make this judgement. **5% of farms, within the farm visit review, used organic manure and had not taken organic manure nutrient supply into account, and in 22% of the plans insufficient evidence was available.**

### **Fertiliser Recommendation System**

RB209/PLANET was by far the most commonly used recommendation system, as it was used by 93% of the farms within the farm visit review to develop the NMP. 10% used a fertiliser supplier's recommendation system, whilst 11% used a range of other systems including N-plan, Root planner and an agronomists/consultants recommendation. It is possible that consultant recommendations were derived from PLANET but this could not be ascertained. More than one system appeared to be used on some farms given that the percentages add to over 100%. It is only possible to clearly state that **a recognised system was not used to develop plans in 1% of cases**. Although nearly all seemed to have used a recognised system, 80% had accurately recorded the system within the NMP, whilst 20% had not done so.

The desk review suggested that 50% used RB209/PLANET, but no recognised system was evident for 18%. The actual situation, as determined by the farm visit, was much more compliant with the guidance.

### **Information within the NMP**

The desk review had suggested that 94% recorded current crops by field, however for other types of information fewer farms had appropriate records, particularly in relation to manure application. 64% showed previous crops by field, 63% soil type by field and 46% the market for current crops. Of the farms with organic manure 42% had recorded the amount of manure to be applied, and 33% the type of manure to be applied. Of the farms in NVZs 54% indicated which fields are in an NVZ.

After reviewing farm records during the farm visit, a much more positive picture was evident.

**Table 13: Presence and Appropriateness of Information within the NMP (Farm Visits)**

	Presence of information		Appropriateness of information	
	Shown on plan	Not shown on plan	Plan appropriate	Plan not appropriate
Soil Type by field	81%	19%	82%	18%
Which fields are in NVZs <i>Based on 36 farms with fields in NVZs</i>	82%	18%	86%	14%
Current crops by field	95%	5%	97%	3%
Previous crops by field	85%	14%	94%	6%
The market for crops where appropriate e.g. milling or feed wheat (NB not all farms will grow cereals)	74%	22%	96%	4%
The amount of organic manure applied/to be applied <i>Based on 34 farms which use organic manure</i>	76%	24%	91%	9%
The type of organic manure applied /to be applied <i>Based on 34 farms which use organic manure</i>	74%	26%	91%	9%
When organic manure is applied/will be applied <i>Based on 34 farms which use organic manure</i>	66%	34%	87%	13%
When fertilisers have been or are to be applied	89%	11%	89%	11%

*Bases: Presence of information all 49 plans unless otherwise indicated – where percentages do not add to 100 this is due to rounding or the presence of no replies.*

*Appropriateness of information, excludes no replies i.e. plans without this information.*

Within the farm visit review a high proportion of plans contained the appropriate information, particularly with regard to recording current crops (95%), and fertiliser application (89%). Organic manure application was less rigorously recorded as only **66%-76% of farm visit plans for farms that use manure had recorded information on the amount, type and timing of application.**

Where information had been recorded on the plan it was in most cases thought by the farm visit assessors to be accurate and appropriate for the farm. Soil type by field, which fields are in NVZs and when organic manure has or should be applied were the least likely to be appropriate to the farm.

### **Nutrient Calculations**

Amongst those farms within the farm visit review with organic manure, the nutrient content of these manures had been assessed most frequently using standard figures (64%), for example from RB209 PLANET or MANNER. 19% used laboratory analysis,

12% another method, whilst 14% had not assessed the nutrient content of organic manures.

Availability of N, P and K in the manure had been calculated by the majority of farms within the farm visit review. 82% had calculated the N value, and 83% of those making the calculation had done so correctly. 77% had calculated available P and K, while 83% of those doing so had done it correctly.

Where the calculations had not been done correctly the reasons included that there had been no adjustment for the available percentage of nutrients and account had not been taken of the difference between cattle and sheep farmyard manure.

The assessors were asked to review records for at least 10% of the fields on the farm during the farm visit to determine if the fertiliser plan had been adjusted according to the nutrient supply from organic manures.

Where organic manures are used the fertiliser plan had been adjusted for the nitrogen supply from these manures in 73% of the NMPs, (69% for most fields, 4% for some fields). **24% of the farm visit plans did not appear to have adjusted the fertiliser plan to take the organic manure nitrogen supply into account.**

A smaller proportion of farm visit plans (56%) had made adjustments for the P and K in the organic manures (54% for most fields, 2% for some fields). 21% had not made the appropriate adjustments, whilst for a further 22% of plans it was difficult to make a clear judgement based on the information available to the assessor. So up to 43% of the farm visit plans did not appear to have adjusted the fertiliser plan to take account of available P and K in organic manure.

The desk review was only able to determine that 40% of the plans had adjusted fertiliser input according to the nutrient supply from organic manures. 37% had not adjusted the fertiliser input according to the nutrient supply from organic manures, whilst it was difficult to tell for a further 23% of plans. These figures are less positive than for the farm visit review due to the difficulty in accessing the required evidence from the section of the plan submitted for assessment.

The soil nitrogen supply had been assessed in each field in 76% of the plans within the farm visit review. **23% of farms within the farm visit review had not made an assessment of soil nitrogen supply.**

The method most commonly used to assess the soil nitrogen supply, identified by the field visit review, was the field assessment method, based on soil type, previous cropping and excess winter rainfall (75%). Other methods included soil N testing alone (15%), soil mineral N testing, + crop N, + an estimate of mineralisable N (8%). 14% used another method, whilst no method was evident for 9% of the plans.

Again, during the desk review, it was difficult to establish whether soil nitrogen supply had been assessed. Evidence was only found to show that 40% of plans had assessed the soil nitrogen supply, however a field assessment was found to be the most common method.

**The assessment of crop nitrogen requirement appeared correct on 85% of the farm visit plans**, but incorrect for 13%. No judgement was made on the remaining 2%, most probably as this calculation was missing from the plan. For 48% of plans where the assessment was believed to be incorrect, the calculation appeared very simplistic and sometimes did not include the soil N index or a soil N supply figure.

50% of plans where the calculation was recorded as incorrect appeared not to have included a crop N assessment.

Based on the limited number of plans for which the soil N supply had been shown within the desk review, the calculation appeared correct in almost three quarters of cases.

Within the farm visit review, 14% of farms planned to put the same rate of nitrogen on all fields. However in only 29% of these farms was it possible to conclude that this was inappropriate. In one third of cases, the farmer was justified in having a standard rate of nitrogen application across all fields with the same cropping.

Where similar applications were appropriate this was due to all fields receiving no organic manure and in addition having continuous cereals, with no break crops, and as such the nitrogen index would be similar in all cases. In two other cases malting barley was grown on the same soil type and same previous cropping, so all fields needed the same low nitrogen rate.

Within the farm visit review, phosphate fertiliser was planned for a field with a soil P index of 3 or above in 31% of the plans. However, this was justified for only three quarters of the plans concerned. The remaining plans appeared to be applying phosphate fertiliser inappropriately. The desk survey supported the finding that a proportion of plans recommended the application of phosphate fertiliser on land with an index of 3 or above (37%), although no justification was evident from the plans.

For 16% of the plans within the farm review the phosphate fertiliser applications did not vary for the same crop between different fields. However this was not justified on one (13%) of the plans concerned. The applications were considered appropriate in 87% of cases, mainly as the soil P indices on arable fields were all low.

### Record Keeping

The ELS handbook requires that clear records are kept of cropping, and organic manure and fertiliser application. There was a high level of compliance with this requirement based on the farm visit review, particularly in terms of cropping information. 95% of plans had clear records of cropping for all or most fields, 73% had clear records of organic manure application for all or some fields (NB base includes only farms with organic manure) and 79% had clear records of fertiliser application for all or some fields.

**Table 14: Whether Clear Records of Cropping, Organic Manure and Fertiliser Application in 2006 are Available (Farm Visit Review)**

	Cropping	Organic Manure	Fertiliser Application
Yes for all fields	92%	65%	77%
Yes for most fields	3%	0%	0%
Yes for some fields	0%	8%	2%
Records not clear	2%	3%	2%
No records included in the plan/no answer	3%	24%	19%
<i>Weighted base</i>	49	34*	49

\*Only farms with organic manure



The desk review suggested that only 45% of plans clearly showed at least some of the required information.

Based on the findings of the farm visit, 51% of the records on cropping, organic manure and fertiliser application were kept within software, with the majority of these records being described as good (95%), the remainder as reasonable (5%) in terms of their completeness, clarity and accuracy.

The farm visit also showed that 71% of the cropping, manure and fertiliser application records were kept as hard copy. Although most were described as good (78%) in terms of their completeness, accuracy and clarity, 11% were described as reasonable and 11% as poor. Clearly some records are kept as both hard and soft copy.

### **Implementation**

The NMP was thought to have been implemented very closely in all fields on 77% of the farms visited during the farm visit review. A further 9% of plans had been implemented very closely in some fields. It was not possible to make an assessment for 14% of the plans, mostly as the plan had not yet been implemented. Where the plans had not been implemented as closely as required the key reasons were that there was little evidence of forward planning so assessments were difficult, under dosing had been carried out, potash had been altered to fit fertiliser analysis, and fertiliser had been applied before crop requirement was evaluated.

Where the plan shows the amount and/or type of manure to be applied, the on farm evaluation aimed to understand if records were included in the plan or elsewhere to show these applications had been made. In the majority of case the amount (70%) and type (60%) of manure that had been applied was recorded on the NMP, whilst it was recorded on other farm records on a small proportion of plans (amount 23%, type 24%). No information appeared to have been provided by assessors for the remainder of farms.

Organic manure will be incorporated on 90% of livestock farms reviewed in the field. The time period in which it would be incorporated varied from 1 day to 2 weeks, however the largest proportion of plans suggested it would be incorporated within 2-5 days (49%) or within a day of spreading (45%). This time period was thought to be appropriate in nearly all cases (98%).

It was difficult within the desk review to determine whether the manure would be incorporated, although evidence was available to suggest manure was incorporated on 47% of the farms that used organic manure. Here the manure was incorporated anything from 1-30 days after spreading, which in all cases appeared appropriate, based on the limited information available from the desk review.

In the majority of cases the plans assessed within the farm visit review suggested that whatever the crop grown N, P or K would not be applied in amounts greater than those recommended by RB209. However 9%-18% of the plans did suggest that each of these nutrients would occasionally be applied in greater amounts than recommended by RB209 (N 18%, P 12%, K 9%).



**Table 15: Have they applied/do they plan to apply more N, P or K than recommended by RB209 (Farm Visit)**

	N	P	K
Yes always	1%	2%	2%
Yes frequently	4%	0%	0%
Yes occasionally	13%	10%	7%
No	69%	77%	80%
Difficult to tell/ no answer	13%	10%	10%

Base – all plans

**Overall 27% of the farm visit plans had recorded the application of greater amounts of either N, P or K than recommended by RB209.** No justification was provided for this amongst 18% of this sub sample. In the majority of cases justification was provided in the form of advice from a FACTS qualified person (74%). Other justifications included, evidence to show they require a higher rate of Nitrogen 52% (e.g. Pharmacy N mineral tests, grain testing of N carried out); growing milling wheat (23%) and using a different recommendation system (15%) e.g. N plan.

The desk review also suggested that a small proportion of plans suggested greater applications of N, P or K than recommended by RB209 (N 3%, P 18%, K 12%), although no justification for this was evident within the plans.

### **Calibration and/or Maintenance of Fertiliser Spreaders**

Within the farm visit review, there was some evidence to show the calibration and/or maintenance of fertiliser spreaders on at least 88% of farms. On 12% of farms, either the evidence provided indicated that calibration was unsatisfactory (e.g. the calibration was carried out last year or the “new spreader came with calibration”) or no evidence was provided. In most cases the evidence was the farmers word (47%), or other paperwork held on the farm (43%). Evidence was written into 8% of the plans. A number of farms had ACCS documents (8%). In other cases the contractor calibrated the equipment (8%).

The desk review confirmed that only a small proportion of plans incorporated evidence to show the recent calibration of the fertiliser spreaders (8%).

### **Appropriateness of the Nutrient Plan**

In summary the nutrient plan was appropriate for 87% of the farms reviewed within the on farm visit. 13% of the plans were not however appropriate. The reasons why the plans were not appropriate included;

- Insufficient written evidence of planning;
- System needed to show actual fertiliser and organic manures applied and take into account nutrients from organic manure application;
- No formal plan just piece of paper from consultant stating amount of NPK to apply for limited fields;
- No evidence of nutrients from organic manure application being taken into account or results of inputs actually applied;
- Insufficient information regarding nitrogen usage.

Evidence was available from the desk review to show that the total amount of manure nutrients had been calculated in just over half (60%) the plans for farms which used organic manure. However the plans did not contain the values used to determine this amount and as such it was not possible to tell if the calculation had been done correctly.

### Impact of the ELS NMP on Farm Practice

Within the farm visit review the assessors were asked to assess the impact of the ELS NMP on farm practice, by indicating whether there had been no change or improvement, some improvement or significant improvement on the farm for a number of issues. The assessors were asked to use evidence from the plan, other farm records and discussions with the farmer to help make their judgement. The results of this exercise are shown in the following table.

**Table 16: Impacts of ELS NMP on Farm Practice (Farm Visit)**

	No change as already good practice before ELS	No improvement Poor/moderate practice before ELS	Some improvement	Significant improvement	Weighted base (no replies excluded)
Calculation of fertiliser application plan	56%	9%	15%	<b>16%</b>	49
Assessment of crop N requirement	55%	<b>16%</b>	19%	11%	49
Financial savings	49%	9%	32%	10%	49
Allowance for manure N	30%	<b>16%</b>	19%	10%	49
Assessment of crop PK requirement	60%	11%	20%	9%	49
Allowance for manure P and K	34%	<b>19%</b>	12%	9%	49
Improved awareness of diffuse nutrient pollution issues	25%	0%	<b>66%</b>	9%	49
Accuracy of fertiliser/manure spreading	<b>77%</b>	11%	6%	6%	49
Use of soil analysis	59%	2%	33%	6%	49
Better crops and crop outputs	59%	<b>15%</b>	23%	3%	49

Improvements had been seen for all of the farm practices and issues listed above. However, the greatest improvement was recorded for “improved awareness of diffuse nutrient pollution issues”. On 66% of farms some improvement appeared to have been made since the preparation of the NMP, whilst a significant improvement was evident on a further 9% of farms. It must be noted however that this issue had the greatest opportunity for improvement as only 25% of the sample were thought to be currently operating good practice in respect of diffuse pollution.

The greatest significant improvement was recorded for the calculation of the fertiliser application plan (16%).

Current good practice was most evident for accuracy of fertiliser/manure spreading (77%), however an improvement was still noted amongst 12% of farms.

The results indicate that a significant proportion of farms with NMPs are still not allowing for manure P and K supply (19%), assessing crop N requirement (16%), or allowing for manure N (16%).

On a more positive note, 42% of farms had seen some or significant savings as a result of using a nutrient management plan, and 26% had seen some or significantly better crops.

### 3.5 Farmer Survey

#### 3.5.1 Sample Structure

As part of the farm visit the assessors interviewed the farmer to understand his attitudes to and experience with the management plans. The survey asked about all plans on the farm. The farm visit review as described in the previous section did not address all plans due to time constraints. Thus although this survey includes the same farms, it actually captures experience of a greater number of plans than considered in detail during the farm review.

As described within the method section of this report the data has been weighted to reflect the profile of farms with management plans, by region and farm size, based on uptake data provided to ADAS by Natural England. The weighting ensures that the data is as representative as possible of farms nationally, by ensuring that regions or farm sizes are not under or over represented.

The sample for this survey is as follows:

**Table 17: Sample Profile for Farmer Survey**

	Unweighted data	Weighted data
<b>Total number of farms</b>	<b>90</b>	<b>88</b>
Region		
North East	5	4
North West	5	5
Yorkshire and Humber	13	14
East Midlands	12	15
West Midlands	4	10
East of England	24	18
South East	14	8
South West	13	14
London	0	0
Farm Size		
Small	39	33
Medium	29	40
Large	22	15

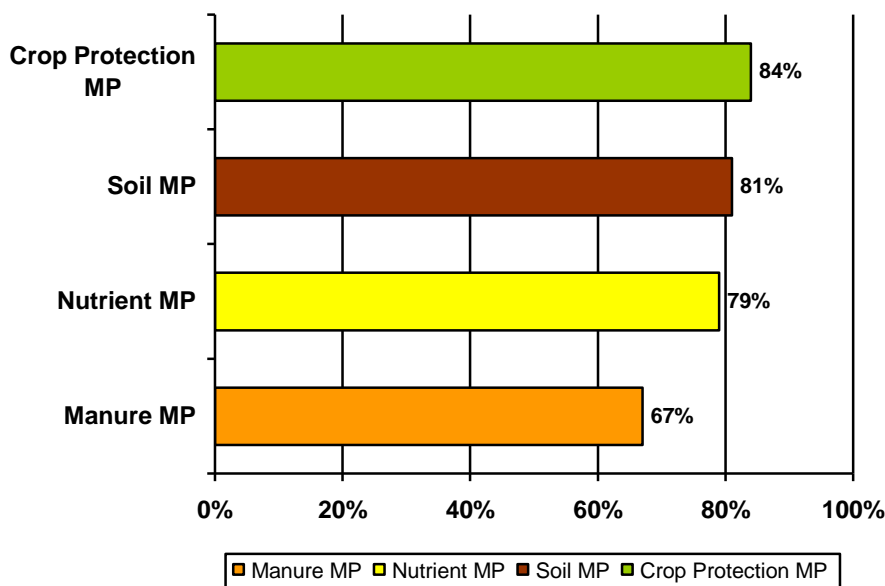
Given the small base sizes the data has not been reported on by region or size.

The predominant farm types were cereals (30%), mixed farms (31%) and general cropping (33%).

### 3.5.2 Management Plans

84% of the farms had produced a crop protection management plan, whilst 81% had produced a soil plan, 79% a nutrient plan and 67% a manure management plan. 5-6% also planned to produce a crop, nutrient or soil plan. No additional farmers were planning to produce a manure plan.

Figure 2: Management Plans Produced



Base: All farms

### 3.5.3 Farmer Attitudes to Management Plans

The farmers were asked very early in the interview for their thoughts on the management plans, including what is good and not so good about them. This information was recorded verbatim and provides qualitative feedback that allows for a good understanding of what the farmer thinks and why he has that view.

Many of the farmers saw the value to the environment of implementing at least one of the management plans. The plans provided a “focus” for thoughts on farm practice, a benchmark for good practice and a systematic approach to thinking through the issues on their farm in relation to the environment. For example by preparing the plan a farmer would understand where good practice is already being followed and what changes are needed to ensure the impact on the environment is considered. Thus in principal there seemed to be a great deal of support for the plans as a tool to help protect the environment (39% of farms).

In a number of cases the plan simply confirmed that current practices were appropriate. There were mixed feelings over the value of this. It could be seen as a positive that the farmer had thought through his practices, was able to confirm that his practices were acceptable and was reassured by this. On the other hand the plans could be construed as too much work for the value provided.

A common criticism was that it was time consuming (mentioned by 13% of farms) to prepare the plans not only because of the level of detail required, but also a perceived lack of clarity over what to include and how to present it. There were frequent calls for a template, provision of completed examples and clearer guidance/instructions on how to complete the plans (10% of farms).

Over and above comments on time taken to complete the plans, approximately 13% of the farms appeared to see little or no value in the plans, or at least they see the benefits being limited to what they consider to be problem farms. A number of farms felt that current practice already had the interest of the environment in hand and as such the plan was not achieving anything further.

Comments made specifically about the soil management plan ranged from easy to understand and complete to complex, vague, difficult to interpret and repetitive (in terms of the need for field by field assessments).

In a number of instances the soil management plans only seemed to confirm current good practice, however on several farms it highlighted required changes in farm practice or increased awareness of farm characteristics e.g. slope gradients.

Again with the nutrient management plan a number of farmers felt the value was limited as it only confirmed what they already knew about application requirements. For others it served to highlight nutrient levels and ensured these were correct.

The comments on the manure management plan ranged from easy to understand to complex and not relevant. Again a number of farmers felt they were already following best practice, however a number of positive changes do appear to have taken place as a result of the plan.

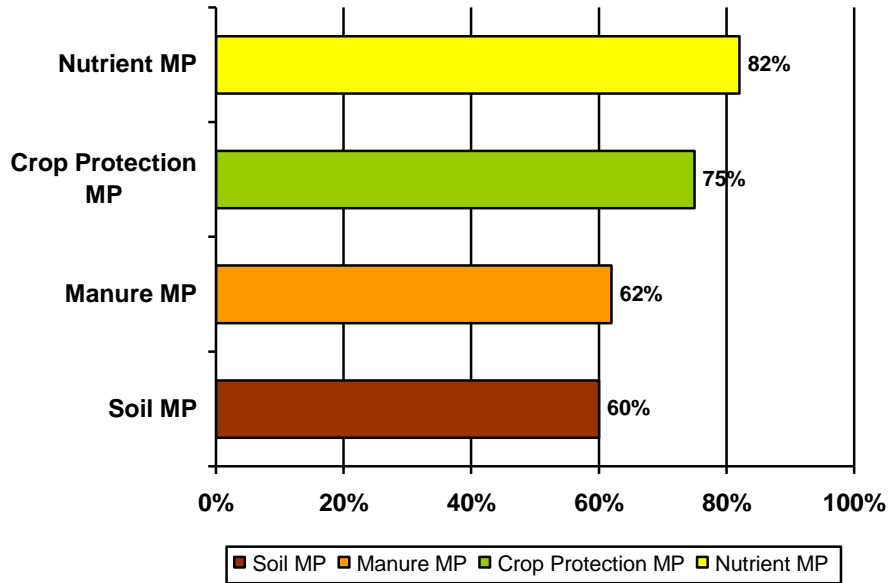
The comments about the crop protection management plan were in the main positive. It was described as concise and straightforward to complete and the availability of a predefined template was appreciated. The farmers were clearly familiar with the form as it had often already been completed prior to ELS as part of other schemes such as VI.

#### **3.5.4 Help or Advice Received from an Agronomist, Adviser or Agent**

The farmers were very likely to have received advice from an adviser, agronomist or agent when completing the plan. They were however most likely to have received help to complete the nutrient plan (82%), followed by the crop protection plan (75%). It is a requirement within the ELS Handbook that the plan is completed in conjunction with a FACTS qualified person (nutrient) or BASIS qualified agronomist (crop). From the farm visit findings, 87% of crop protection management plans appeared to have been conducted with a BASIS qualified person, whilst 87% of nutrient plans had been conducted with a FACTS qualified person. There appears to be a difference in the figures for the crop plan between the farmer survey and the farm visit review, however this is unlikely to be significant due to the small base sizes.

A high proportion of the farmer sample also received help with the soil plan (60%) and manure plan (62%).

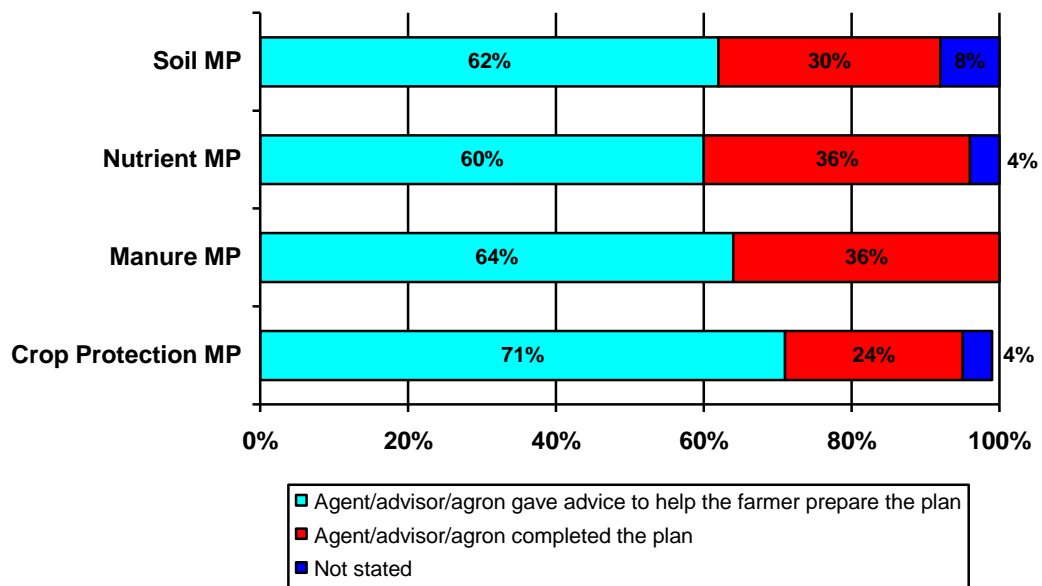
Figure 3: Proportion of Farms Receiving Help to Complete the Plans



Base: All farms

For all plan types the adviser was more likely to provide advice to help the farmer complete the plan rather than complete the plan for the farmer. This was most likely to be the case with the crop protection plan, where the adviser provided help in 71% of cases, however this difference will not be significant given the small base sizes.

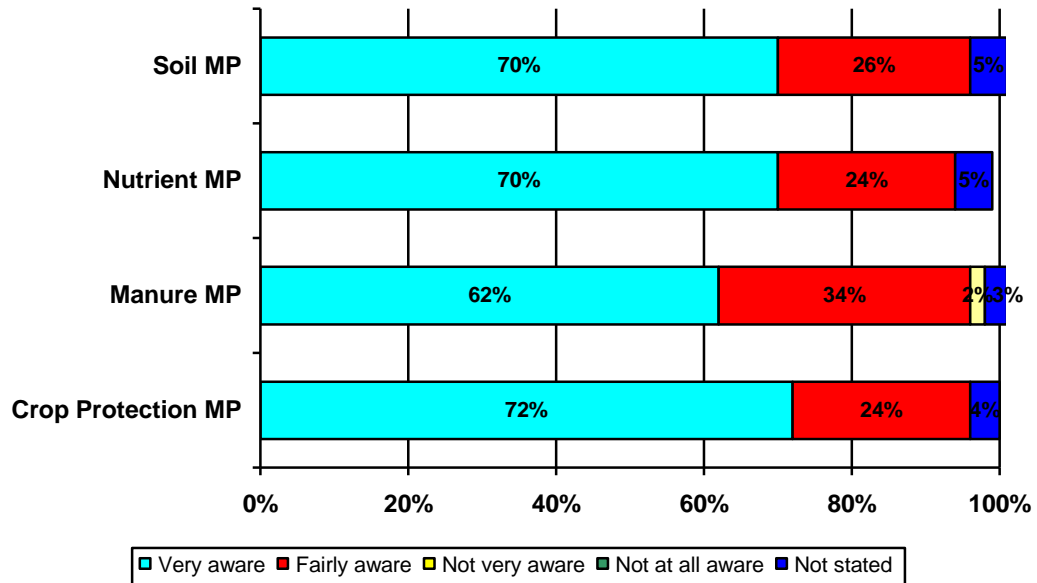
Figure 4: Whether the Adviser Provided Advice or Completed the Plan



Base: SMP/NMP/MMP/CPMP produced

Where help had been received the farmer was most frequently very aware of the information that had been included within the plan (62%-72%), whilst a further substantial proportion were fairly aware (24-34%). In only one case was a farmer not very aware of the information added to a plan by an adviser. In this case the adviser had helped complete a manure management plan.

**Figure 5: Awareness of Information put in the Plan by the Adviser**

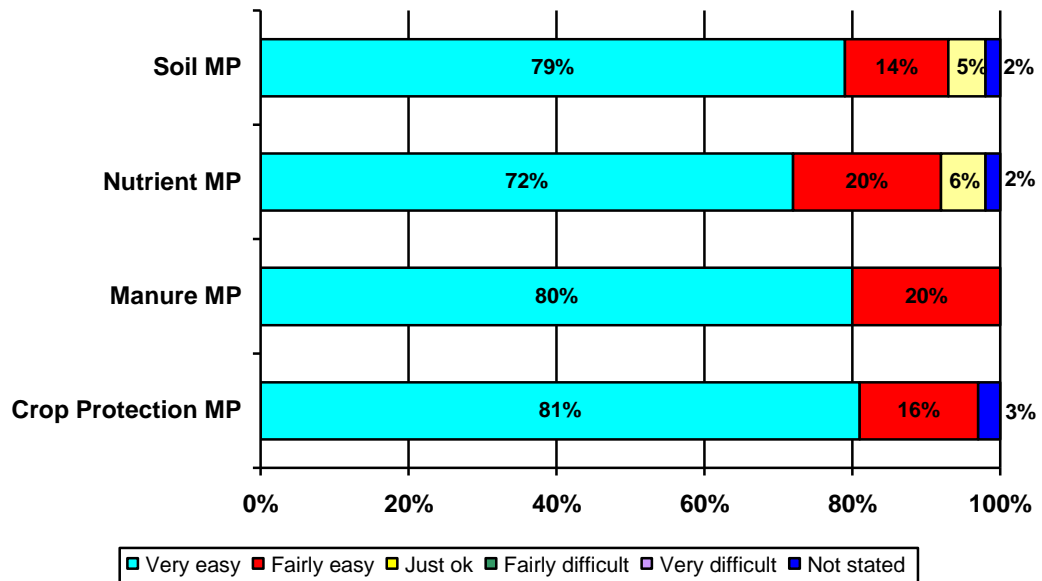


Base: SMP/NMP/MMP/CPMP produced and help received

Overall it appeared easy to find someone to help prepare each of the plans. For each plan the majority of farmers felt that it was very easy (72%-81%), whilst 14-20% found it fairly easy. A small proportion of farmers found it “just Ok” to find someone to help with the soil or nutrient plan.



Figure 6: Ease of Finding Someone to Help Prepare the Plan



Base: SMP/NMP/MMP/CPMP produced and help received

The cost of getting help to complete or help prepare the plan varied widely from free of charge to £800. In a number of cases the cost was included within an overall package of advice from an adviser. Where this was the case it was not possible to define the amount allocated to the preparation of the plan. On average, the soil, manure and nutrient plans appeared to cost in the region of £200+, whilst the crop protection plan cost a little less at just over £100.

Table 18: Cost to Prepare the Plans

Plan Type	Range	Average
Soil	£0-£800	£271
Nutrient	£0- £800	£219
Manure	£0-£800	£271
Crop Protection	£0-£500	£118

### 3.5.5 Other Help or Information Used to Prepare the Plan

The questionnaire explored the use of information sources relevant to each plan for its preparation. In addition to the ELS handbook and ELS event, other specific information sources were taken from the guidance listed within the ELS handbook.

69% of the farmers with a soil plan had attended an ELS event, whilst 88% had referred to the ELS handbook. Although the latter figure is high, it should perhaps have been higher given that this is the key document for those wishing to develop a management plan of any type. The next most commonly used publication was the Defra Field Guide for Erosion and Risk Assessment (63%). This

source is specifically mentioned within the ELS handbook. The guidance is to consult this publication or an adviser, and it would appear that most farmers have followed this advice. 51% had referred to example soil management plans and templates, 45% had looked at Defra advisory leaflets on preventing erosion, 37% the Environment Agency Best Farming Practices Handbook and 32% the Defra advisory booklet for Management of Agricultural Land. Other sources had been used by 25% or under of the sample (The Defra manual for the Assessment and Management of Agricultural Land at Risk from Water Erosion in Lowland England, 25%; Soil Management Initiative Guide to Managing Crop Establishment, 19%; National Soil Resources Institute Guide to Better Soil Structure, 17%). Thus overall it would appear that the guidance literature available for soil management plans had been referred to by many farmers. Almost half the sample (49%) had however also referred to other sources.

The ELS handbook was almost universally used by those with a nutrient management plan (91%), whilst 68% had attended an ELS event. 58% had used PLANET and 12% MANNER to help prepare the plan. 49% also used a variety other sources.

56% of those with a manure plan had visited an ELS event, whilst 83% had referred to the ELS handbook. 66% had used the Defra advice on manure management in the water code, and 50% had used the Defra advice on manure management in the “Step by Step Guide for Farmers”. 46% also used other sources.

75% of the farmers with a crop protection plan had used guidance under the Voluntary Initiative relevant to the crop protection management plan. This high figure is not surprising given that 99% of the plans reviewed in the farm visit had been prepared under the VI scheme. 73% had referred to the ELS handbook, whilst 52% had attended an ELS event. Other sources had been referred to by 39%.

The other sources are listed in full within Annex Section 4 under Q6 of the Farmer Survey and most frequently include Defra, EA and RPA websites and FWAG guidance, followed by suppliers information sheets and in house training.

### **3.5.6 Value of the Information Sources Used to Prepare a Management Plan**

Irrespective of the plan type the information sources used by the farmers were rated on a scale of very useful, fairly useful, not very useful and not at all useful.

Several of the information sources were considered to be very or fairly useful, particularly the ELS event (61% very useful, 24% fairly useful), and the ELS handbook (55% very useful, 33% fairly useful).

The example soil management plans and templates were well received and considered very useful by 45%, and fairly useful by 45%. Overall the sources of help mentioned in the ELS handbook were rated highly (42% very useful, 49% fairly useful) however ratings for each individual source varied.

The least well received sources of help for the soil management plan were the Soil Management Initiative Guide to Managing Crop Establishment where 59% found it useful, but 27% found it not very useful. The SMI does however provide information about cultivations that could go into a SMP, rather than how to prepare a SMP.

PLANET and MANNER were received well by the majority of users, although a few farmers did suggest it wasn't very useful to them, which may suggest they had difficulty using or understanding the software.

The Defra advice on manure management in the “Step by Step Guide for Farmers” was considered useful by 77% of the users, whilst the Defra advice on manure

management in the Water Code was thought to be useful by 72% of users, although 26% did not find it useful.

The guidance under the VI relevant to the crop protection management plan was very well received overall (very useful 59%, fairly useful 29%).

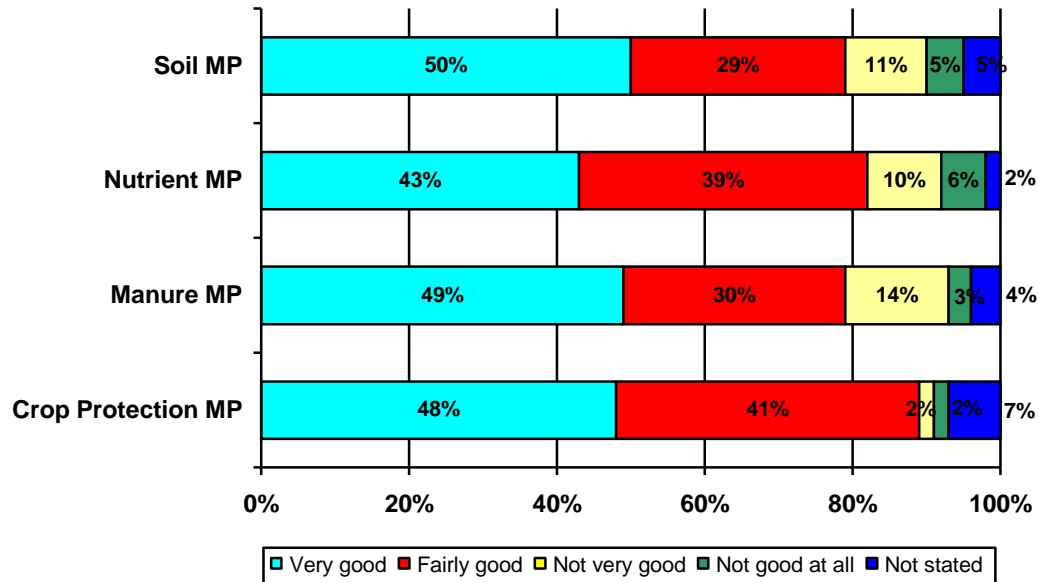
**Table 19: Usefulness of Guidance Used**

	Very useful	Fairly useful	Not very useful	Not at all useful	Not stated	Mean score	Weighted base
ELS Handbook	55%	33%	4%	-	8%	3.6	83
Guidance under the VI relevant to the CPMP	59%	29%	2%	1%	9%	3.6	56
Attended an ELS event	61%	24%	5%	6%	4%	3.5	61
Example soil management plans and templates	48%	45%	3%	-	4%	3.5	37
Sources of help and info mentioned in the ELS handbook	42%	49%	1%	2%	6%	3.4	49
PLANET	49%	34%	7%	2%	8%	3.4	42
MANNER	52%	30%	18%	-	-	3.3	10
The Defra field guide for erosion risk assessment	29%	45%	10%	3%	14%	3.2	46
Environment Agency Best Farming Practices handbook	32%	44%	14%	-	10%	3.2	26
Defra advice on manure management in the "Step by step guide for farmers"	25%	52%	10%	1%	12%	3.1	29
The Defra manual for the assessment and management of agricultural land at risk from water erosion in lowland England	10%	63%	10%	-	17%	3.0	18
Defra advisory leaflets on preventing erosion	22%	48%	14%	6%	9%	3.0	32
National Soil Resources Institute Guide to Better Soil Structure	21%	35%	6%	8%	30%	3.0	12
Defra handbook Managing Manures on Organic Farms	-	100%	-	-	-	3.0	3
The Defra advisory booklet for management of agricultural land	19%	40%	20%	4%	17%	2.9	22
Defra advice on manure management in the water code	22%	50%	26%	1%	2%	2.9	39
Soil Management Initiative Guide to Managing Crop Establishment	3%	56%	27%	-	14%	2.7	13

Mean scores have been calculated on a +1 to +4 scale, the higher the score the more useful the source.

### 3.5.7 Opinion of the Amount and Type of Help Available to Prepare the Plan

Figure 7: Opinion of the Amount and Type of Help Available to Prepare the Plans



Base: SMP/NMP/MMP/CPMP produced

It would appear that the farmers did not have a problem with the amount of help available to prepare the plans as over three quarters of the sample with each plan type found the help available very good or fairly good. The farmers were slightly more positive about the help available for the crop protection plan, which based on the questions above is likely to relate to the guidance available under the Voluntary Initiative.

### 3.5.8 Additional or Different Help Preferred

Based on responses to an open question, the most common form of additional help required for the soil plan was a template or better indication of how the plan should be presented (14% of farms with a SMP). Clearer, more specific guidance was also needed (8% of farms with a SMP). A system or at least help was also required to identify soil types and textures (4% of farms with a SMP).

For the nutrient management plan again a template, examples of acceptable plans and clarity over how the plan should look would have been helpful (13% of farms with a NMP). One farmer suggested a helpline, whilst another wanted more one to one help rather than advice via roadshows. Clearer guidance, clearer signposting to guidance and example forms were also needed (9% of farms with a NMP). A simpler form, perhaps with tick boxes was mentioned by 3% of farmers with a NMP. 6% of farmers with a NMP had an issue with RB209. It was thought to be out of date, a more condensed and proven version was needed. It was also thought to lack information relevant to the local conditions.

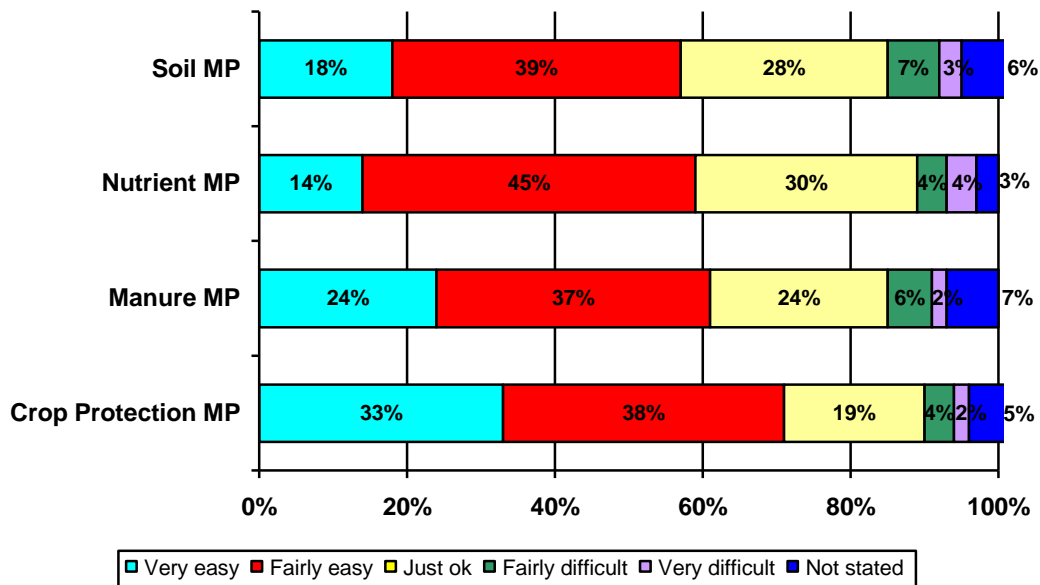
For the manure plan, once again the greatest need was for clearer more specific guidance, a template and examples of how the plan should be completed (22% of farms with a MMP). A helpline was also mentioned by one farmer (2%).

In respect of the crop protection management plan only a few suggestions were made for additional help which included more precise guidance, and more easily accessible information on maximum doses of chemicals and water volumes.

### 3.5.9 Ease of Preparing the Plan

On balance the farmers seemed to find the plans fairly easy to complete, although opinion varied between very easy, fairly easy and just OK. The crop protection management plan was overall rated as being the easiest to complete. It must be remembered that the majority of farmers received help to prepare the plan.

Figure 8: Ease of Preparing the Plans



Base: SMP/NMP/MMP/CPMP produced

The key difficulties associated with the soil management plan were firstly the previously documented issue of not knowing how to complete and present the plan, which included issues about how much and which information to provide and concerns over repeating information for different fields (18% of farms with a SMP). Secondly the farmers had a problem with identifying and classifying soil types (9%) and assessing the degree of slope (3%). A number of farmers pointed out that without the help of an adviser they would not have been able to complete the plan.

The need for greater clarity and guidance to prepare the plan and a greater indication of what an acceptable plan should contain were the key difficulties with the nutrient plan (14% of farms with a NMP). There were also comments that this plan was complex and technical and there seemed to be some difficulty pulling together the required information.

Two farmers who had completed the manure plan (3%) had used a template for the MMP and found it very helpful.

8% of farmers with a MMP commented on the lack of clear guidance or concern over not knowing what information the plan should contain to ensure it was acceptable.

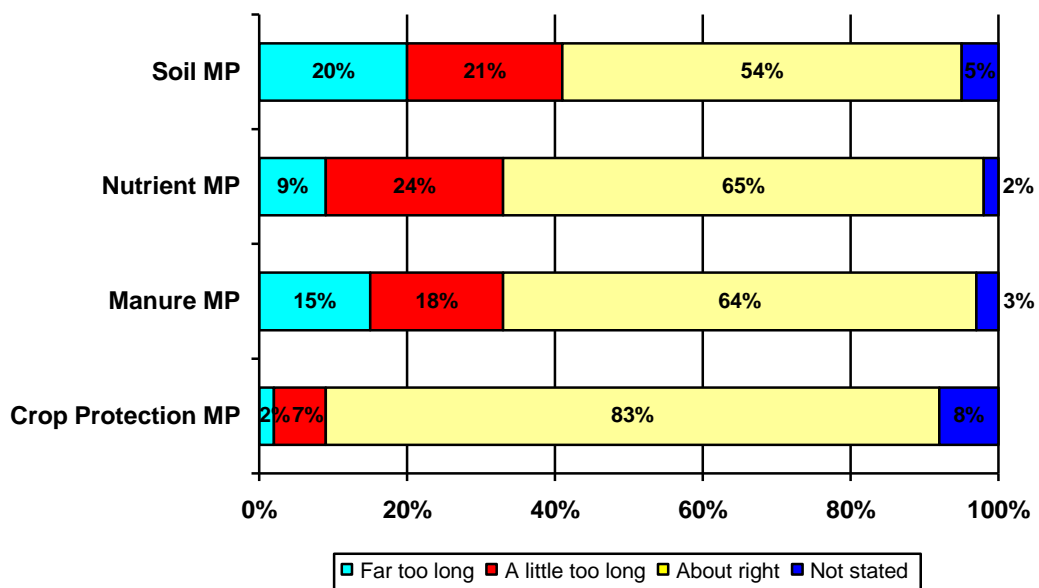
One comment was also made regarding the difficulty in working out the dirty water requirement and difficulty in determining the orange zones.

Few issues were mentioned with regard to the crop protection management plan.

### 3.5.10 Time Taken to Prepare the Plans

The plans were completed over anything from 1 day to a 6-8 month period. There was clearly a very wide variation in the time period to complete the plans. Intermediate time periods included 1 week, 1 month and 6 months. In terms of time actually spent on the plans this varied from 1 hour to 2 full weeks. The data suggests that on average the CPMP was completed more quickly than the other plans.

Figure 9: Opinion of the Length of Time Taken to Prepare the Plans

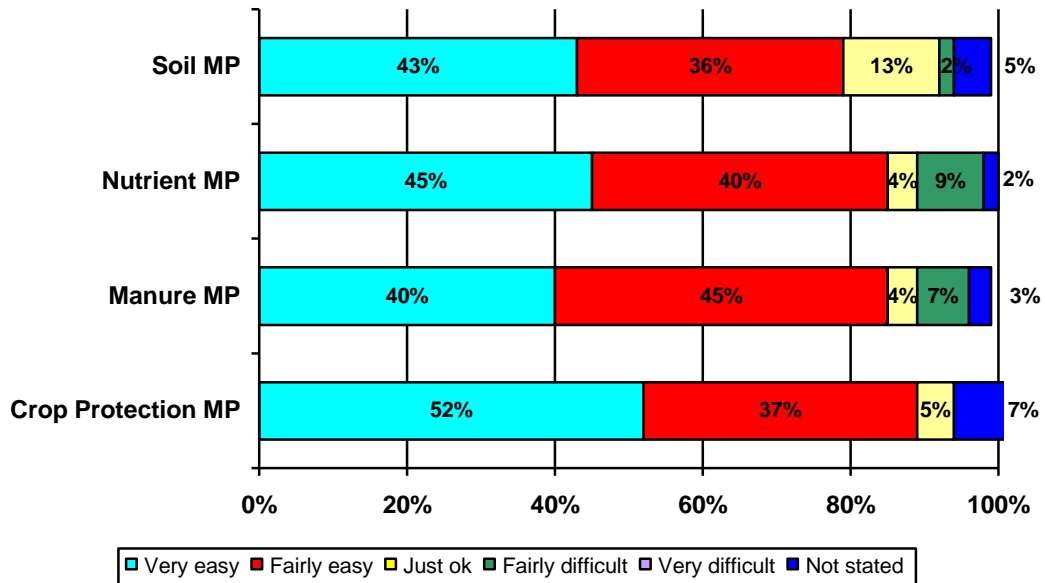


Base: SMP/NMP/MMP/CPMP produced

Reaction to how long the plans took to complete varied substantially by plan type. Farmers were likely to be the most satisfied with the time taken to prepare the CPMP, as 83% considered the time to be about right. Just 9% found the time taken too long. 64% of the farmers with a manure plan and 65% of those with a nutrient plan found the time taken about right. In both cases 33% believed the plan took too long to complete, however slightly more farmers believed the manure plan took far too long compared to the nutrient plan. The soil plan was most likely to have taken too much time (far too long 20%, a little too long 21%). Just over half the sample however believed the time taken was about right (54%).

### 3.5.11 Ease of Completing the Plan within 1 year of Setting up an Agreement

Figure 10: Ease/Difficulty in Completing the Plan with 1 Year of Setting up the Agreement



Base: SMP/NMP/MMP/CPMP produced

Overall there did not appear to be a problem for farmers to complete the plan within a year of setting up an ELS agreement. Results were broadly similar for all four plans, although the CPMP appeared to be slightly easier to set up in time compared to the other plans. In the region of 80% of farmers found it very or fairly easy to complete each of the plans within the first year of setting up an agreement.

### 3.5.12 What Would Have Made it Easier to Complete the Plans

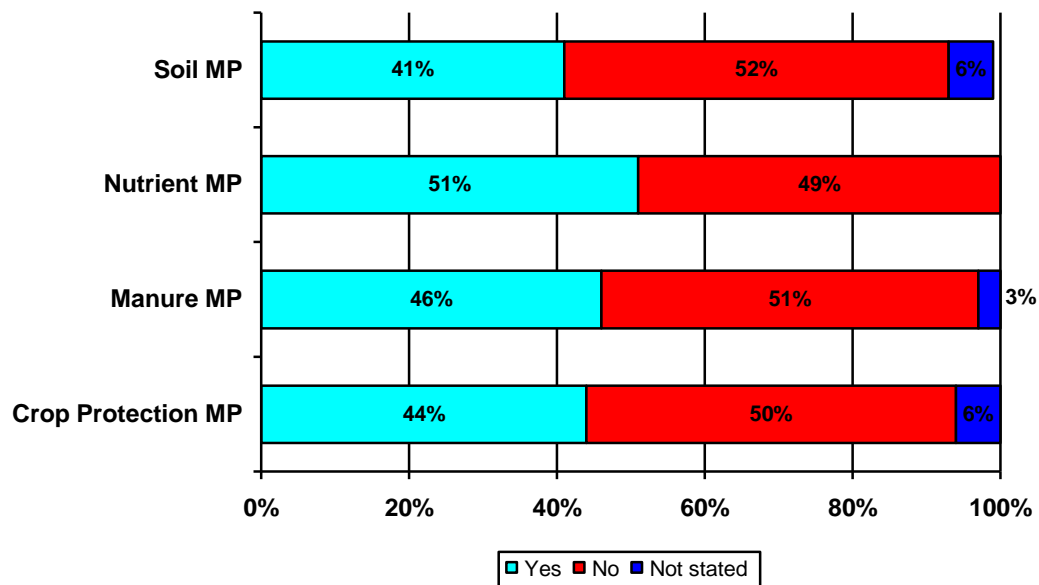
The responses to this question are documented within Annex Section 4. They are not reported upon in detail in this section as they broadly repeat the responses to previous questions. In summary the availability of templates, example plans and clearer guidance would have helped farmers to complete the manure, soil and nutrient plans in particular. Fewer issues were raised in relation to the CPMP given the existence of the well-known format used within the Voluntary Initiative.

### 3.5.13 Change in Farm Practices as a Result of Preparing the Plan

Substantial proportions of the sample suggested that there would be a change in their farm practices as a result of preparing the plan. Although differences are unlikely to be significant the nutrient plan appeared to have generated the greatest change (51% had changed practices since preparing the plan. The equivalent figures for the other plans are soil 41%, manure 46%, crop 44%).



**Figure 11: Actual or Anticipated Changes to Farming Practices as a Result of Preparing the Plan**



Base: SMP/NMP/MMP/CPMP produced

The key changes associated with the introduction of the nutrient management plan were more frequent soil testing (16% of farms with a NMP); use of less fertiliser (N,P and or K) (11%), and more targeted, accurate and appropriate management of applications of nutrients (17%).

The changes in farm practice brought in as a result of the soil management plan, often related to ploughing or planting crops across slopes to prevent soil erosion (10% of farms with a SMP) or to the introduction of buffer strips (6%). Other farmers had planted permanent crops or grass (3%), others had stopped ploughing/winter ploughing or changed ploughing techniques (7%). There had also been an improvement in cattle grazing management to reduce erosion.

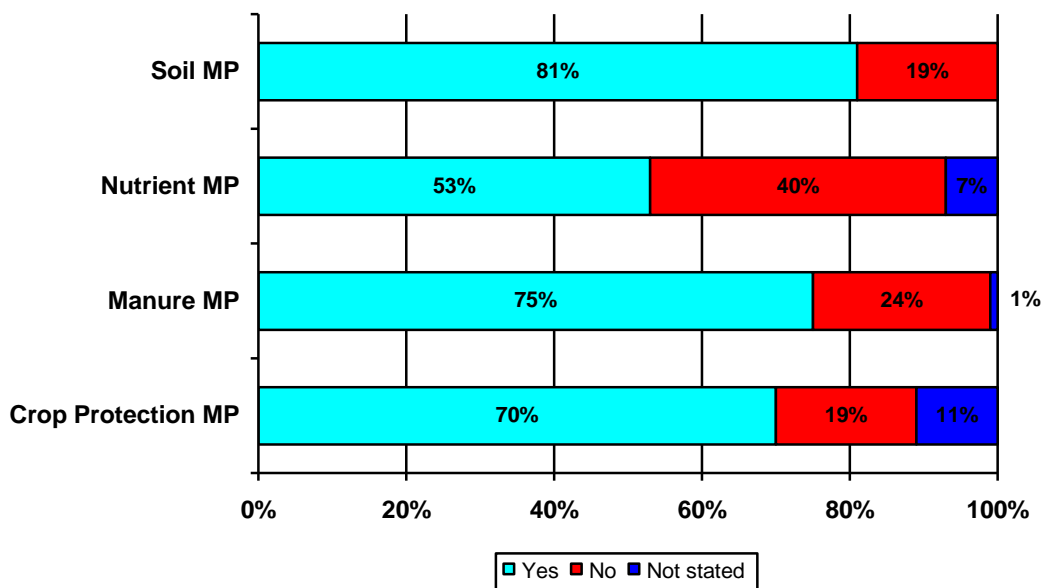
A number of different changes had taken place as a result of the preparation of the manure management plan. Overall farmers appeared more aware of the nutrient value of the manures and consequently were more aware of the appropriate application rates (17% of farms with a MMP). A number had a greater understanding of the risk categories and were keeping applications away from watercourses (10%).

The majority of farmers with a crop protection plan who had made changes to farm practice had made changes that related to training or machinery testing (11% of farms with a CPMP), or spray practices (16%). Changes had also been made with regard to the disposal or storage of pesticides (5%). Buffer strips had been established by some farmers (5%), whilst a general improvement in awareness and understanding of the standards required was evident amongst a further 5% of farms.

### 3.5.14 Whether Changes have made a Positive Environmental Difference on the Farm

Where changes had been made as a result of the plan, the farmers' view was that they were more likely than not to have made a positive environmental difference on the farm. This was particularly true for the soil plan (for 81% of farms the plan had resulted in changes in practice). Followed by the manure plan (75%) and crop protection plan (70%). The changes, which had resulted from the NMP appeared less likely to have resulted in positive changes (53%). It is possible that any positive benefits were not immediately obvious.

Figure 12: Whether Changes have made a Positive Environment Difference



Base: Changes have happened or are likely to happen due to SMP/NMP/MMP/CPMP

### 3.5.15 Positive Environmental Differences that had Occurred

The positive changes brought about by the introduction of the soil management plan included less erosion (13% of farms with a SMP), less run-off (14%), improved wildlife e.g. beetle bank established, increase in birds and mammals (4%).

With regard to improvements brought about by the nutrient management plan these were in most cases related to a reduction in the amount of nutrients applied and more appropriate matching to crop requirements, with the likely benefit of reduced diffuse pollution.

Those farmers with a manure management plan often felt that they had reduced the risk of pollution by avoiding application near to watercourses and other no-spreading areas (13% of farms with a MMP).

Those with a crop protection management plan believed they had potentially reduced pollution, particularly to watercourses (9% of farms with a CPMP) or had seen an increase in wildlife numbers (rabbits, birds, other mammals) (7%).

### 3.5.16 Why the Plan had not Influenced Changes in Farm Practice

The primary reason, mentioned by almost all the farmers, why a plan had not resulted in changes to farm practice was because the farms were already observing good

practice. On a smaller number of farms it was suggested that they had no particular issue that needed to be addressed.

### **3.5.17 How the Plans Could be Improved to Ensure they Encourage the Protection of Soils and a Reduction in Diffuse or Point Source Pollution from Farms**

In many cases no improvements could be suggested for the SMP (37% of farms with a SMP). 11% made comments concerning the need for more specific guidance, simpler forms and more help to complete the form (e.g. on line templates, telephone help-line).

Most other comments related to the specific requirements of the plan such as better perception of contours or gradients and less cultivation of flood plains.

23% of farmers with a NMP felt the nutrient plan could not be improved. A number of suggestions were again received about improvements in guidance and the availability of help via telephone (7%). More specific comments made by one farm in each case included less use of nitrates, more use of organic manure and targeted use near rivers and watercourses.

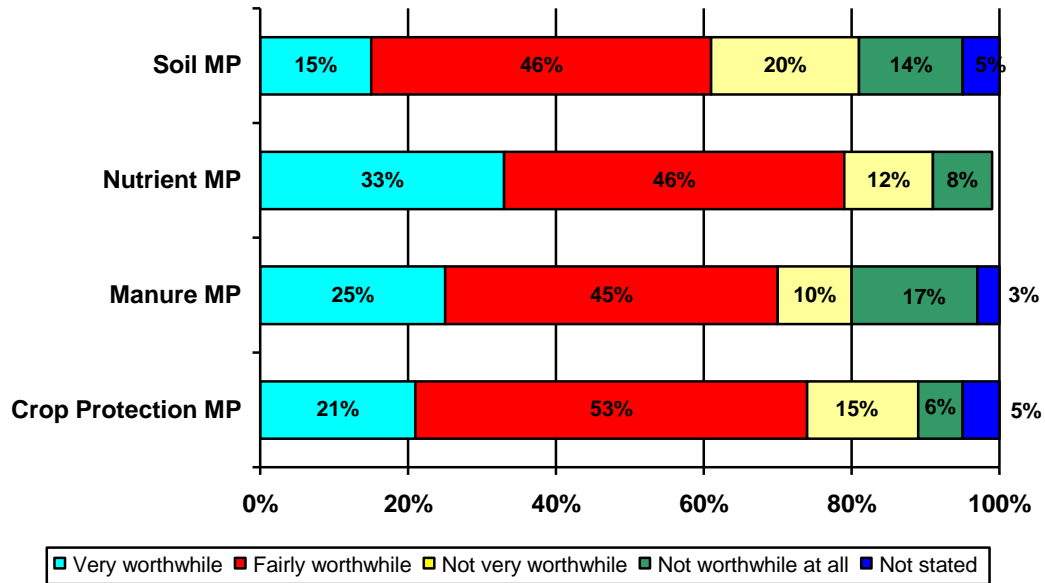
31% of farmers with a MMP felt the manure plan could not be improved, whilst 12% made comments suggesting improvements to guidance and ease of completing the form. A single comment suggested that the form should be brought into line with the NVZ document, such that there was only one form. Another farmer suggested software that could update the plan easily.

The majority of comments received for the CPMP suggested that no improvements were necessary (28% of farms with a CPMP), whilst suggestions were again put forward for making the plan and guidance more specific, with increased availability of telephone help (11%).

### **3.5.18 How Worthwhile it was to Prepare a Plan**

On balance the farmers felt it had been worthwhile preparing each of the plans, however they found the nutrient plan, followed by the crop plan the most worthwhile. 79% found the nutrient plan worthwhile whilst 20% did not find it worthwhile. 74% found the crop protection plan worthwhile whilst 21% did not find it worthwhile. The soil plan was thought not to be worthwhile by the greatest proportion of farmers (34%). The manure management plan was considered worthwhile by 70%, and not worthwhile by 27%.

Figure 13: How Worthwhile Preparing the Plans Has Been



Base: SMP/NMP/MMP/CPMP produced

### 3.5.19 Whether the Plan was Produced Specifically for ELS or Developed as Part of Another Scheme

79% of the soil plans had been prepared specifically for ELS, whilst 10% had been prepared for the Farm Assurance Scheme, 6% for the VI and 3% as part of a LEAF audit and 3% for Environmental Management for Agriculture Audit. A few plans (11%) had been prepared for other schemes, such as HLS and cross compliance. A number of plans had been produced for several schemes given that the percentages add to over 100.

The fact that many farmers had prepared the SMP specifically for ELS does perhaps link with the increased length of time needed to prepare it, and the greater difficulty experienced with this plan than any other.

63% of the nutrient plans were prepared specifically for ELS, whilst 25% were prepared for a farm assurance scheme, 10% for the VI, 3% LEAF audit and 6% EMA and 19% other schemes (others include: HLS, Farming Connect Cumbria, NVZ, own farm records).

57% of the manure management plans had been prepared specifically for ELS, whilst 33% were prepared for the Farm Assurance Scheme, 8% the VI and 3% a LEAF audit. 21% mentioned other schemes (HLS, NVZ, own farm records).

The crop protection management plan was produced for ELS in 29% of cases. It was however most commonly prepared for the Farm Assurance Scheme (55%), followed by the Voluntary Initiative (38%). 8% prepared it for a LEAF audit, 2% for an EMA. A further 9% prepared it for another scheme (ACCS, shooting and game cover), whilst no response was received from the remaining 3%.

### 3.5.20 Main Reason for Preparing the Plan

Based on an open question asked about each plan, the main reason for preparing the plans was to comply with, enter or gain points for ELS. In many cases particularly for the nutrient and crop plans, the plan had however been developed primarily as part of another scheme. Compliance with a scheme and receipt of appropriate financial benefits associated with ELS points were far greater motivations than the protection of the environment when initially preparing the plan.

**Table 20: Main Reason for Preparing the Plan**

	Soil Management Plan	Nutrient Management Plan	Manure Management Plan	Crop Protection Management Plan
<i>Weighted base</i>	71	70	59	74
To gain points for ELS	24%	23%	20%	14%
To enter/apply for ELS	11%	7%	12%	3%
For ELS (general comment)	13%	19%	14%	18%
<b>Total of ELS Comments</b>	<b>48%</b>	<b>49%</b>	<b>46%</b>	<b>35%</b>
For other schemes e.g. cross compliance/farm assurance/ ACCS/NVZ/LEAF/VI	13%	23%	37%	59%
For financial benefit	9%	11%	3%	4%
Environmental motivation	7%	11%	12%	11%
Improve yields	0%	1%	0%	0%

*Percentages may not add to 100 due to no replies*

### 3.5.21 Ranking of Issues that Influenced the Decision to Produce the Plan

Within the structured part of the questionnaire the farmers were asked to rank 5 issues in terms of their influence on the decision to produce each of their management plans. The farmers assigned a score of 1-5 for each issue, a ranking of 1 suggesting that issue had the most influence, whilst a ranking of 5 suggested it had the least influence on the decision to produce the plan. The following table contains mean scores, reflecting the average rankings applied by the farmer to each issue.

**Table 21: Ranking of Factors on the Influence to Prepare the Plan**

	Soil Management Plan	Nutrient Management Plan	Manure Management Plan	Crop Protection Management Plan
<i>Weighted base</i>	71	70	59	74
To gain points for ELS	1.3	1.7	1.8	1.8
Improve yields	3.9	2.9	3.6	3.7
Save money	4.2	3.3	3.6	3.7
To reduce the impact of farming on the environment i.e. reduce diffuse pollution	2.7	3.2	2.7	2.6
Increase profits	3.6	3.1	3.4	3.6

For each plan, just gaining points for ELS was the issue most likely to have motivated the farmers to prepare the plan. This supports the findings from the open question in the preceding section.

Reducing the impact of farming on the environment was the second most influential factor when preparing the soil, manure and crop protection plans. Those with a nutrient plan were more likely to be influenced by improved yields and to a lesser extent increasing profits than reducing impact on the environment.

### 3.5.22 Costs Savings Made as a Result of the Plan

**Table 22: Whether Costs savings had been Made as a Result of the Plan**

	Soil Management Plan	Nutrient Management Plan	Manure Management Plan	Crop Protection Management Plan
<i>Weighted base</i>	71	70	59	74
Yes	6%	55%	24%	8%
No	87%	44%	72%	87%
Not stated	6%	2%	4%	5%

Substantial proportions of farmers had made savings through the nutrient (55%) and also the manure plan (24%), whilst few had made cost savings via the soil or crop protection plan. This implies that many farmers may previously have been applying nutrients and manure in greater amounts than required. If this is the case then the potential for causing diffuse pollution has been reduced as a result of the plan. NB: Based on the results of the previous question saving money was not the prime motivation for preparing a plan, particularly the SMP.

Those with a nutrient plan had saved between £100 and £10,000, by reducing the amount of fertiliser applied on the farm. Those with a manure plan had saved anything from under £100 to £15,000 (in an NVZ), by having a greater understanding of the

nutrient value of manure applied on the farm which had enabled farmers to reduce fertiliser input, and by making more effective use of manure produced on the farm. Where savings had been made as a result of the CPMP, this had occurred due to improved sprayer efficiency, more targeted spraying and improved application techniques, thereby reducing the amount of pesticides required.

**3.5.23 Costs Incurred as a Result of Preparing the Plan, other than to Pay Someone to Help Prepare it**

**Table 23: Whether Costs were Incurred as a Result of the Plan**

	Soil Management Plan	Nutrient Management Plan	Manure Management Plan	Crop Protection Management Plan
<i>Weighted base</i>	71	70	59	74
Yes	29%	27%	26%	39%
No	57%	64%	66%	54%
Not stated	14%	9%	8%	8%

Approximately a quarter of the farmers with a soil, nutrient or manure management plan had incurred costs as a result of preparing it, other than to pay an adviser. This figure was higher amongst farmers with a crop protection plan where 39% had incurred additional costs.

The costs incurred in preparation of the plans were mainly time costs to prepare the plan and attend workshops etc. Course costs, testing and membership fees were incurred by those with a crop protection plan e.g. for sprayer testing and operator training. Costs were variable and ranged from £10 to £2-3,000.

If the farmer's time is considered a time cost, then the SMP, CPMP and MMP resulted in more farmers incurring a cost than making a saving, whilst more farmers made savings than incurred costs with the NMP, suggesting a net financial gain. (This assumption does not take into account costs to employ an adviser to help prepare the plan).



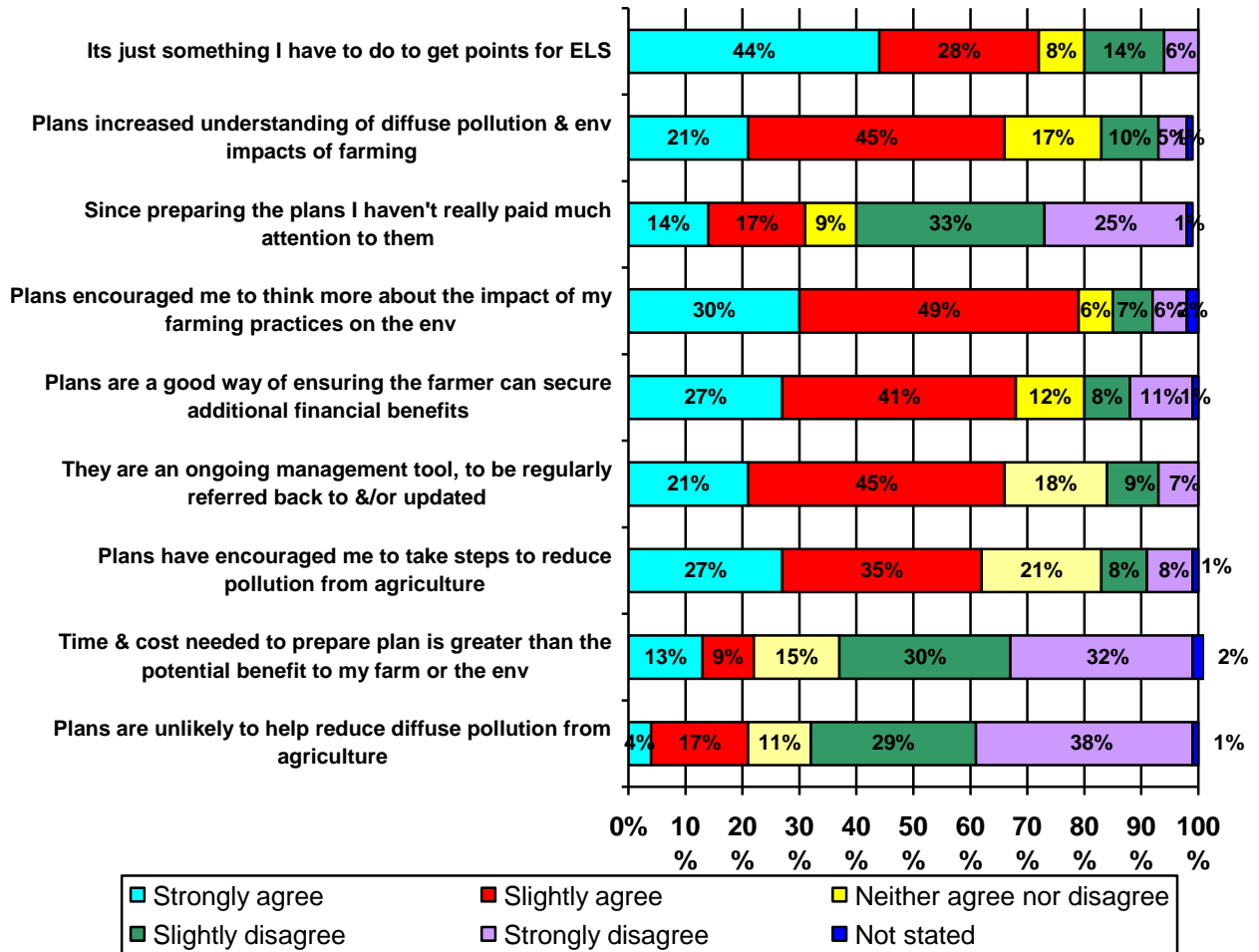
**Table 24: Costs Incurred**

	Soil Management Plan	Nutrient Management Plan	Manure Management Plan	Crop Protection Management Plan
<i>Weighted base</i>	21	19	16	29
Farmer time to prepare plan/change practices	48%	58%	56%	
Course/membership/testing fees				24%
Extra cultivation	19%			
Soil sampling		21%		
Grass seed	10%			7%
Computer equipment/software	5%	5%		3%
Machinery/irrigation costs/improving facilities/storage	5%	5%	13%	14%
Waste disposal				7%
Housing animals for longer periods	5%		6%	
Fertiliser costs		5%		

*NB: Percentages may not add to 100 due to no replies*

### 3.5.24 Agreement and Disagreement with Statements about the Management Plans

Figure 14: Level of Agreement or Disagreement with Statements about the Plans



Base: All farms

The farmers were asked how much they agreed or disagreed with a series of statements about the management plans. Mean scores (+1 to +4) have been calculated for each statement and the higher the mean score the greater the level of agreement with each of the statement.

The greatest level of disagreement was recorded for the more negative statements, “since preparing the plans I haven’t really paid much attention to them” (mean score 2.6), “the time and cost to prepare the plan is greater than the potential benefit to my farm or the environment” (mean score 2.4) and “the plans are unlikely to help reduce diffuse pollution from agriculture” (mean score 2.2). A score of 2.0 indicates a slight disagreement with the statement. Thus overall farmers disagreed with the more negative statements about the management plans which suggested they were of little value to their farm or the environment. It should be noted however that on average farmers only slightly disagreed, rather than strongly disagreed with these statements, which perhaps suggests there is room for improvement in terms of the value experienced by the farmers.

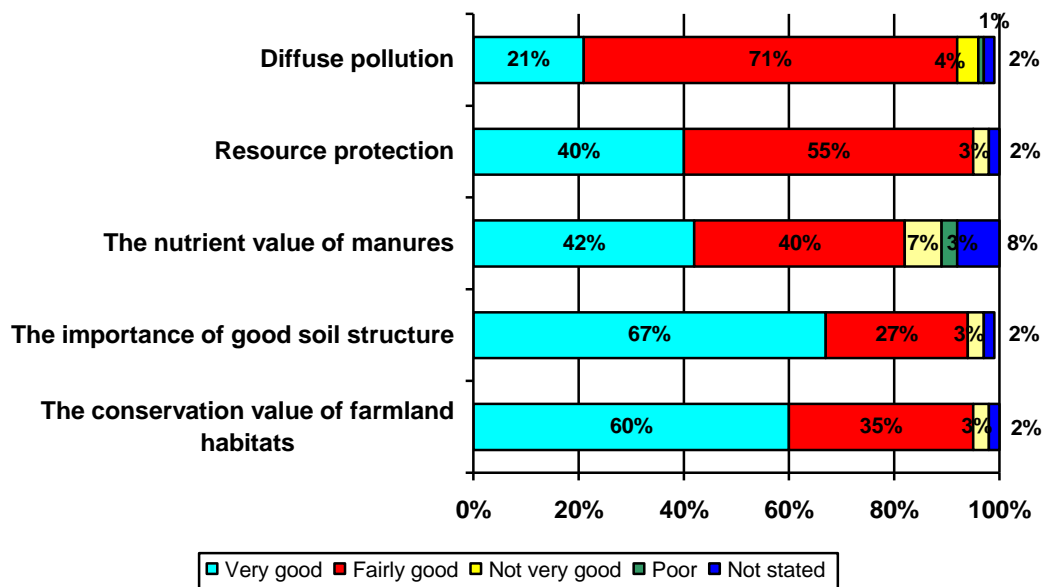
The highest mean scores and thus the greatest levels of agreement were recorded for “its just something I have to do to get points for ELS” (mean score 3.9), and “the plans have encouraged me to think more about the impact of farming practices on the environment” (mean score 3.9). Overall the farmers also slightly agreed with the statement “the plans are a good way of ensuring the farmer can secure additional financial benefits” (mean score 3.7).

Even though preparing the plans may be “something that has to be done to get points for ELS” and “are a good way of ensuring the farmer can secure additional financial benefits” the farmers appear on balance to slightly agree with many statements about the positive potential impact of the plans on the environment. For example “the plans have encouraged me to think more about the impact of my farming practices on the environment” (mean score 3.9) and the plans have increased my understanding of diffuse pollution and the environmental impacts of farming (mean score 3.7).

The results suggest that positive changes in farmer attitudes and thinking has occurred as a result of the plans, however there is still progress to be made to increase the proportion of farmers agreeing with these statements at all and then agreeing more strongly with them. For example 15% disagreed that the plans had increased their understanding of diffuse pollution.

### 3.5.25 Farmer Understanding of Diffuse Pollution, Resource Protection, the Nutrient Value of Manures, the Importance of Good Soil Structure and the Conservation Value of Farmland Habitats

Figure 15: Understanding of Pollution/Conservation Issues



Base: All farms

The majority of farmers had a good understanding of all the issues under consideration, however the greatest level of understanding was recorded for the importance of good soil structure (very good 67%, fairly good 27%), followed by the conservation value of farmland habitats (very good 60%, fairly good 35%). Understanding of resource protection and the nutrient value of manures was more evenly split between very and fairly good. With regard to diffuse pollution farmers

were more likely to have a fairly rather than good understanding (very good 21%, fairly good 71%).

### **3.6 Consultation with Advisers**

Each of the 10 advisers interviewed during this study had helped prepare management plans for their clients. 6 had prepared all 4 plan types, whilst the remainder had prepared at least 2 types. The advisers had between 1 and 25 years experience of providing advice to farmers and included representatives from the West Midlands, Yorkshire and Humber, South West, East, North East and South East, thus providing a good geographical spread. Companies represented by the advisers included Procam, TAG, Frank Knight and Berrys. Two of the advisers were independent. The advisers were selected for interview at random from contacts known to ADAS.

Between them the advisers had prepared approximately 200 management plans, the lowest number prepared by an adviser was 4, the largest was 56.

#### **3.6.1 Preparing the Plans**

The relative input of the adviser and the farmer into preparation of the plans varies by farmer, adviser and plan type. In all cases the adviser was the key driver behind preparing the plans; the adviser either completed the plan for the farmer, then made sure he was aware of its content or it was a joint process where the adviser and farmer worked through the plan together. The amount of input from the farmer sometimes depended on his ability and knowledge, i.e. the greater the farmer's knowledge the greater his involvement.

When asked what the role of the farmer and adviser should be, there was a feeling amongst a number of the advisers that greater onus should be on the farmer with regard to the preparation of the plan. This would encourage the farmer to take more ownership of the plan and use it as management tool to be referred to on a regular basis rather than a fait accompli once prepared. However several advisers saw their role as important in providing a professional and impartial view of the farm and its practices and as such at minimum a joint approach to plan preparation was needed.

#### **3.6.2 Process for Producing the Plans**

Overall the advisers were of the view that the management plans were quite easy and straightforward to complete, however the greatest issue was time, in that they can be very time consuming. The Crop plan was considered particularly straightforward due to the availability of the VI template. The Nutrient and Manure plans were also considered reasonably straightforward overall, particularly as PLANET can be used to develop the nutrient plan, whilst MANNER and a template on the Defra website are also available to help with the Manure plan. Dairy farms were thought to be more complicated in terms of the manure plan because of the potentially large volumes of slurry and dirty water to take into account. A comment was made that the manure plan could be more complicated as it required information to be pulled together from different sources.

The soil management plan was generally considered to be the least straightforward as it was a newer initiative not covered by previous schemes and/or initiatives to a much lesser extent than the other plans and with fewer examples available for reference. There is also no clear template for use by farmers or advisers. The soil plan required additional work to assess soil type, texture, risk, and slopes. It was also described as being more subjective and very location specific.

*“The plans are not that difficult but there is a time issue on farm. The first one takes time pulling the information together, especially if the information has been used on other schemes for example NVZ and cross compliance, but once this one is done it is relatively easy. It does vary from plan to plan. The crop protection plan is relatively straightforward, The manure plan is a little more complicated as you need to pull in other information. The nutrient plan is straight forward but the soil management plan is much more complicated as you have to do your homework on soil type, texture, risk assessments, slopes and it is subjective and specific to location.”*

### **3.6.3 Help or Information Used to Prepare the Plan**

All the advisers used some form of guidance other than the ELS handbook to help prepare the plans, including the Soil Erosion Prevention Booklet, PLANET, MANNER, MAGIC, forms on the NRoSO website and the VI proforma. Two advisers had developed their own guidelines or software based on their experience. Plans prepared by others, including information from the Environment Agency and Simon Draper methodology was useful to one adviser.

*“I use the Defra handbook, the CC Handbook RB209, I use soil maps, and the manure plan proforma that can be found on the DEFRA website, which is a 23 page document that is very useful, and for the crop protection there is a proforma used for the Voluntary Initiative website.”*

The various forms of guidance were often well received by the advisers and considered to be very useful.

*“Soil plan guidance is pretty good, the soil guidance booklet is very useful and available on the web under ELS. It is very clear and descriptive. The manure notes are quite helpful, if you follow it, it comes together. If you had an application of sewage sludge and used manure as well then the application rates were designed for a worst case scenario and the guide is for more than what was needed, and is therefore a bit over the top. The nutrient guidance is pretty vague, a lot of nutrient plans are done for other than ELS purposes, and tend to use Planet as a baseline, as it fulfils most of farmers needs”*

A number of comments were made by some, but not all, of the advisers suggesting that guidance should be more easily identifiable and accessible. Two comments related to the limited amount of information and vagueness of information in the ELS handbook. It was however felt in light of the latter comment that Defra were not setting black and white criteria but recognised and accepted that there were grey areas that might need to be addressed in a farm or plan-specific way. This could be helpful to the advisers in that it does not constrain them; however it does lead to a lack of clarity. Three comments suggested the information was available but its presence was not sufficiently signposted. One adviser had received recommendations on websites via TAG and ADAS colleagues.

*“There could have been more comprehensive information in the handbook and better links on the website”*

### 3.6.4 Use of Previous Plans or Information Recorded Under Other Schemes to Prepare the Plan

Most advisers drew on existing information from plans prepared elsewhere or for other purposes. For example VI, SP forms for information on fields, Environment Agency plans, Your Farm and NVZ programme, PLANET, insurance schemes, information prepared for cross compliance. It was suggested that it was less easy to use pre-existing data for the soil management plan as much of the required information had not been required for other purposes. Two advisers did not use information from other scheme records, one of whom was wary of transferring incorrect data into the ELS plans.

Comments were made by advisers that there is a good degree of unnecessary duplication across the various schemes.

*“Most of the contents of the plans are duplicated in NVZ, cross compliance and farm assurance”*

### 3.6.5 Improvements to the Guidance/Help Available

The advisers felt that more specific, complete information made available to them at the time the management plans were first introduced would have been helpful. Templates were mentioned specifically to help both farmer and adviser to complete plans. A perceived danger however, of providing information that would make completion of the plans too straightforward was that the farmer would not require the same level of input from the adviser, which would have a negative impact on the need for their specialist services. One of the advisers interviewed had developed their own electronic system for developing plans, which pulls together the required information to complete a plan.

*“What we have now is adequate, what we had at the outset was poor. Over the last 2 years a system has been developed that is very workable. Our own in-house software is based on Access and Excel and it picks up and grabs all information on fields and then produces a report using standard text as in the soil protection guidance. It allows us to add in comments for updates, on an annual basis you just change the basis and the plan is automatically generated”*

Whilst identifying a sample of advisers for interview it was clear that many people approached had not yet been involved in the preparation of management plans, and these advisers would benefit most from new templates and guidance.

There were some concerns over the ease of acquiring the additional guidance documents detailed in the ELS handbook. Hard copies rather than purely online versions of documents for the SMP would be more helpful to advisers. There was also criticism over the length of time taken to receive documents requested from Defra which the farmer needs to read as part of preparing the plan.

*“As for ELS, if you read the manual it says in there what you have to do. For the management plan options there are about 4 pages to read so it's not too difficult. But in terms of the publications supporting the soil management plan - issues that came out recently were that the booklet is only available online as downloads and supposedly covers 6 publications required as part of plan, These are not available in a hard copy publication so it's difficult for advisers. The Defra publications for soil management plan that a farmer has to have ordered, in order to say they have them and have read them, take 2 weeks to arrive”*

### 3.6.6 Time to Complete the Plans

The time taken to prepare the plans was clearly dependent on the size of the farm, the larger the farm the greater the number of fields etc and therefore the more time needed. There was also a substantial difference in the time taken to complete each of the plans. The soil management plan, already documented as being the least straightforward to complete, could take half to three days to complete. The other plans appeared to take up to half a day. The adviser's time would be split between discussing the plan and collecting information on the farm and putting the plan together away from the farm.

*“The soil management plan takes 1/2 to 1 day, the nutrient management plan would take about 2-4 hours, the manure management plan would take anything between two hours to two days depending on stock numbers etc and the crop protection plan would take between 2-4 hours”*

Overall the majority of the advisers felt the plans took about the right amount of time to complete. One adviser felt the money received via the ELS points would pay for the help required to prepare the plan, which was felt to be acceptable. There was some criticism that it took too long, however this was associated with a lack of clarity over the level of detail needed. It was thought difficult for the farmers to gauge how much information should go into it, with some putting in too much and others not enough.

One adviser against the idea of the plans in principle felt the amount of time was unjustified as he felt they served no useful purpose.

Suggestions for making the plans easier to complete, from half of the advisers interviewed were: to provide a standard software package, an on-line calculator, templates (at the beginning of the scheme), examples, being clearer about what is needed and a clear mechanism for gathering the information.

The timescale for completing the plans i.e. one year within setting up an agreement was considered very feasible by the advisers.

### 3.6.7 Farmer Motivations with Regard to Preparing the Plans

The advisers were almost unanimous in their view that the farmers' prime motivation for completing the management plans within ELS was to gain points and thus receive a financial benefit. HLS was felt by one adviser to require greater commitment and enthusiasm and as such the key driver would not necessarily be purely financial.

There were mixed views on the relative importance of improving yields, saving money/increasing profits and reducing the potential to cause pollution.

### 3.6.8 Costs Savings as a Result of Preparing the Plans

The advisers felt that the most likely cost saving to the farmer would be a reduction in the amount of fertiliser applied, due to the use of more targeted applications suited to the needs of each field and crop type. A similar situation was potentially likely for manure input.

### 3.6.9 Costs Incurred as a Result of Preparing the Plans

The cost to employ an adviser often varied according to the size of the farm, as many charged a fee per hectare e.g. £1.25- £3.00/ha. A number included their fee within an



annual retainer or fixed cost, whilst others charged hourly or daily rates of £45-£60/hour, £200-£600/day.

The fee for soil management plans would be at the top end of the scale given the greater amount of work involved.

*“The price varies from £200-£600 per plan. It will depend on the size of the farm and with regards to the soil management plans this would attract the higher end of the price. What we tend to do is start with a days work and take it from there.”*

*“A lot of the work would come into the general consultancy. For the CPMP there would be no extra charge. For the NMP it would be approximately £1.25/acre and for the SMP £60-£70/hour for 2-3 hours”*

Many of the advisers did not feel the farmers would incur other costs, however additional costs that were mentioned included increased cultivation costs, modernising water filling sites, upgrading chemical sites and replacing bunding. In many cases the advisers felt any costs incurred would normally be incurred through compliance with other schemes.

#### **3.6.10 How the Farmer Uses the Plans**

The adviser’s response to this question suggested that the plans are not used and referred to as regularly as would be hoped.

This was not always the case however as approximately a quarter of those interviewed did suggest that the plans were reviewed and updated annually.

#### **3.6.11 Updating the Plans**

All the advisers interviewed were aware that plans needed to be updated annually and all but one reminded farmers to update them. The adviser who had not done so justified this by saying he was very early in the plan development process.

#### **3.6.12 Farmer’s Awareness of the Information in the Plans**

The majority of advisers felt the farmers were very aware of the information that had been used to compile the plan, particularly as they had talked this through with the farmers either during the development of the plan or once it had been drawn up.

In a couple of cases the advisers felt the farmers were less aware and were either happy to leave it to the adviser and be “a passenger” in the process or did not appreciate the thinking and work that had gone into the plan.

The level of awareness did however relate to the farmers ability to understand the information.

#### **3.6.13 Advisers’ View of the Likely Effectiveness of the Plans in Achieving Defra’s Objectives**

The advisers overall felt that the management plans helped farmers identify farm practices that have an adverse impact on the environment. The plans were often thought to remind the farmer and draw attention to farm practices which may need changing. The adviser’s role was seen to be important in ensuring the farmer understands the environmental implications of farm practices. How well a plan is completed will have an impact on whether farm practices are likely to have an adverse impact on the environment.

### **3.6.14 How Well Completion of the Plans Helps in Selecting and Targeting of HLS Options**

Four of the advisers felt that completion of the plans would or should help in selecting and targeting HLS options, however half of these advisers appeared to be talking hypothetically i.e. this could be the case if the farmer wished to apply for HLS. Another adviser felt that as ELS and HLS applications tended to be submitted at the same time, the plans would not help in selecting options for HLS. Were HLS to be applied for separately then the plans would become more useful.

Two advisers suggested that completion of the plans would not help, particularly as their view was that funding for HLS was unavailable. Another adviser suggested interest in HLS was low, particularly given higher wheat prices reducing the need to obtain money from environment schemes.

*“To some extent they do, as they help for selection i.e. land prone to erosion can be identified so that it can be entered into appropriate arable options but the problem is that ELS and HLS applications tend to be applied for at the same time, hence this is not very helpful, but I am sure that in the future, this will change as most people who have applied for ELS have done so and that HLS will be applied for by itself in which case these will be useful.”*

### **3.6.15 Extent to which the Plans Produce Appropriate Recommendations and Actions that will Address Potential Adverse Agricultural Impacts**

There were mixed reactions from the advisers as to how well the plans produced appropriate recommendations and actions that will address potential adverse agricultural impacts.

One adviser felt there were no recommendations within the plans, which is a little concerning. Another felt they were effective but needed to address issues in more detail. Advisers from one particular consultancy used a spreadsheet proforma that included recommendations to ensure that these were included.

Four other consultants felt confident that the plans contained appropriate recommendations such as the maximum total nitrogen input, which the farmers would not necessarily have worried about.

*“Manure, nutrient and crop meet those criteria. The soil plan would not make a huge impact as it would need to be more accurately targeted”*

### **3.6.16 Extent to Which Recommendations in the Plans are Carried Out**

The advisers felt that in the main the recommendations in the plans would be carried out on farm, however it was suggested that in many cases actions may already be carried out on the farm irrespective of completion of the plan. The minority were more sceptical and felt that changes wouldn't be made, particularly as the plan was produced just for the points.

### **3.6.17 Proportion of Farms with Management Plans that have Made an Improvement in Farm Practices that will Make a Positive Environmental Impact**

There was a real discrepancy between responses from the advisers as to what proportion of farms had made changes to farm practices that would have a positive environmental impact, with answers ranging from 10%, through 50% to many or all. A number of the more valuable changes had been associated with the introduction of

the Voluntary Initiative and Cross Compliance rather than just ELS Management Plans per se.

The changes that had been made include changing the direction of work across slopes, improving the quality of the seed bed, more effective use of manures, matching fertiliser rates to crop needs, increased use of buffer strips, chemical storage and hedge and ditch management.

*“Cultivations would be the biggest one. Looking closer at the quality of their seed bed and changing the direction of work across slopes.”*

*“More effective use of manures, matching inorganic fertiliser application rates to the crop requirements, attempts to reduce soil erosion. Overall it is raising awareness”*

One adviser reported that greater changes were most likely to be seen amongst the younger farmers i.e. under 50, as this age group were more likely to adapt to changes more rapidly.

Where no significant changes had been reported this was thought to be because changes had already been made as a result of the need to meet cross compliance requirements or that the plans were only completed to gain points for ELS with no intention of making changes to farming practices.

### **3.6.18 How Worthwhile the Plans are to the Farmer and the Environment**

There were mixed views as to how worthwhile the plans would be to the farmer and the environment, however the majority of comments were positive and suggested that the plans were worthwhile.

Those who did suggest they were worthwhile did however include a caveat to the effect that they are only worthwhile “if done properly”, “they are a good starting point”, and “only if they are not done just for the points”.

There were however some reservations due to the cost to the farmer and the potential duplication with the requirements of NVZs, the farm assurance scheme and cross compliance. The plans in their current form were also thought difficult for the farmer to understand and thus potentially to implement.

*“They are useful if they are done properly, and used as a working document. They are positive to the environment, because they are highlighting adverse problems to the environment”*

### **3.6.19 How Management Plans could be Improved to Ensure they Encourage the Protection of Soils and a Reduction in Diffuse or Point Source Pollution**

Suggested improvements to the plans included: more frequent reviews to ensure seasonal variations are taken into account; clearer guidance; simpler shorter forms; a proforma for the soil plan map; examples of how to improve soil management and greater advice delivery to farmers to increase understanding of the on-farm benefits as well as to the environment. Two of the advisers felt more time was needed to understand what improvements were needed. One adviser was aware of a FWAG document for the manure plan that offered clearer help than the Defra guidance.

*“By reviewing them more frequently maybe half yearly as a reminder. Most of the problems arise in the autumn and the spring. This would only need to take 10-15 minutes as part of another job”*

### 3.7 ADAS Farmers' Voice

Questions were placed on the 2007 ADAS Farmers' Voice survey to determine understanding of diffuse pollution, resource protection, the nutrient value of manures, the importance of good soil structure and the conservation of farmland habitats. The Farmers' Voice survey provided an opportunity not only to determine understanding across England, but to compare understanding between those in ES and not in ES, and between those with and without management plans of some type. Comparisons have also been made with results from similar questions placed within the farmer survey within the farm visit review of this study.

ADAS Farmers' Voice is an annual postal survey distributed to over 12,000 farms across England and Wales. Although the survey collects data from farms across England and Wales, only data from England has been included within this report, given that ES and management plans are not present in the same form within Wales.

The Farmers' Voice survey collected information from over 1600 farms in England, but as with all postal surveys the responses to each question frequently varies from the total available base as respondents are able to choose whether or not to answer given the nature of a postal survey.

53% of the farms within England who provided a response indicated they were in ELS, whilst 6% were in HLS. 42% had prepared a SMP, whilst 35% had prepared a MMP, 31% a NMP and 29% a CPMP.

**Table 25: Proportion of those in ELS or HLS with each Management Plan**

Plan Type	Total
<i>Weighted base</i>	1640
Soils Management Plan	42%
Manure Management Plan	35%
Nutrient Management Plan	31%
Crop Protection Management Plan	29%

Additional information on plan type by farm type, size and region is available within Annex Section 6.

The farmers were then asked to rate their understanding of a number of environmental issues: diffuse pollution, resource protection, the nutrient value of manures, the importance of good soil structure and the conservation of farmland habitats. Each issue was rated on a four point scale from very good, to fairly good, not very good and poor. Mean scores have been calculated to summarise the results. A maximum mean score of 4 indicates that the farmers have a very good understanding, a mean score of nearer one suggests a poor understanding. The following table shows the mean scores for each issue, across different groups of farmers, i.e. those in ELS, HLS or in neither scheme; those with and without any management plan and finally data is also included from a similar question placed within the farmers survey.

**Table 26: Understanding Environmental Issues**

	In ELS	In HLS	Not in ES	With a Management Plan	Without a Management Plan	Farmers Survey
Diffuse pollution	2.7	2.8	2.6	2.7* Greater than without a plan	2.5	3.2
Resource protection	2.7	2.9* Greater than in ELS	2.8	2.7	2.7	3.4
The nutrient value of manures	3.1	3.0	3.1	3.1** Greater than without a plan	2.9	3.3
The importance of good soil structure	3.4	3.5	3.4	3.5** Greater than without a plan	3.1	3.7
The conservation value of farmland habitats	3.3	3.4* Greater than in ELS and not in ES	3.2	3.3	3.2	3.6

NB: \* or \*\* indicate a significant difference between mean scores. \* denotes a difference at the 95% confidence level and \*\* a difference at the 99% confidence level. The mean score from which there is a difference is detailed within the appropriate cell within the table.

In terms of identifying differences between results, mean scores have been statistically compared between those within ELS, HLS and not in a scheme. Separate analysis has been conducted on those with and without a plan.

Those with a management plan were significantly more likely at the 95% confidence level to have a greater understanding of diffuse pollution than farmers without a plan. Farmers with a plan were significantly more likely at the 99% level to have a greater understanding of the nutrient value of manures and the importance of good soil structure than those without a plan. This is encouraging and suggests the preparation and implementation of the plans has had an influence on farmer understanding of the impact of farming practices on the environment.

No clear differences were however evident between the results amongst farmers with and without a plan, in terms of the conservation value of farmland habitats and resource protection. Differences were however evident for these issues between those in HLS compared to those in ELS or those not in ES at all. Those in HLS were significantly more likely (at the 95% level) to have a greater understanding of resource protection and the conservation value of farmland habitats than other farmers.

As there were no differences in the results between those in ELS and those not in ES, whilst differences were noted between those with and without at least one of the

management plans, this suggests that it is the management plan which is having the positive difference and not just being part of the entry level scheme.

The results from the farmers' survey were more positive than all those recorded within Farmers' Voice. These results should be directly comparable with those from farmers with a management plan. It must be remembered however that those farmers interviewed within the survey had been discussing management plans and environmental issues in some detail prior to responding to this question and this may have influenced their response.

### **3.8 Review of ESF Data**

The Year 1 Annual Performance Evaluation report for the Environment Sensitive Farming delivery programme (as prepared by ADAS in association with MacLeods Research Ltd) was reviewed within this study, to identify any findings relevant to the value of management plans in reducing diffuse pollution.

The performance monitoring processed over 2,000 event evaluation forms, nearly 1,000 baseline surveys and approximately 550 follow up surveys amongst land managers, advisers and other agricultural influencers. The following extract from the report demonstrates the impact of the ESF campaign on attitudes towards diffuse pollution.

The ESF Campaign events held during the year one campaign period have encouraged land managers and adviser / influencers to have a greater sense of personal responsibility towards tackling diffuse pollution at farm level. Rather than breaking down resistance to tackling 'diffuse pollution', the ESF Events have served to give land managers a greater understanding about what they can do to tackle specific aspects of 'diffuse pollution' and to give advisers a greater confidence in delivering advice regarding specific aspects of 'diffuse pollution'.

The research findings show that the majority of advisers and land managers attending ESF events have come to the Event with a positive attitude to doing something about 'diffuse pollution' rather than wanting to be convinced that 'diffuse pollution' on farms is actually a major threat to the Environment.

#### **Impact of the ESF Campaign on intentions to change**

The majority of land managers attending events held during the year one ESF campaign period have been ready to acknowledge that their farming practices do not fully address diffuse pollution and of these the majority intend to make further changes or improvements as a result of attending the ESF events. Catalysts to changes in farm practices regarding diffuse pollution are firstly concern for the environment, secondly a greater understanding of the impact of diffuse pollution (presumably as a result of attending an ESF event), thirdly legislation. Financial considerations are also important but have been shown to be becoming less of an influential factor over the 12 month period that the surveys have been conducted. The single payment scheme plays a key role in motivating many of the specific changes.

The survey findings indicate that whilst land managers are willing to make changes to farm practice, financing these changes for one in three land managers, restraints on time and labour and too many other things to tackle for one in five land managers are key barriers. As well as these issues, advisers also see lack of knowledge as a barrier also to implementation of change.

Interestingly the main motivation for preparing a management plan was for ELS points (based on this current study), however those responding to the ESF performance monitoring surveys clearly cited environmental concerns as the primary reasons for wanting to change farm practice. Financing the changes was however the key barrier to change.

One of the areas where the ESF campaign continues to make the most impact is in directing both land managers and advisers to look for opportunities to tackle diffuse pollution problems through ELS. Since the events a 56% increase was demonstrated in the proportion of land managers with or intending to have a soil management plan. (Pre event 32% had a SMP, after the event 88% had or intended to have a SMP). The proportion of advisers recommending that land managers prepare a SMP has increased from 48% before the ESF event to 98% after the event. A similar situation was also evident for the nutrient and crop protection management plans. Prior to an ESF event 43% of land managers had a NMP, whilst following the event 90% had or intended to have a NMP. 60% of land managers had a Crop Protection management plan prior to the event, whilst 81% had or planned to have a Crop Protection management plan after the event. Comparable figures for manure plans are unavailable from this survey. This would suggest that the value of the management plans in helping to tackle diffuse pollution is being increasingly recognised by both land managers and advisers.



## 4. Conclusions

The key driver for the production of all management plans is to gain points for ELS, which should ultimately result in financial benefit to the farmer. Subject to this, farmers have chosen specific plan options within their ELS agreements for various reasons, typically falling into one of three categories: firstly because there are particular resource management issues on the farm, such as the farm is in an NVZ; secondly because the plans are seen as an 'easy option' as much of the information has already been gathered for farm assurance schemes or the VI and little change is required; or thirdly because farmers are not able or willing to gain sufficient points for ELS in any other way. Dependent on the reasons for management plans having been chosen, the value of the plans as an ELS option and the extent to which they provide additional environmental benefits and meet resource protection objectives will vary greatly.

Generally, if completed in line with the Defra guidance and in association with a qualified person, the management plans produced as part of an ELS agreement should be robust enough to identify most risk activities or situations present on the farm; however in practice our review identified a number of shortcomings that mean that plans produced are of variable quality with many currently not sufficiently robust to identify all risks. Hence there is potential for the plans to be much more effective than those currently being produced.

Despite this, evidence showed that plans are generating changes to on farm practice and helping to improve understanding of diffuse pollution and reduce adverse impacts of farming on the environment. The findings of the farm visit review clearly demonstrated improvements in farm practice amongst a significant proportion of farms since plans had been prepared. Even if such improvement may only be amongst 10-20% of farms for any specific action, this represents a significant number of holdings and as such a potentially substantial benefit to the environment. [Reference sections 3.1 p18-19, 3.2 p27, 3.3 p37, 3.4 p46]

Looking at the individual ELS options, there is at present wide variation in the presentation and content of the plans being prepared, with the exception of the CPMP. The latter follows the format of the VI, which gives the farmer and adviser a clear format to follow. However, because of the overlap between the ELS CPMP and plans prepared for the VI and other schemes, it is questionable whether this plan in its current form provides added value as an ELS option.

The Soil Management Plan was criticised the most heavily by farmers and advisers due to a lack of specific guidance and associated template. Although the link between the soil protection review (SPR) and SMP was not explicitly addressed through this project, feedback from advisers is that farmers do not see the SMP as a duplication of effort made in completing the SPR. It seems that farmers find the SPR easy to complete, but do not find it valuable to their specific farm situation. Farmers do see the SMP as specific to their situation but some do not feel that it adds value to their management as they see it as simply documenting the management that is already taking place; notwithstanding that that management may not always be appropriate. It seems that farmers are still thinking primarily of soil management in terms of yield and quality rather than risk of diffuse pollution, possibly as they are not seeing the impact of diffuse pollution. If farmers consider the SMP as simply a record of what is already taking place, rather than as a tool for improving their environmental performance any added value from producing the plans will be limited.

With MMP some farmers also believe that the plan is simply a formalisation and record of what they are already doing; however for a significant number of farms, the production and implementation of a plan has resulted in real change and a greater understanding and awareness of pollution issues on farm. Although MMP are a requirement of some farm assurance schemes (FABBEL), they would as a result generally only have been completed by livestock farmers. Arable and dairy farmers are unlikely to have completed MMP previously, unless possibly as a requirement of the Environment Agency. Therefore, the inclusion of MMPs within ELS should raise considerable additional awareness of the need to manage organic manures appropriately and to take account of their nutrient values. There is clear evidence that while many farmers believe that their practices have not changed, behaviour of a significant proportion has been influenced as a result of producing the plan.

Until 2007 NMPs have not usually been a requirement of farm assurance schemes and so the plans seen during this study are unlikely to have been prepared for any scheme other than ELS. Feedback from advisers indicates that farm assurance schemes now sometimes require justification for nutrient use, although not necessarily on a field by field basis. As with the CPMP, there may be a risk that in the future the focus of assurance schemes could move away from nutrient planning and therefore ELS plans could be the only NMPs updated annually.

Across all plans, the study has identified that current guidance available for management plans is often considered: [*Reference section 3.5 farmer survey and 3.6 consultation with advisors*]

- Too vague/non-specific

The ELS handbook is often non-specific with regard to the guidance. It will often say “should” rather than “must”, which leaves the guidance open to interpretation. Not only can this make completing the plan confusing and complex for the farmer, it also leads to ambiguity making policing and checking the plans by the appropriate authority very difficult.

- Fragmented - not available from one source

Not only does the farmer need to refer to the ELS handbook but also to many other publications referenced within the handbook. Although individual sources are often useful, accessing and pulling together the required information is time consuming and can be confusing to the farmer.

- Not readily accessible to all farmers and advisers - often only available in electronic format

The ELS handbook refers the farmer to many publications relevant to his plan. Accessing all this information is not always practical as it may be in electronic format. Not only is this a problem to those farms without access to or experience of the Internet, but it may be an inconvenience to others, for whom availability of a hard copy which can be referred to more readily, would be more practical.

- Sometimes out of date

The guidance in places refers to codes of practice which have been changed or superseded, for example the Green Code, referred to in the Crop Protection Section of the ELS handbook. [*Reference section 3.1 p16*]

- Lacks readily accessible templates of maps and plans and lacks clear examples of best practice

There is evidence to suggest that plans are currently not always updated annually, which increases the chance that new or emerging risks may not be identified. [Reference section 3.1 p12; 3.2 p22, 3.2 p25, 3.3 p29; 3.4 p39 and 3.6 p73] Similarly, effectiveness would be increased if farmers completed plans at the outset of an agreement, which would allow the plan process to influence option choice; if farmers complete the plan at the end of their agreement year the result will likely be a record of what took place that year rather than a plan for the year ahead, and will therefore be less likely to influence actions.

Although many plans contain the required information, the variation in the quality and content of the soil, manure and nutrient plans particularly would suggest the need for checks to ensure compliance and thus that they are effective at identifying most risks. This study has also shown that in assessing plans, an on farm assessment must be carried out in order to fully understand the risks on the farm, and to check figures used as the basis for calculations. Often each plan requires additional information or explanation to be assessed independently off the farm. Given the level of technical detail within each plan, they can only be checked by a suitably qualified person.

Attitudes amongst farmers and advisers toward the likely influence of the plans are in the main positive, even if the main motivation for completing a plan is financial. [Reference sections 3.5 and 3.6] Responses to questions posed in the ADAS Farmers' Voice also showed a significantly greater understanding of environmental issues associated with the impact of agriculture amongst those with a management plan, compared to those farmers without a plan. But as some plans can also be prepared to meet the requirements of other schemes, it can be difficult to disentangle the extent to which ELS management plans alone have influenced farmer behaviour. The changes made so far are likely to be as a result of the combined effect of all relevant schemes and initiatives.

The ADAS Farmers' Voice survey showed a significantly greater understanding of environmental issues associated with the impact of agriculture amongst those with a management plan, compared to those farmers without a plan. [Reference section 3.7 p77.]

It is likely that without the inclusion of management plans in ELS a proportion of farmers would not have entered the scheme and therefore uptake would be lower. Hence the plans may have had an indirect effect on the overall level of environmental benefit provided.

#### 4.1 Crop Protection Management Plan

Of the four plan types looked at in this study, the Crop Protection Management Plan showed the least amount of variation between farms. This was due to the almost universal adoption of the VI form as a template. The VI form is good at helping the farmer/adviser to identify most on-farm risks to the environment, therefore if it is used as the basis of the CPMP then it should in terms of outcomes be sufficiently robust to identify risks and mitigate against potentially adverse environmental impacts.

The study has identified that there have been positive changes to farm practices, but that these will arise as a combined effect of a number of schemes such as farm assurance and VI as well as the ELS CPMP. [Reference section 3.1 p19.]

Due to the overlap and similarity between the ELS CPMP and plans prepared for the VI and other schemes, it is difficult to see where this plan in its current form provides added value as an ELS option. Evidence does however suggest the plan is helping to increase awareness of diffuse pollution and the adverse impacts of agriculture on the environment. [Reference section 3.1 p19.] Anecdotal evidence from advisers

suggests that farm assurance schemes have for the last two years been paying less attention to CPMP and that as a result plans prepared for those schemes are not necessarily being updated annually. Plans prepared for ELS have an annual update requirement.

Dependent on the continuation of the VI or the availability of similar initiatives in the future, it is questionable whether the CPMP should continue to be an option within Environmental Stewardship.

## 4.2 Manure Management Plan

The production of a MMP requires an in depth assessment of risk associated with soil type, slope and the presence of watercourses, as well as detailed calculations on how rainfall volumes and yard and roof areas relate to the generation of dirty water, slurry and parlour washings and consequently the storage requirements for slurry and dirty water. It is therefore an exercise that requires a degree of skill and experience. The ability to judge or measure slope and to recognise different soil types in the field, as well as features at risk is particularly important.

Clearly, if carried out according to the 2003 step by step guide, a manure management plan should be effective in helping farmers identify risk activities and/or situations where activities could result in adverse environmental impacts. However, not all plans reviewed during the study were completed in accordance with the guidance. Areas where there is room for improvement include:

- Marking the presence of springs, wells and boreholes accurately [*Reference section 3.2 p20*].
- Updating plans according to where subsoiling or drainage has taken place, and acting accordingly, i.e. no spreading of slurry or dirty water within 12 months of subsoiling over drains or new drainage. Where change has not been taken into account, this will increase the risk of diffuse pollution [*Reference section 3.2 p23*].
- Use of the correct colour code for risk categories. The use of incorrect colours will make inspection more awkward and can lead to confusion. [*Reference section 3.2 p22*].
- The area available for spreading manure and dirty water at different times of the year is not calculated on all plans. This is less important for extensive systems, but for large dairy herds it is important to demonstrate that there is sufficient land available for the grazing of cattle and spreading of manure. The calculation is also necessary to determine whether extra storage is required. [*Reference section 3.2 p24*].
- Whether the farm imported organic manure was omitted from a substantial proportion of plans. Without this information it is not possible to calculate the amount of land required for spreading [*Reference section 3.2 p24*].
- A substantial proportion of farms with slurry do not calculate storage capacity [*Reference section 3.2 p25*].
- Only a small proportion of dairy farms appear to provide accurate information on the total amount of parlour washings produced over the 6 winter months. Again, this is required to determine whether there is enough land for spreading over the winter months, and if not, whether there is sufficient storage on farm to avoid spreading on very high risk land during winter months [*Reference section 3.2 p25*].

- For a small proportion of the farms it was impossible to tell whether farmers were applying manure in line with the risk categories identified. There is a need to keep accurate records to demonstrate this. [Reference section 3.2 p26].

The recommendations produced by a manure management plan are only as good as the information that is captured; having said that, it is clear that the overwhelming majority of farms have a field risk map that is compliant with the guidance. Whether manures are applied in accordance with the risk categories is less clear.

Although some farmers believe that the plan is simply a formalisation and record of what they are already doing, for a significant number of farms, the production and implementation of a plan has resulted in real change and a greater understanding and awareness of pollution issues on farm. The greatest improvements were recorded for manure field applications rates, dirty water field application rate assessments and not spreading or storing manure within 10m of a watercourse. Some farmers also had a greater understanding of the risk categories as a result of producing the plan. [Reference section 3.2 p27.]

What was disappointing was that, where poor or moderate practice was evident before the development of the plan, no improvement was registered for slurry storage capacity or dirty water storage capacity in many cases. So, there are clearly a significant number of farms where the need for increased storage capacity is an issue. [Reference section 3.2 p27]

There is little doubt that, while many farmers believe that their practices have not changed, for a significant proportion of farmers their behaviour has been influenced as a result of producing the plan.

Although MMPs are a requirement of some farm assurance schemes (FABEL), they would as a result only have been completed by livestock farmers. Arable and dairy farmers are unlikely to have completed a MMP previously, unless possibly as a requirement of the Environment Agency. Therefore, at least in some sectors, the completion of MMPs for an ELS agreement should have raised additional awareness of the need to manage organic manures appropriately and to take account of their nutrient values.

### 4.3 Soil Management Plan

- The ELS Soil Management Plan has provided a framework to help farmers recognise risks of erosion and run-off on the farm.
- Advisers and farmers find this plan the most difficult to complete as it is new to most and is not replicated by other schemes, and there are few 'best practice' models. For other plan types the availability of templates and examples have been shown to increase the ease of completion and compliance. [Reference section 3.5 p56, section 3.6 pp70-71.]
- Although the overall standard of plans was generally acceptable, there was considerable variation in the standard of maps and field-by-field assessments. Providing the agreement holder with a farm map, with an appropriate key, would appear to be one way of improving the level of detail and appropriateness of the information recorded on maps.
- Observations of soil types on farms in the survey suggested that the uptake of SMPs may be greater on farms with medium to heavy soils compared to light soils (Reference section 3.3 p29). The former are generally at less risk of erosion so plans are probably perceived as easier to complete on these farms without the



risk of highlighting problems that could then arise as cross compliance issues. If this is the case, the SMPs are failing to be an attractive option to many of those farms with soils most vulnerable to erosion, and hence where the process of producing a plan might be most useful.

- Enhanced run-off is the most common form of erosion occurring on all soil types but there is evidence that it is being overlooked. [Reference section 3.3 p31.]
- The ELS Soil Management Plan also provides a framework to help identify appropriate measures for addressing the risks associated with agricultural activity.
- A need for farmers and possibly advisers to have a greater understanding of soil structure and permeability has been identified. If that can be achieved there will be a contribution to overall soil 'health' and soil biodiversity, thereby contributing to sustainability objectives. [Reference section 3.3 p34.]
- The impacts of the ELS SMP on Farm Practice recorded during the farm visits appeared to be encouraging especially in relation to the uptake of buffer strips and improved awareness of diffuse pollution. However, it is likely that other influences on behaviour are also contributory factors alongside the SMP, for example LERAPS. [Reference section 3.3 p37.]

The link between the soil protection review (SPR) and SMP and their respective objectives was not explicitly addressed through the project. However, feedback from advisers is that farmers do not see the SMP as a duplication of the effort made in completing the SPR. It seems that farmers find the SPR easy to complete, but do not find it valuable to the farm as they are not seeing the impact of diffuse pollution. With the SMP some farmers do not feel that it adds value to their management as they see it as simply documenting the management that is already taking place; even though that management may not always be appropriate. It seems that farmers are often still thinking of soil management primarily in terms of the benefits to product yield and quality rather than the risks of diffuse pollution, perhaps because they do not see the impacts of diffuse pollution. If farmers consider the SMP as simply a record of what is already taking place rather than as a decision or management support tool this will significantly reduce the additionality of the plans.

#### 4.4 Nutrient Management Plan

The majority of nutrient plans reviewed were to an appropriate standard and if implemented correctly will have been effective in reducing the risk of diffuse water pollution. However, a small proportion of plans in place did not seem to have calculated the actual amount of fertiliser required correctly. This is sometimes due to nutrients supplied by organic manures or residual soil nitrogen supply not being taken into account [Reference section 3.4 p42]. In other cases it is due to the fact that soil analysis [Reference section 3.4 p39] has either not been carried out within the past 3-5 years, or has not been taken into account when estimating crop requirements and the amount of fertiliser to apply [Reference section 3.4 p39 & p42]

The main risk activities that relate to a nutrient management plan are:

- Applying fertiliser to land with high soil phosphorus reserves (soil P index 3 and above)
- Applying manure without taking its nutrient content into account
- Applying fertiliser without taking into account the soil nitrogen supply or the soil P and K indices
- Not spreading fertiliser and manure accurately and as uniformly as possible

All recognised recommendation systems, such as RB209/PLANET and N-Planner, will ease the generation of recommendations and will help farmers avoid most of these risks. The only exception is the accurate spreading of fertilisers and manures, which can only be ensured through regular maintenance and calibration of machines.

Overall, the actual nutrient plan was not appropriate for only a small proportion (13%) of the farms reviewed within the on farm visit. This sounds quite a high proportion, but the converse is of course that 87% of plans were appropriate, despite some of the deficiencies mentioned above. [Reference section 3.4 p45.]

It appears that in the overwhelming majority of cases, the NMP is effective in helping farmers reduce the environmental risks associated with applying fertiliser and manure to crops, but that where a FACTS qualified adviser is not involved, the risks tend to increase. The above confirms that the nutrient management plan should be produced in association with a FACTS qualified adviser, and that those inspecting the plans should also be FACTS qualified.

The value of including plans in ELS can be seen in the fact that the majority of assessors had seen some improvement in the awareness of diffuse nutrient pollution issues among farmers who had completed a nutrient management plan. Furthermore, many farms had seen some or significant savings as a result of using a nutrient management plan, and some had seen better crop yields. [Reference section 3.4 p46, section 3.5 p64.]

Nutrient management plans have been shown to help change farmer behaviour for a significant proportion of farms, through increased awareness of diffuse water pollution from agriculture, and actually encouraging farming practices that will benefit the environment. [Reference section 3.4 p46.]

Farmers also recognise that they may save money due to a greater understanding of soil nutrient availability and the nutrient value of manures, resulting in more targeted and effective applications and ultimately reduced spend on fertiliser. The nutrient management plan is the most likely to result in a net gain to the farmer, whilst it is possible that investment in training and equipment, and time may offset any savings for the other plans (approximately a quarter of the farmers with a soil, nutrient or manure management plan had incurred costs as a result of preparing it, other than to pay an adviser. These were mainly time costs to prepare the plan and attend workshops etc. Course costs, testing and membership fees were incurred by those with a crop protection plan e.g. for sprayer testing and operator training). [Reference section 3.5 p64-65].

Until 2007 NMPs have not generally been a requirement of farm assurance schemes and so the plans seen during this study were unlikely to have been prepared for any scheme other than ELS. Feedback from advisers indicates that farm assurance schemes are now sometimes requiring justification for nutrient use, although this may not be required on a field by field basis.

In summary, it is apparent that many positives have been delivered by widespread adoption of the plans, particularly in terms of their influence on farmer awareness, understanding and behaviour with regard to the effect of agricultural activities on the environment. If completed in line with the Defra guidance and in association with a qualified person, all of the management plans are robust enough to identify most risk activities or situations present on the farm. In practice however, there are a number of shortcomings that mean that many of the plans produced are currently not sufficiently robust and may provide little additionality beyond the requirements of other schemes.



There is evidence to suggest that the CPMP is contributing to increased awareness of diffuse pollution and the adverse impacts of agriculture on the environment. However, due to the overlap and similarity between the ELS CPMP and plans prepared for the VI and other schemes, it is difficult to see where this plan in its current form provides added value as an incentive scheme measure.

Producing a MMP is an exercise that requires a degree of skill and experience, and the recommendations produced in the plans are only as good as the information that is captured. Although some farmers believe that the plan is simply a formalisation and record of what they are already doing, for a significant number of farms, the production and implementation of a plan has resulted in real change and a greater understanding and awareness of pollution issues on farm. Although MMP are a requirement of some farm assurance schemes (FABBEL), they would as a result only have been completed by livestock farmers. Therefore, by extending their use to a wider range of situations, MMPs completed for ELS should raise considerable additional awareness of the need to manage organic manures appropriately and to take account of their nutrient values.

The SMP has provided a framework to help farmers recognise risks of erosion and run-off on the farm, although observations of soil types on farms in the survey indicated that the uptake of SMPs may be greater on farms with soils at less risk from erosion. Some farmers do not feel that the SMP adds value to their management as they see it as simply documenting the management that is already taking place. If that is the case then the additionality of the plans may be limited.

The majority of NMP reviewed were to an appropriate standard and appeared effective in helping farmers reduce the environmental risks associated with applying fertiliser and manure to crops. The plans have been shown to help change farmer behaviour for a significant proportion of farms, through increasing awareness of diffuse water pollution from agriculture, and through encouraging farming practices that will benefit the environment, especially by optimising nutrient application rates. There is an indication that farm assurance schemes are now sometimes requiring justification for nutrient use, e.g. a NMP, which could impact on the additionality of ELS NMPs.

## 5. Recommendations

Environmental Stewardship is an incentive scheme that offers payments to farmers in return for the provision of environmental benefits. The role of ES in providing such environmental benefits needs to be considered against the context of the CAP and the associated standards set out for cross-compliance. Clearly, there is an expectation that incentive schemes should deliver a level of benefit that exceeds that required through cross-compliance.

The study has clearly demonstrated that management plans have value, albeit the way current plans are being delivered results in variation in quality and thence impact. When formulated and implemented as intended, however, it is clear that management plans are a robust mechanism for contributing to Defra's objective of reducing of diffuse pollution from agriculture. However, this study has identified several issues around plan content and compliance that need to be addressed if these benefits are to be maximised. Furthermore, issues have been identified that question the level to which some management plans are providing additional value beyond what is already being provided to meet the needs of cross compliance, farm assurance schemes and the VI.

Given recognition that management plans can serve a useful purpose, it is essentially a policy decision where they sit within the delivery framework. This study has identified that should the plans remain as an incentive scheme option, some changes to delivery might be required and these are set out below. However, it is also clearly an option to make delivery of one or more of the plans a cross compliance requirement of either an ELS agreement or of the Single Payment scheme, and thence to remove the incentive element. Ongoing and future changes to the regulatory framework and associated legislation are likely to result in greater levels of resource protection and may begin to remove some of the need to incentivise practice change for resource protection.

Should management plans be retained as an incentive scheme option the structure of the plans and the way in which they are delivered should be reviewed. Strategic changes to the plans could include combining the plans into a single resource protection plan, as is the case with the Tir Cynnal scheme in Wales. Plans could also be linked more closely to the ELS application process and completed with the FER, which would ensure they are in place at the start of an agreement and have the potential to influence the choices of options. It may also be that a mechanism for confirming compliance could be put in place, such as the plans being signed off each year by a suitably qualified adviser. Measures such as this would help ensure the plans provided a greater level of environmental benefit.

This study has identified that in theory management plans produced as part of an ELS agreement should be sufficiently robust to identify risk activities and/or situations; however in practice most plans are not yet compliant in all requirements. Several refinements to the management plan guidance may be needed to address this. These are as follows:

### 5.1 Applicable to All Plans

All ELS handbook guidance should be reviewed, updated and made more specific to avoid confusion.

The evaluation has highlighted the need for a single location where information on the four plans can be reviewed and downloaded or requested as hard copy. This may

need to be accessible by telephone as well as a website. Indeed, consideration must be given to farmers who do not have access to the Internet and require hard copies of the supporting information: a number of the documents associated with the plans are only available electronically. Hard copies of key documents should ideally be provided to those with a particular plan in their agreement or at minimum should be available on request without delay.

Natural England should consider making all plan specific guidance available in one pack to those that have selected a particular plan for their agreement.

Templates/methods should be provided for all plan types in both hard copy and electronic form. These could include prepared agreement-specific maps and keys for soil and manure plans. Worked examples of the plans should be produced for typical farming situations and to demonstrate 'best practice'.

It is desirable that electronic versions of the plans are designed so that they share common information such as field names, numbers and sizes to make the plans easier to produce and update help ensure that all relevant fields are included.

Provision needs to be made to ensure that the plans and associated guidance are kept up to date with regard to changes in legislation: The CPMP ban on burning and revisions of NVZ regulations would be examples.

It is clearly important that plans are updated regularly by the farmer. Information to demonstrate the value of regular updating should be provided. Ideally, a system should be in place to check that plans have been updated, for example plans being signed off by a suitably qualified adviser.

Correct soil texture classification is very important for manure, nutrient and soil plans. Further training/information in this area is required for farmers and advisers. Furthermore, we have highlighted a lack of understanding of the importance of soil structure and permeability and their relationship with the risk of diffuse pollution. Poor soil structure will dramatically increase the risk of soil erosion and run-off following applications of manures and other nutrients. Soil 'knowledge' could be covered in training/advice events provided to agreement holders.

The plans need to be assessed to ensure they meet the needs of Environmental Stewardship and are relevant to the farm. A system of inspection should be introduced; however any inspection should be done on farm and by a suitably qualified person.

Ensuring that the farmers believe improvements are likely as a result of preparing the plan, and also ensuring they understand the impact of agricultural practice on the environment is an important step in encouraging farmers to change high risk practices. Continued education and awareness raising amongst farmers is needed.

## **5.2 Crop Protection Management Plan**

This seems to be the plan that farmers and advisers find easiest to deal with and it illustrates that a simple template approach can provide the greatest compliance with scheme requirements. There is an inherent risk with 'tick box' approaches such as the VI template, that farmers indicate an answer that they see or know to be 'correct' without the answer they give being the most accurate within the context of their farm or farming practices.

The future of the VI is unknown, but whether or not that initiative continues, it seems likely that some form of CPMP will continue to be a requirement of Farm Assurance schemes. However, indications from advisers are that assurance inspections are currently focussing on other issues and as a result the plans may not necessarily be getting updated annually for assurance purposes.

Clearly, the current approach to meeting the requirements of the CPMP in ELS provides relatively little additionality, given the dependence on frameworks put in place for other schemes. It is therefore recommended that consideration should either be given to developing a methodology/format for CPMPs that could more fully meet the requirements of ELS or that the status of the CPMP as a paid option within ELS is re-evaluated.

### **5.3 Manure Management Plan**

A number of the problems associated with producing a manure management plan: calculations, map colours, boreholes, dirty water, could be addressed by a revision of the document, "The Manure Management Plan, A Step by Step Guide for Farmers" to make it easier to understand and complete.

PLANET should be signposted as a reference source for local rainfall figures.

A certain level of experience and skill is required to produce an effective manure management plan in its present form. The following processes are particularly complex and are fairly daunting to those with little or no experience:

- Selection of risk categories
- Calculating how much land is available for spreading at different times of year
- Calculating whether extra storage is required for slurry or dirty water (yard/roof run-off and parlour washings)

A recommended refinement is the development of a decision tree to help determine the risk category for each parcel of land. Also, given that advisers are already producing or helping to produce a high proportion of MMPs, it should be a requirement that a suitably qualified adviser at the very least checks the plan. The former "National Farm Waste Management Plan Register" could be resurrected for this purpose.

There is a clear opportunity to assist farmers in taking a holistic view of nutrient supply by merging the MMP with the NMP. The plans address complementary and similar issues and combining them would help ensure that all nutrients are taken into consideration and would simplify the planning process.

From 2008 written risk assessment procedures to identify suitable locations for spreading organic manures will be required under the draft NVZ Action Programme as a cross-compliance measure within NVZs. The assessments are likely to consider runoff risk associated with times, slope, weather conditions and other factors currently addressed through MMPs. Therefore, beyond 2008, it would seem doubtful that there would be much added value from retaining MMPs as an ELS option within NVZs.

### **5.4 Soil Management Plan**

The importance of soil management plans in dealing with diffuse pollution, the effects of climate change, flooding, and in forming part of agriculture's response to the Water Framework Directive needs much greater emphasis.

The different types of soil erosion need to be clearly defined and explained. Enhanced run-off is the most common form of erosion occurring on all soil types, but there is evidence that it is being overlooked in current plans.

Websites where archaeological features can be identified e.g. [www.magic.gov.uk](http://www.magic.gov.uk) should be clearly signposted to ensure that these are highlighted in the plans.

Good soil structure will reduce the likelihood of soil erosion and it is also a very important component of productivity. This point must be emphasised to farmers through guidance and via advice.

The guidance document 'Producing a Soil Management Plan for ELS' includes an example field-by-field assessment, but it does not include a template or method for producing the SMP. It is recommended that a method for the field-by-field assessment should be provided with the option of completing this either electronically or as a hard copy.

The quality and completeness of maps could be improved by providing farmers with a field plan including a standardised key i.e. a similar format to that provided for the Farm Environmental Record in ELS. Besides showing risk categories, the key would prompt inclusion of information such as wind erosion, field drainage etc. which was lacking with many of the maps in the survey.

If SMPs are failing to be an attractive option to many of the farms most vulnerable to erosion i.e. those with light sand soils, this could be addressed by requiring all farms entered into ELS to complete a SMP or perhaps basing the points awarded on a risk score.

Because of the absence of equivalent assessment frameworks in other schemes, and the important contribution towards assessing risk of soil run-off etc., this plan potentially offers the highest level of additionality for inclusion as an ES option. However, this plan is also the hardest to complete comprehensively and therefore to ensure that the full benefits of the plan are realised it is recommended that guidance should be improved and that a mechanism to check quality and completeness be put in place.

## 5.5 Nutrient Management Plan

The importance of accurate information, including manure use and up to date soil samples needs to be emphasised to farmers to produce accurate plans. A substantial proportion of farmers are still not accounting for the nutrient value of manures and this needs to be addressed.

There is plenty of information available on what should go into an NMP, but less information on how to produce one. A greater availability of templates, example plans and clearer guidance would help farmers to complete the plans.

However, completing the plan is not a straightforward process and only qualified people (mainly FACTS-qualified farmers, scientists and advisers) will feel confident in their production. It is recommended therefore that a FACTS-qualified adviser or equivalent must be involved in the production of a nutrient management plan, either in its completion or in its approval.

This study has shown that some existing nutrient management plans are failing to consider nutrients supplied by manures, whether produced on-farm or imported. This may be because farmers view manures as being separate from manufactured fertilisers as there is a separate plan for manures and they may not have opted to

complete that plan. Similarly, but with the exception of some fully organic farms, the majority of farms using organic manures will also apply manufactured fertilisers, but may not be considering their impact if they only opted to complete a MMP. The objective of the NMP and MMP is to appropriately plan for and manage nutrient supply. Therefore it would seem that nutrient supply could be managed through one single plan for both organic and manufactured fertilisers. This would also appear to simplify the plan process.

## **Appendix 1: Desk Review Questionnaires**



# Soil Management Plan



Before you start to assess the plan, please record the agreement number on this sheet. This will either be written on the plan or on a separate sheet. This is very important, as this will enable us to link the plan back to the farm it came from.

Agreement number

**Answer all questions by ticking the box next to the appropriate response.**

<b>Section 1 – The Map</b>			
<b>1</b>	Is there a map(s) with the soil management plan? <i>If there is no map go to Section 2</i>	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>2</b>	Does the map(s) identify risk categories for run-off and erosion?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>3</b>	Which methodology was employed to determine risk categories?  If 'Other', please state method.	Defra <input type="checkbox"/> 1	Other <input type="checkbox"/> 2
<b>4</b>	How clearly identifiable are the risk categories on the map?	Very <input type="checkbox"/> 1	Fairly <input type="checkbox"/> 2
		Not very <input type="checkbox"/> 3	Not at all <input type="checkbox"/> 4
<b>5</b>	Does the map(s) include a key for the risk categories?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>6</b>	Is there a joint map or separate maps showing risks of erosion and risks of runoff?	Joint <input type="checkbox"/> 1	Separate <input type="checkbox"/> 2
<b>7</b>	Are the risk categories only based on inherent site characteristics (soil/slope) i.e. independent of cropping/land use?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
			Not possible to tell <input type="checkbox"/> 3
<b>8</b>	If answer to above is 'No' does the map indicate changes in risk if land use changes (e.g. grassland ploughed up)?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>9</b>	Are arrows included on the map(s) to show the direction of water run-off from fields?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>10</b>	Is observed run-off and/or erosion marked on the map?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>11</b>	Does the map appear to show the main watercourses or rivers on the land?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
			N/A <input type="checkbox"/> 3
<b>12</b>	Are other routes such as roads and trackways marked?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
			N/A <input type="checkbox"/> 3
<b>13</b>	Does the map identify areas that are liable to flooding from rivers or watercourses?		Yes <input type="checkbox"/> 1
			No, but flooding from river/watercourse <u>is</u> likely to occur <input type="checkbox"/> 2
			No, but unlikely to be areas liable to flooding from rivers or watercourses <input type="checkbox"/> 3
			No, but not possible to tell if applicable <input type="checkbox"/> 4

<b>14</b>	Does the map show any simple measures that can be taken to stop or divert runoff from fields e.g. moving gateways or other access points?	Yes <input type="checkbox"/> 1 No, but measures are likely to be needed <input type="checkbox"/> 2 No, but measures unlikely to be needed <input type="checkbox"/> 3 No, but it is difficult to tell if measures are needed <input type="checkbox"/> 4
<b>15</b>	Does the map show whether or not wind erosion is an issue?	Yes, as the map identifies areas at risk from wind erosion <input type="checkbox"/> 1 Yes, as the map notes that wind erosion is not a problem <input type="checkbox"/> 2 No, as no information is provided <input type="checkbox"/> 3
<b>16</b>	Does the map or the map key identify whether or not fields have under-drainage systems?	Yes, as the map identifies areas with under-drainage <input type="checkbox"/> 1 Yes, as the map notes that under-drainage is absent <input type="checkbox"/> 2 No, as no information is provided <input type="checkbox"/> 3
<b>17</b>	Does the map identify whether or not any archaeological or historical features are present?	Yes, as the map identifies archaeological or historical features <input type="checkbox"/> 1 Yes, as the map notes that archaeological or historical features are absent <input type="checkbox"/> 2 No, as no information is provided <input type="checkbox"/> 3
<b>Section 2 – Field by Field Assessment</b>		
<i>Now turn to the written information, which forms the field assessment</i>		
<b>18</b>	Is a general summary of farm practices included in the plan, for example cultivations, rotation, sub-soiling?	Yes <input type="checkbox"/> 1                      No <input type="checkbox"/> 2
<b>19</b>	Is a field assessment included in the soil management plan? <i>If no field assessment is included skip to end of questionnaire</i>	Yes <input type="checkbox"/> 1                      No <input type="checkbox"/> 2
<b>20</b>	How have individual fields been identified?	By field grid references <input type="checkbox"/> 1 RLR (Rural Land Registry) <input type="checkbox"/> 2 By field names <input type="checkbox"/> 3 <input type="text" value="Other (write in)"/> <input type="checkbox"/> 4 Individual fields not identified <input type="checkbox"/> 5
<b>21</b>	Which of the following best describes how the field assessment has been made? <i>(Please tick one box only)</i>	Each individual field is assessed separately <input type="checkbox"/> 1 Fields are grouped within the assessment, but it is possible to clearly identify which fields are included <input type="checkbox"/> 2 Fields are assessed by risk category and not by individual field <input type="checkbox"/> 3 The whole farm is assessed as one, and not by individual field <input type="checkbox"/> 4
<b>22</b>	Does the plan record...?	
	a. Field characteristics such as runoff/erosion risk and physical characteristics	Yes, for every individual field <input type="checkbox"/> 1 Yes, for some individual fields <input type="checkbox"/> 2 Yes, by groups of fields, with information being provided for all groups of fields <input type="checkbox"/> 3 Yes, by groups of fields, with information being provided for only some groups of fields <input type="checkbox"/> 4 No, not at all <input type="checkbox"/> 5
	b. Management issues	Yes, for every individual field <input type="checkbox"/> 1 Yes, for some individual fields <input type="checkbox"/> 2 Yes, by groups of fields, with information being provided for all groups of fields <input type="checkbox"/> 3 Yes, by groups of fields, with information being provided for only some groups of fields <input type="checkbox"/> 4 No, not at all <input type="checkbox"/> 5

<p>c. Management proposals</p>	<p>Yes, for every individual field <input type="checkbox"/> 1          Yes, for some individual fields <input type="checkbox"/> 2          Yes, by groups of fields, with information being provided for all groups of fields <input type="checkbox"/> 3          Yes, by groups of fields, with information being provided for only some groups of fields <input type="checkbox"/> 4          No, not at all <input type="checkbox"/> 5</p>																												
<p>d. Space for recording issues arising over the year</p>	<p>Yes for every individual field <input type="checkbox"/> 1          Yes for some individual fields <input type="checkbox"/> 2          Yes by groups of fields <input type="checkbox"/> 3          No, not at all <input type="checkbox"/> 4</p>																												
<p><b>23</b> Which field characteristics are recorded?</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">For all fields</th> <th style="width: 10%; text-align: center;">Some fields</th> <th style="width: 10%; text-align: center;">Not recorded</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">Risk of run-off and erosion</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Soil type</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Slope</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Soil structure</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Soil permeability</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Other (<i>write in</i>)</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> </tbody> </table>		For all fields	Some fields	Not recorded	Risk of run-off and erosion	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	Soil type	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	Slope	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	Soil structure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	Soil permeability	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	Other ( <i>write in</i> )	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
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<p><b>24</b> For the field characteristics that were recorded, how were they assessed?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%; text-align: right;">Inspection pit dug</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> <td style="width: 10%; text-align: center;">From memory</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td style="text-align: right;">Surface assessment</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;">Difficult to tell</td> <td style="text-align: center;"><input type="checkbox"/> 4</td> </tr> </tbody> </table>	Inspection pit dug	<input type="checkbox"/> 1	From memory	<input type="checkbox"/> 3	Surface assessment	<input type="checkbox"/> 2	Difficult to tell	<input type="checkbox"/> 4																				
Inspection pit dug	<input type="checkbox"/> 1	From memory	<input type="checkbox"/> 3																										
Surface assessment	<input type="checkbox"/> 2	Difficult to tell	<input type="checkbox"/> 4																										
<p><b>25</b> Are the soil types accurately identified?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%; text-align: right;">Yes</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> <td style="width: 10%; text-align: center;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Difficult to tell</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> </tbody> </table>	Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2			Difficult to tell	<input type="checkbox"/> 3																				
Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2																										
		Difficult to tell	<input type="checkbox"/> 3																										
<p><b>26</b> Which of these features are recorded?</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;">Yes</th> <th style="width: 10%; text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">Presence of archaeological / historical features</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Proximity to watercourses</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Proximity to roads</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Proximity to housing</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Other (<i>write in</i>)</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">None</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> </tbody> </table>		Yes	No	Presence of archaeological / historical features	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Proximity to watercourses	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Proximity to roads	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Proximity to housing	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Other ( <i>write in</i> )	<input type="checkbox"/> 1	<input type="checkbox"/> 2	None	<input type="checkbox"/> 1	<input type="checkbox"/> 2							
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None	<input type="checkbox"/> 1	<input type="checkbox"/> 2																											
<p><b>27</b> Are any of the features you coded at Q26 flagged as sensitive receptors?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%; text-align: right;">Yes</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> <td style="width: 10%; text-align: center;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 2</td> </tr> </tbody> </table>	Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2																								
Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2																										
<p><b>28</b> Has any history of flooding or runoff been noted?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%; text-align: right;">Yes</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> <td style="width: 10%; text-align: center;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 2</td> </tr> </tbody> </table>	Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2																								
Yes	<input type="checkbox"/> 1	No	<input type="checkbox"/> 2																										
<p><b>29</b> <b>Management Issues</b> Are the management issues noted in the plan appropriate to the field/soil conditions based on the evidence in the plan and on the map?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%;"></td> <td style="width: 10%; text-align: center;">In most cases</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> </tr> <tr> <td></td> <td style="text-align: center;">In some cases</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td></td> <td style="text-align: center;">Not at all</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> <tr> <td></td> <td style="text-align: center;">Impossible to tell</td> <td style="text-align: center;"><input type="checkbox"/> 4</td> </tr> <tr> <td></td> <td style="text-align: center;">No management issues noted in the plan</td> <td style="text-align: center;"><input type="checkbox"/> 5</td> </tr> </tbody> </table>		In most cases	<input type="checkbox"/> 1		In some cases	<input type="checkbox"/> 2		Not at all	<input type="checkbox"/> 3		Impossible to tell	<input type="checkbox"/> 4		No management issues noted in the plan	<input type="checkbox"/> 5													
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	No management issues noted in the plan	<input type="checkbox"/> 5																											
<p><b>30</b> Does the plan identify clearly where <u>no</u> management issues are present for each field or is no information provided at all?</p>	<table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 60%;"></td> <td style="width: 10%; text-align: center;">Plan identifies where no issues are present</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/> 1</td> </tr> <tr> <td></td> <td style="text-align: center;">No information is provided</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td></td> <td style="text-align: center;">Not applicable as management issues are provided for each field (<b>if you ticked code 3 skip to Q32</b>)</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> </tr> </tbody> </table>		Plan identifies where no issues are present	<input type="checkbox"/> 1		No information is provided	<input type="checkbox"/> 2		Not applicable as management issues are provided for each field ( <b>if you ticked code 3 skip to Q32</b> )	<input type="checkbox"/> 3																			
	Plan identifies where no issues are present	<input type="checkbox"/> 1																											
	No information is provided	<input type="checkbox"/> 2																											
	Not applicable as management issues are provided for each field ( <b>if you ticked code 3 skip to Q32</b> )	<input type="checkbox"/> 3																											

<b>31</b>	For fields where <b>no</b> management issues have been noted, is this appropriate?	In most cases <input type="checkbox"/> 1 In some cases <input type="checkbox"/> 2	Not at all <input type="checkbox"/> 3 Impossible to tell <input type="checkbox"/> 4
<b>Management Proposals</b>			
<i>If the farm does not have grassland skip to Q34</i>			
<b>32</b>	If the farm has grassland are the management proposals included in the plan appropriate for the fields under grassland?		In most cases <input type="checkbox"/> 1 In some cases <input type="checkbox"/> 2 Not at all <input type="checkbox"/> 3 Impossible to tell <input type="checkbox"/> 4 No management proposals noted in the plan <input type="checkbox"/> 5
<b>33</b>	If you have answered in some cases or not at all above, why is this? <i>(Please tick all appropriate)</i>	Landscape - slope, proximity to sensitive receptor, position of gates/trackways etc.	Soil type <input type="checkbox"/> 1 <input type="checkbox"/> 2 Type of cropping/husbandary <input type="checkbox"/> 3 Timing <input type="checkbox"/> 4 Climate <input type="checkbox"/> 5
<i>If the farm does not have arable cropping skip to Q36</i>			
<b>34</b>	If the farm has arable cropping are the management proposals included in the plan appropriate for the fields under arable cropping?		In most cases <input type="checkbox"/> 1 In some cases <input type="checkbox"/> 2 Not at all <input type="checkbox"/> 3 Impossible to tell <input type="checkbox"/> 4 No management proposals noted in the plan <input type="checkbox"/> 5
<b>35</b>	If you have answered in some cases or not at all above, why is this? <i>(Please tick all appropriate)</i>	Landscape - slope, proximity to sensitive receptor, position of gates/trackways etc.	Soil type <input type="checkbox"/> 1 <input type="checkbox"/> 2 Type of cropping/husbandary <input type="checkbox"/> 3 Timing <input type="checkbox"/> 4 Climate <input type="checkbox"/> 5
<b>36</b>	Does the plan identify if <b>no</b> changes are needed to the management or is no information provided?	Plan identifies that no changes to the management are needed No information is provided Not applicable as management proposals are provided for each field – <b>if you ticked code 3 skip to Q38</b>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
<b>37</b>	For fields where <b>no</b> management proposals have been noted, is this appropriate?	In most cases <input type="checkbox"/> 1 In some cases <input type="checkbox"/> 2	Not at all <input type="checkbox"/> 3 Impossible to tell <input type="checkbox"/> 4
<b>38</b>	If it is possible to tell, was the plan completed by the farmer/land agent or an independent consultant?		Farmer/land agent <input type="checkbox"/> 1 Independent consultant <input type="checkbox"/> 2 Not possible to tell <input type="checkbox"/> 3
<b>39</b>	Is there any evidence to show that the landowner is implementing recommendations made in the management plan?	Evidence suggests no recommendations are being implemented Evidence suggests recommendations are being implemented	No evidence to show this <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
	Assessors name <i>(Please print)</i>		
	Date of assessment		

# Nutrient Management Plan



Before you start to assess the plan, please record the agreement number on this sheet. This will either be written on the plan or on a separate sheet. This is very important, as this will enable us to link the plan back to the farm it came from.

Agreement number

**Answer all questions by ticking the box next to the appropriate response.**

<b>1</b>	Is there any evidence to suggest the plan was completed in conjunction with a FACTS qualified person?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
	If 'Yes', what evidence is there?		
<b>2</b>	Is the farm/parts of the farm in an NVZ?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
	If 'Yes' is the NVZ action programme year specified, i.e. 1998 or 2002 action programme rules?	Yes, 1998 <input type="checkbox"/> 1	Yes, 2002 <input type="checkbox"/> 2    No, not specified <input type="checkbox"/> 3
	Do they plan to spread/have they spread high available N manures on shallow or sandy soils during the NVZ closed periods for organic manures i.e. between 1st Aug - 1st Nov for arable and 1st Sept-1st Nov on grassland?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2    Difficult to tell <input type="checkbox"/> 3
<b>3</b>	Does the plan contain soil analyses conducted within the last 3 to 5 years?	Yes, for all fields <input type="checkbox"/> 1	Yes, for some fields <input type="checkbox"/> 3 Yes, for most fields <input type="checkbox"/> 2    No, not for any of the fields <input type="checkbox"/> 4
<b>4</b>	Are <u>clear</u> field records of cropping, organic manure and fertiliser application included?		Yes, provided for all fields <input type="checkbox"/> 1 Yes, provided for most fields <input type="checkbox"/> 2 Yes, provided for some fields <input type="checkbox"/> 3 Records not clear <input type="checkbox"/> 4 No records provided <input type="checkbox"/> 5
<b>5</b>	Which system has been used to assess crop nutrient requirements?		PLANET/RB209 <input type="checkbox"/> 1 Kemira <input type="checkbox"/> 2 Hydro N system <input type="checkbox"/> 3 GPS system <input type="checkbox"/> 4 <input style="width: 150px; height: 20px;" type="text"/> Other recognised system ( <i>write in</i> ) <input type="checkbox"/> 5 No recognised system evident <input type="checkbox"/> 6
<b>6</b>	Has the fertiliser input been adjusted according to the nutrient supply from organic manures?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2    Difficult to tell <input type="checkbox"/> 3
<b>7</b>	Does the plan show .....	Yes	No
	Soil type by field?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	Which fields are in NVZ areas?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	Current crops by field?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	Previous crops by field?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	The market for current crops where appropriate e.g. milling or feedwheat?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	The amount of manure to be applied by field this year?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	The type of manure to be applied by field this year?	<input type="checkbox"/> 1	<input type="checkbox"/> 2

<b>8</b>	Are there records to show this amount and type of manure has been applied?	Yes Amount applied <input type="checkbox"/> 1 Type applied <input type="checkbox"/> 1	No <input type="checkbox"/> 2 <input type="checkbox"/> 2
<b>9</b>	How are the nutrient supply from organic manures assessed? Have the manures been analysed for nutrient content or have standard figures been used?	Manures analysed for nutrient content <input type="checkbox"/> 1 Standard figures used <input type="checkbox"/> 2 Neither <input type="checkbox"/> 3 Difficult to tell <input type="checkbox"/> 4	
<b>10</b>	Has the total amount of applied manure nutrients been calculated?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 Difficult to tell <input type="checkbox"/> 3
<b>11</b>	Does the calculation show what values have been used to determine the total amount of manure nutrients applied?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>12</b>	Has the calculation been completed correctly?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 Difficult to tell <input type="checkbox"/> 3
	If 'No', explain why		
<b>13</b>	Does the plan indicate that the manure will be incorporated?	Yes, will be incorporated <input type="checkbox"/> 1 No, manure will not be incorporated <input type="checkbox"/> 2 No evidence <input type="checkbox"/> 3	
<b>14</b>	If the manure will be incorporated ask: How long after spreading will it be incorporated?		
	Is this time period appropriate?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>15</b>	For <u>arable</u> crops, has the soil Nitrogen supply been calculated?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
<b>16</b>	If the soil Nitrogen supply has been calculated, which method has been used...	Field assessment e.g based on field type/previous cropping/average winter rainfall <input type="checkbox"/> 1 Soil mineral N testing <input type="checkbox"/> 2 Other ( <i>write in</i> ) <input type="checkbox"/> 3 No method evident <input type="checkbox"/> 4	
<b>17</b>	Does the calculation for <u>crop</u> Nitrogen requirement appear correct?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
	If 'No', please explain why?		
<b>18</b>	Has any Phosphorus fertiliser been applied to any high P index soils, that is 3 or above?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2
	If so, was this justified by RB209 recommendations e.g. potatoes?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2

**19**

Whatever the crop grown have they applied/do they plan to apply more Nitrogen, Phosphorus or Potassium than recommended by RB209?  
REFER TO RB209 DATA

	Yes	No	Difficult to tell
Nitrogen	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Phosphorus	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Potassium	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

**20**

If more N, P or K has been applied than recommended by RB209, what if any, justification has been provided or is evident from the plan?

Received advice from FACTS qualified agronomist  1  
 They are growing milling wheat  2  
 There is evidence to show they require a higher rate of nitrogen  3  
 They have used a different recommendation system  4

Other recognised system (*write in*)

No justification/evidence provided  5  
 6

**21**

Is there any evidence that shows the recent calibration or maintenance of fertiliser spreaders?

	Yes	No
Calibration of fertiliser spreaders	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Maintenance of fertiliser spreaders	<input type="checkbox"/> 1	<input type="checkbox"/> 2

**22**

Date plan produced

Assessors name (*Please print*)

Date of assessment



# Manure Management Plan



Before you start to assess the plan, please record the agreement number on this sheet. This will either be written on the plan or on a separate sheet. This is very important, as this will enable us to link the plan back to the farm it came from.

Agreement number

**Answer all questions by ticking the box next to the appropriate response.**

<b>Section 1 – Map of Fields on the Farm</b>				
<b>1</b>	Does the plan include a map of the fields on the farm? <i>If the plan includes a map of the farm fields continue, if not skip to Section 2</i>	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>2</b>	Is the map colour?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>3</b>	Does the map have rivers and watercourses marked on it?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 N/A <input type="checkbox"/> 3	
<b>4</b>	Does the map have field areas marked in hectares?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>5</b>	Does the map show field boundaries?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>6</b>	Does the map show boreholes?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 N/A <input type="checkbox"/> 3	
<b>7</b>	Does the map show springs or wells?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 N/A <input type="checkbox"/> 3	
<b>8</b>	Does the map show the risk category for different areas of land?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>9</b>	Is there a legend to identify the different risk categories?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2	
<b>10</b>	Are the risk categories marked using correct colours? Please note all risk categories do not have to be present.	Yes Red – no spreading <input type="checkbox"/> 1 Orange – very high risk <input type="checkbox"/> 1 Yellow – high risk <input type="checkbox"/> 1 Green – lower risk <input type="checkbox"/> 1 White – areas not normally used for spreading <input type="checkbox"/> 1	No <input type="checkbox"/> 2 <input type="checkbox"/> 2 <input type="checkbox"/> 2 <input type="checkbox"/> 2 <input type="checkbox"/> 2	
<b>11</b>	In classifying each risk category has attention been paid to...	Yes Soil type <input type="checkbox"/> 1 Slope <input type="checkbox"/> 1 Proximity to sensitive receptor <input type="checkbox"/> 1	No <input type="checkbox"/> 2 <input type="checkbox"/> 2 <input type="checkbox"/> 2	Difficult to tell <input type="checkbox"/> 3 <input type="checkbox"/> 3 <input type="checkbox"/> 3
<b>12</b>	Do the orange areas have 1, 2 or 3 marked on them?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2 No orange areas on map <input type="checkbox"/> 3	

<b>13</b>	Are "no spreading" strips indicated along both sides of ditches/watercourses where appropriate?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>14</b>	Is there a soil map or some description of the soil types found on the farm?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>15</b>	Is the farm or part of the farm in an NVZ area? (Check using postcode on Defra website)	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>16</b>	If the farm is in an NVZ area, are the sandy or shallow soils marked on the field map with cross hatching? (Check for existence of these soils on the soil map if included)	Yes – sandy/shallow soils are marked <input type="checkbox"/> 1 No – sandy/shallow soils not marked <input type="checkbox"/> 2 Sandy/shallow soils absent from farm <input type="checkbox"/> 3 Can not tell if farm has sandy/shallow soils <input type="checkbox"/> 4																
<b>Section 2 – Area Available for Spreading</b>																		
<b>17</b>	Is the total area available for spreading recorded somewhere within the plan/reports?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>18</b>	Is the overall size of the area for each risk category identified in the plan/reports?	<table border="0"> <thead> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> </thead> <tbody> <tr> <td style="text-align: right;">Red</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Orange</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Yellow</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> <tr> <td style="text-align: right;">Green</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> </tr> </tbody> </table>			Yes	No	Red	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Orange	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Yellow	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Green	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	Yes	No																
Red	<input type="checkbox"/> 1	<input type="checkbox"/> 2																
Orange	<input type="checkbox"/> 1	<input type="checkbox"/> 2																
Yellow	<input type="checkbox"/> 1	<input type="checkbox"/> 2																
Green	<input type="checkbox"/> 1	<input type="checkbox"/> 2																
<b>19</b>	Is there evidence to show the number of livestock kept on the farm over the previous year?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>20</b>	Has the total area needed to spread the farm generated manure been calculated?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>21</b>	Does the calculation show which figures have been used to calculate the total area needed to spread farm generated manure?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<b>22</b>	Does the calculation appear logical?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
<div style="border: 1px solid black; padding: 5px; min-height: 60px;">         If it does not appear logical please explain why?       </div>																		
<b>23</b>	Is it stated anywhere in the plan/reports that the farmer imports organic manures from elsewhere?	Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															
If the farm does import organic manures from elsewhere, does the plan state the amount of land remaining to spread the off farm organic manure?		Yes <input type="checkbox"/> 1	No <input type="checkbox"/> 2															

### Section 3 – Manure Spreading

24

Does the report identify spreading restrictions for the risk categories included in the plan for this farm?

Yes for all high and very high risk areas  1  
For some high and very high risk areas  2  
No restrictions included at all on very high/ high risk areas  3  
*(if ticked code 3 skip to Section 4)*

25

Does it do this by using the relevant 1, 2 and/or 3 risk categories?

Yes  1 No  2

26

Does it explain what the relevant 1,2 and 3 risk categories mean?

Yes  1 No  2

### Section 4 – Calculating Storage Capacity

27

Has the storage capacity for slurry been calculated and included somewhere within the plan?

Yes  1 No  2

28

Has the storage capacity for dirty water been calculated and been included somewhere within the plan?

Yes  1 No  2

29

Is the storage capacity sufficient?

Yes  1 No  2

30

Has the yard area and roof area that contributes to dirty water production been calculated and included somewhere on the plan?

Yes  1 No  2

31

Has an average winter rainfall figure been included on the plan?

Yes  1 No  2

#### Dairy farms only:

32

Does the dairy farm include a figure for the total amount of parlour washings produced over the 6 winter months?

Yes  1 No  2

33

Does the report specify the total winter volume of dirty water?

Yes  1 No  2

34

Does the calculation show which figures have been used to produce a figure for the total winter volume of dirty water?

Yes  1 No  2

35

Does the winter volume of dirty water appear to have been calculated correctly?

Yes  1 No  2

If it has not been calculated correctly please explain why?

36

Has the minimum area for spreading dirty water in winter been calculated and included somewhere within the plan/report?

Yes  1 No  2

**37**

Is it clear which figures have been used within the calculation and where these figures have come from?

Yes  1No  2**38**

Is the calculation based on the information provided? For example, a winter rainfall figure, area of roofs and yard that contribute to dirty water, and parlour washings?

Yes  1No  2**39**

Is the calculation correct?

Yes  1No  2

If you feel the calculation is not correct please explain why?

**40**

Does the plan indicate whether or not the farm has sufficient storage for slurry?

Yes  1No  2**41**

Does the plan indicate whether or not the farm has sufficient storage for dirty water?

Yes  1No  2

Assessors name *(Please print)*

Date of assessment

# Crop Protection Management Plan



Before you start to assess the plan, please record the agreement number on this sheet. This will either be written on the plan or on a separate sheet. This is very important, as this will enable us to link the plan back to the farm it came from.

Agreement number

## Section 1 – Current Plan

<b>1</b>	Does the plan contain crop management information for the current year and/or the previous year?	Current year only	<input type="checkbox"/>	1
		Previous year only	<input type="checkbox"/>	2
		Both current year and previous year	<input type="checkbox"/>	3
		Difficult to tell from the plan	<input type="checkbox"/>	4

<b>2</b>	Which recognised scheme was used to prepare the plan?	Voluntary Initiative CPMP	<input type="checkbox"/>	1
		LEAF (Linking Environment and Farming) audit	<input type="checkbox"/>	2
		EMA (Environmental Management for Agriculture) audit	<input type="checkbox"/>	3
		Other scheme <i>(please, specify)</i>	<input type="text"/>	4
		No evidence of a recognised scheme	<input type="checkbox"/>	5

<b>3</b>	Is there evidence to suggest the plan was completed with a BASIS qualified agronomist?	Yes	<input type="checkbox"/>	1	No	<input type="checkbox"/>	2
		Help received but can't tell if BASIS qualified		<input type="checkbox"/>			3

<b>4</b>	Does the plan show an awareness of the Code of Practice for using Plant Protection Products (Green Code)?	Yes	<input type="checkbox"/>	1	No	<input type="checkbox"/>	2
		Difficult to tell		<input type="checkbox"/>			3

## Section 2 – Management Decisions

<b>5</b>	Which of the following cultural control methods are used on the farm to reduce reliance on pesticides? <i>Tick all that apply</i>	Crop rotation includes break crops/set-a-side	<input type="checkbox"/>	1
		Crop varieties selected for pest and/or disease resistance e.g. for orange blossom midge	<input type="checkbox"/>	2
		Field margins/buffer strips/beetle banks used to encourage beneficial species	<input type="checkbox"/>	3
		Full ICM (integrated crop management) employed	<input type="checkbox"/>	4
		Other <i>(please, specify)</i>	<input type="text"/>	5
		None that can be detected from the plan	<input type="checkbox"/>	6

<b>6</b>	How are pesticide selection/use decisions made? <i>(Please tick all that apply)</i>	Frequent crop inspections to determine appropriate timing/treatment	<input type="checkbox"/>	1
		BASIS qualified agronomist recommends timing/treatment of applications	<input type="checkbox"/>	2
		Knowledge of pest and disease on the farm e.g. in relation to previous cropping/rotation e.g. fruit and wheat bulb fly, slugs etc	<input type="checkbox"/>	3
		Knowledge of resistance issues on the farm	<input type="checkbox"/>	4
		Pesticides are selected with regard for their environmental impact/impact on non-target species	<input type="checkbox"/>	5
		Environmental information Sheets (EIS) are used where available	<input type="checkbox"/>	6
		Other <i>(please, specify)</i>	<input type="text"/>	7
		None of the above can be detected from the plan	<input type="checkbox"/>	8

### Section 3 – Equipment and Application

7

How, if at all, does the farm pesticide store comply with current regulations?  
(Please tick all that apply)

Store is built to BASIS standards  1

Store is locked, bunded and is frost proof  2

There is no evidence of safe storage facilities  3

#### Training of Spray Operators

8

Does the plan show that all spray operators have been properly trained in the application of pesticides?

Yes  1

No  2

No evidence from plan  3

9

Do all operators hold the relevant NPTC certificate (unless derogations apply)?

Yes  1

No  2

No evidence from plan  3

Derogations apply  4

10

Are all operators registered with National Register of Sprayer operators (NRoSO) to ensure continuing professional development?

Yes  1

No  2

No evidence from plan  3

#### Maintaining/Using Spray Equipment

11

Is application equipment calibrated/serviced regularly?

Yes  1

No  2

No evidence from plan  3

12

Is application equipment tested annually at a test centre operating under the National Sprayer Testing Scheme (NSTS)?

Yes  1

No  2

No evidence from plan  3

13

Are low drift nozzles used whenever possible?

Yes  1

No  2

No evidence from plan  3

14

Are sprayers kept under cover when not in use?

Yes  1

No  2

No evidence from plan  3

#### Spray Application

15

Are climatic conditions considered **before spraying** (windspeed, rainfall, soil conditions)?

Yes  1

No  2

No evidence from plan  3

16

Is there evidence that label restrictions (for example compulsory buffer zones) are complied with?

Yes  1

No  2

No evidence from plan  3

17

Has a LERAP been completed (if allowed by label)?

Yes  1

No  2

No evidence from plan  3

Not allowed by label  4

## Section 4 – After Spraying

**18**

Is the sprayer washed out before leaving the field?

Yes  1

No  2

No evidence from plan  3

**19**

If "No", are the washings disposed of at a Ground Water authorised site?

Yes  1

No  2

No evidence from plan  3

**20**

If "No", is washdown carried out on a suitable area where washings are contained for treatment/disposal?  
(Please tick all that apply)

Yes - Liquid waste and washings collected by specialist waste contractor  1

Yes - Liquid waste and washings treated in a Sentinel  2

Yes - Liquid waste and washings treated on a Biobed  3

Yes but other method used (write in)  4

No – washdown not carried out on suitable area where washings are contained for treatment  5

If "No", explain how washdown is carried out.

**21**

How are spent containers dealt with?

Recycled using a recognised collection scheme  1

Returned to supplier for re-filling  2

Sent for disposal at an approved site  3

Collected by a specialised waste contractor  4

Other (write in)  5

Difficult to tell from the plan  6

**22**

Does the plan show that full records of farm pesticide application and storage are maintained?

Yes  1

No  2

**23**

Date plan produced

Assessors name (Please print)

Date of assessment)



## **Appendix 2: Farm Visit Review Questionnaires**

# Farm Visit Questionnaire

## Section 2 – On Site Visit:

### Soil Management Plan



IF YOU DO NOT ALREADY HAVE A COPY OF THE SOIL MANAGEMENT PLAN FOR THIS FARM, ASK FOR THIS AND THE ASSOCIATED MAP FROM THE FARMER

ANSWER THIS QUESTIONNAIRE BY REVIEWING THE PLAN AGAINST THE FARM SITUATION. YOU WILL NEED TO TOUR THE FARM AND CONDUCT HAND TEXTURE ASSESSMENTS OF TOPSOIL

<b>Important – Enter ELS Agreement Number:</b>	
--	--

1. In what month and year was the current Soil Management Plan (SMP) produced?

Month		Year	
-------	--	------	--

2. How often has the plan been updated?

3. What are the dominant soil types?

Light sand <input type="checkbox"/> 1	Shallow <input type="checkbox"/> 2	Deep clay <input type="checkbox"/> 4	Organic <input type="checkbox"/> 6
	Medium <input type="checkbox"/> 3	Deep fertile silty <input type="checkbox"/> 5	Peaty <input type="checkbox"/> 7

4. Does the map accurately reflect the on farm situation in terms of:

	Yes	No
Run off	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Erosion	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Direction of water run-off from fields	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Roads and trackways	<input type="checkbox"/> 1	<input type="checkbox"/> 2
The presence of watercourses/rivers/ponds and ditches	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Areas liable to flooding	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Presence of under drainage systems	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Presence of archaeological or historical features	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Position, name and/or grid references for individual fields	<input type="checkbox"/> 1	<input type="checkbox"/> 2

5a. Are the risk categories accurate for this farm i.e. have the appropriate categories been assigned to the right areas?

In most cases <input type="checkbox"/> 1	In some cases <input type="checkbox"/> 2	Not at all <input type="checkbox"/> 3
--	--	---------------------------------------

5b. Please explain why the risk categories are inaccurate?

6a. Are the risk categories based on inherent site characteristics (soil/slope) i.e. independent of the cropping and land use?  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

6b. **If not at all:**

Does the map show appropriate changes in risk if land use changes (e.g. grassland ploughed up)?

7a. If any measures to reduce/divert runoff are included on the map, are these appropriate?  
Yes <sub>1</sub> No <sub>2</sub> No measures included on the map <sub>3</sub>

7b. **If 'NO' AT Q4a, please explain why.**

### Field Assessment

8. Have the fields been accurately identified i.e. do the names, grid references match with the situation on farm?  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

9a. Are the field characteristics recorded in the field assessment accurate for each field or group of fields?  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

9b. What characteristics have been inaccurately recorded?  
Run-off erosion <sub>1</sub> Slope <sub>3</sub>  
Soil type <sub>2</sub> Soil structure <sub>4</sub>  
Soil permeability <sub>5</sub>

10. Are the field features listed in the field assessments accurate? I.e. proximity to watercourses, roads & housing and presence of archaeological/historical features.  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

11. Does the map link accurately with the field assessment for field characteristics and features?  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

12. Are the management issues or lack of management issues noted in the plan appropriate to the field/soil conditions based on your inspection of the farm?  
In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

### Farms with Grassland

13a. Are the management proposals for fields under grassland appropriate based on your inspection of the fields?

In most cases 1

In some cases 2

Not at all 3

13b. If inappropriate management proposals are included for grassland, please provide up to 3 examples below, stating the nature of the proposal and why it is inappropriate.

1.

2.

3.

### Farms with Arable

14a. Are the management proposals for fields under arable cropping appropriate based on your inspection of the fields?

In most cases 1

In some cases 2

Not at all 3

14b. If inappropriate management proposals are included for fields under arable cropping, please provide up to 3 examples below, stating the nature of the proposal and why it is inappropriate.

1.

2.

3.

### All Farms

15a. For fields where no management proposals or only minor changes have been listed is this appropriate?

In most cases 1

In some cases 2

Not at all 3

15b. If the absence of management proposals is inappropriate on one or more fields, please provide up to 3 examples below, stating why a proposal should have been included and what that proposal should be.

1.

2.

3.

### The Impact of the ELS SMP on Farm Practice

16. In your view has the plan identified the relevant potential impacts of their farming activity on the environment?

Yes, most impacts identified 1

Yes, some impacts identified 2

No, no impacts identified 3

17a. Does the plan provide recommendations to reduce the impact of farming on the environment?

Yes, it provides most of the appropriate recommendations 1

Yes, it provides some of the appropriate recommendations 2

No, it fails to provide recommendations 3

No changes need to current practices 4

17b. What proportion of these recommendations are being implemented on the farm?

All 1

Most 2

Some 3

None 4

17c. If at least some are being implemented, please provide up to 3 examples of where recommendations have been implemented.

1.

2.

3.

17d. If no recommendations have been implemented why do you think this is?

17e. Have the recommendations been appropriately implemented?

Yes, most implemented appropriately 1    Yes, some implemented appropriately 2    None implemented appropriately 3

17f. Please explain why up to three of the recommendations have not been implemented appropriately.

18. Assess the impact of the ELS SMP on farm practice. Use information from the plan to compare soil management decision processes before and after entering ELS. Talk to the farmer as required. Indicate whether there has been no change/improvement, some improvement or significant improvement for each of the issues listed below.

	Change since preparing the SMP			
	No change As already good practice for ELS	No Improvement Poor/moderate practice before ELS	Some improvement	Significant improvement
Choice of cropping/enterprises	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Cultivations for seedbed preparation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Time of drilling	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Cross slope drilling/planting if appropriate	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Use of tramlines	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Subsoiling/soil loosening to remove compaction	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Maintenance of field drainage systems	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Establishing buffer strips	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
River bank management	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Improved awareness of diffuse pollution issues	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Other (please specify below)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

# Farm Visit Questionnaire

## Section 2 – On Site Visit:

### *Nutrient Management Plan*



If you do not already have a copy of the nutrient management plan for this farm, ask for this from the farmer.

To answer many of the questions you will need to analyse data for a number of the farm fields – base your answers on at least 10% of the fields (minimum 3 fields).

Do not just repeat what is in the plan, use other farm records and ask the farmer to be sure you can answer the questions accurately for this farm.

Important – Enter ELS Agreement Number:

### Background

- 1a. How many fields does the farm have?
- 1b. How many fields have been entered for the ELS Nutrient Management Plan
2. What are the dominant soil types?
- Light sand 1      Shallow 2      Deep clay 4      Organic 6
- Medium 3      Deep fertile silty 5      Peaty 7
- 3a. Are organic manures used on this farm?      Yes 1      No 2
- 3b. If 'Yes' at Q3a, please specify the types used and their relative proportions?
- 
- 4a. Is the farm/parts of the farm in an NVZ?      Yes 1      No 2
- 4b. If 'Yes' at 4a, is the NVZ Action Programme designation specified, i.e. 1998 or 2002 Action Programme rules?
- Yes, 1998 1      Yes, 2002 2      No, not specified 3

### The Plan

5. In what month and year was the ELS agreement taken out?      Month       Year
6. And in which month and year was the NMP first completed?      Month       Year
7. What harvest year is the plan for?      2006 1      2007 2
8. If the plan was first completed before September 2006, has an updated plan been produced for 2007?      Yes 1      No 2



9a. From a detailed inspection of the plan, associated paperwork and a discussion with the farmer, has the plan been completed by or in association with a FACTS qualified person? Yes 1  
No 2

9b. If 'Yes', was this the farmer or some other person? Farmer 1 Other person 2

10. Are soil analyses (pH, P, K, Mg), that have been conducted within the last 3-5years, available on the farm?  
Yes, for all fields 1 Yes, for most fields 2 Yes, for some fields 3 No, not for any of the fields 4

11. Is there evidence that these soil analyses have been fully taken into account when developing the NMP?  
Yes 1 No 2 Difficult to tell 3

12. Is there evidence that the following information has been used to develop the NMP?

	Yes	No	Difficult to tell
Cropping information	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Organic manure use	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

13. Which fertiliser recommendation system(s) has been used to develop the NMP?  
RB209/PLANET 1 Other recognised system (Please specify below) 3  
Fertiliser suppliers recommendations 2   
No recognised system evident 4

14. Does the NMP plan accurately record the recommendation system used to develop the plan? Yes 1 No 2

15a. Does the NM plan show..... See list below

	15a. Shown on plan		15b. Plan accurate/ appropriate	
	Yes	No	Yes	No
Soil type by field	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Which fields are in NVZs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Current crops by field	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Previous crops by field	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
The market for crops where appropriate e.g. milling or feed wheat	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
The amount of organic manure applied/to be applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
The type of organic manure applied/to be applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
When organic manure is applied/will be applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
When fertilisers have been or are to be applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2

16. How has the nutrient content of organic manures been assessed?

Laboratory analysis 1

Other (Please specify below) 3

Standard figures used (e.g. from RB209, 2  
MANNER or PLANET)

Not assessed 4

17. Has the total amount of fertiliser-equivalent manure nutrients (N, P and K) been calculated?

Yes No

N 1 2

P and K 1 2

18a. Has the calculation for the amount of fertiliser-equivalent manure nutrients (N, P and K) been done correctly?

Yes No

N 1 2

P and K 1 2

18b. If the calculation is not correct, please explain why?

19. Has the fertiliser plan been adjusted according to the nutrient supply from organic manures?  
(Answer for N and P&K) review at least 10% of fields (minimum of 3)

N P & K

Yes, in most fields 1 1

Yes, in some fields 2 2

Not at all 3 3

20a. Has the Soil Nitrogen Supply (SNS) been assessed in each field?

Yes 1 No 2

20b. Which method has been used to assess the Soil Nitrogen Supply?

Field assessment e.g. based on soil type/previous cropping/excess winter rainfall 1

Soil mineral N testing alone (0-90cms depth) 2

Soil mineral N testing + crop N + estimate of mineralisable N 3

Other (Please specify below) 4

No method evident 5

21a. Does the assessment of crop nitrogen requirement appear correct? Yes <sub>1</sub> No <sub>2</sub>

21b. If 'No', please explain why?

22a. Do fertiliser nitrogen planned applications vary for the same crop between different fields? Yes <sub>1</sub> No <sub>2</sub>

22b. If 'No' at Q22a, is this justified? Yes <sub>1</sub> No <sub>2</sub>

22c. If yes at Q22b Please explain why this is justified, for example are the soil type, previous crop, Soil Nitrogen Supply (SNS) or SNS Indices all the same? For grass, is the amount of clover and production level (e.g. low intensity grazing or three cuts of silage) similar in all fields?

23a. Is any phosphate fertiliser planned for any field with soil P Index 3 or above? Yes <sub>1</sub> No <sub>2</sub>

23b. If 'Yes' at 23a, was this justified e.g. potatoes? Yes <sub>1</sub> No <sub>2</sub>

24a. Do phosphate fertiliser applications vary for the same crop between different fields? Yes <sub>1</sub> No <sub>2</sub>

24b. If 'No' at 24a, is this justified? Yes <sub>1</sub> No <sub>2</sub>

24c. If yes at 24b, Please explain why this was justified for example, are the soil P index and manure applications the same for all fields?

## Records/Implementation or Plan

25. Are clear field records of cropping, organic manure and fertiliser application in 2006 available on the farm?

	Cropping	Organic manure	Fertiliser application
Yes, for all fields	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Yes, for most fields	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Yes, for some fields	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Records not clear	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
No records included in the plan	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5

26. How are these records kept and how complete/clear/accurate are they?  
**Assess this using the same 10% of fields**

Type of record	Rating for completeness/clarity/accuracy			
	Good	Reasonable	Poor	Not applicable
Software	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Hard copy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

27. Assess how closely the plan has been implemented?

Very closely in all fields	<input type="checkbox"/> 1	Not very closely in any field	<input type="checkbox"/> 4
Very closely in some fields	<input type="checkbox"/> 2	No assessment possible (plan not yet implemented)	<input type="checkbox"/> 5

28. Explain why variations are evident?

29. If the plan shows the amount and type of manure to be applied, are there records to show this amount and type of manure has been applied? *Please review the NMP and other farm records.*

	Yes, on NMP	Yes, on other farm records	No
Amount applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Type applied	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

30a. Will the organic manure be incorporated?  
*Ask the farmer if not evident from the plan* Yes 1      No 2

30b. If the manure will be incorporated, ask:  
 How long after spreading will it be incorporated?

30c. Is this time period appropriate? Yes 1      No 2

**31a.** Whatever the crop grown have they applied/do they plan to apply more N, P or K than recommended by RB209.  
**Refer to RB209 data.**

	Yes, always	Yes, frequently	Yes, occasionally	No	Difficult to tell
N	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
P	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
K	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**31b.** If more N P or K has been applied than recommended by RB209, what if any justification has been provided or is evident from the plan?

Advice from FACTS qualified person 1

Used a different recommendation system 4  
*(Please specify below)*

Growing milling wheat 2

Evidence to show they require a higher rate of 3  
 Nitrogen *(Please specify below)*

Other *(Please specify below)* 5

No justification/evidence provided 6

**32.** What evidence is there to show the recent calibration and/or maintenance of fertiliser spreaders?

None 1

Farmers word 4

Written within the plan 2

Other *(Please specify below)* 5

Other receipts/paperwork held on the farm 3

**33a** In summary does the fertiliser plan seem appropriate for this farm

Yes 1

No 2

**33b** If no at Q33a, please explain why it is not appropriate

## Impacts of ELS NMP on Farm Practice

34. Assess the impact of the ELS NMP on farm practice. Use information from the 10% of fields to compare nutrient management decision processes and farm fertiliser practice before and after preparing the nutrient management plan. Talk to the farmer as required. Indicate whether there has been no change/improvement, some improvement or significant improvement for each of the issues listed below.

	Change since preparing the NMP			
	No change As already good practice for ELS	No Improvement Poor/moderate practice before ELS	Some improvement	Significant improvement
Use of soil analysis	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Assessment of crop N requirement	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Assessment of crop PK requirement	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Allowance for manure N	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Allowance for manure P and K	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Calculation of fertiliser application plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Accuracy of fertiliser/manure spreading	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Improved awareness of diffuse nutrient pollution issues	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Financial savings	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Better crops and crop outputs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

# Farm Visit Questionnaire

## Section 2 – On Site Visit:

### *Manure Management Plan*



Ask the farmer for the Manure Management Plan and the farm risk map, if you do not already have them.

To answer these questions accurately you will need to review the plan, walk the farm and speak to the farmer to gather evidence.

Important – Enter ELS Agreement Number:

### Background

*Ask the farmer*

- 1a. How many fields does the farm have?
- 1b. How many fields are included in the ELS MMP?
2. What are the dominant soil types?
- Light sand 1      Shallow 2      Deep clay 4      Organic 6
- Medium 3      Deep fertile silty 5      Peaty 7
3. How many animals are there of each type on the farm (in each stocking cycle)?
- |             |                      |              |                      |         |                      |
|-------------|----------------------|--------------|----------------------|---------|----------------------|
| Dairy cows  | <input type="text"/> | Suckler cows | <input type="text"/> | Pigs    | <input type="text"/> |
| Beef cattle | <input type="text"/> | Sheep        | <input type="text"/> | Poultry | <input type="text"/> |

### The Plan

4. In what month and year was the current MMP produced?
- Month  Year
5. How often has the plan been updated?
- 6a. *Ask the farmer*  
Was the ELS MMP the first manure plan produced for the farm?      Yes 1      No 2
- 6b. If 'No' at 6a, in what year was the first MMP produced?      Year
- 7a. Does the farmer appear to have followed the Defra guidance: MMP – A step by step guide for farmers (issued 6/03)?      Yes 1  
No 2
- 7b. If 'No', what other guidance have they used?

8. Is there evidence of a field risk map (that has been prepared as part of this plan)? Yes <sub>1</sub> No <sub>2</sub>
9. Is the map in colour? Yes <sub>1</sub> No <sub>2</sub>
10. Does the map accurately reflect the on farm situation in terms of:  
**To answer these questions refer to maps, walk the farm and check with the farmer as needed, but be sure your answer is backed up by evidence.**

	Yes	No
The presence of watercourses/rivers/ditches/ponds	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>
Field sizes	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>
Field locations and boundaries	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>
Presence and position of boreholes	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>
Presence and position of springs or wells	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>
No spreading strips	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>

11. Have they identified any springs and wells that supply water for farm dairies and/or human consumption (they should include any on neighbouring land within 50m of farm boundary)  
**Check with the farmer if necessary.** Yes <sub>1</sub> No <sub>2</sub>

12. Are the risk categories marked using correct colours?

**Please note all risk categories do not have to be present.**

	Yes	No	Not applicable
Red – no spreading	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
Orange – very high risk	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
Yellow – high risk	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
Green – lower risk	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
White – areas not normally used for spreading	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
All categories have correct colour	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>

- 13a. Are the risk categories included on the map (marked in red, orange, yellow, green and white) accurate for this farm i.e. have the appropriate categories been assigned to the right areas?

**Please review each category carefully, asking for additional evidence from the farmer if needed.**

In most cases <sub>1</sub> In some cases <sub>2</sub> Not at all <sub>3</sub>

- 13b. Please explain which categories are inappropriate and why they are inappropriate?

14. Are any of the following non-spreading areas marked on the map?

- No spreading due to tenancy agreement <sub>1</sub>
- Abatement notice due to smell <sub>2</sub>
- Set-aside land <sub>3</sub>
- Sites of Special Scientific Interest (SSSIs) <sub>4</sub>



- 15a. Is there any evidence to suggest that any of the non-spreading areas detailed above exist, but are not marked on the map? Yes 1  
No 2

15b. If 'Yes', please provide details

16. Do the risk categories take into account.....
- |                                 | Yes                        | No                         | No sensitive receptors     |
|---------------------------------|----------------------------|----------------------------|----------------------------|
| Soil type                       | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |                            |
| Slope                           | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |                            |
| Proximity to sensitive receptor | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 |

- 17a. If the farm has fields in orange risk categories are the 1,2 and 3 markings in orange areas appropriate? **To answer this, review the ordnance survey map, and talk to the farmer. Take into account compaction, flood risk, soils at field capacity, slope, water logging etc.** Yes 1  
No 2

17b. If 'No' at 17a, why aren't they appropriate?

- 18a. **Ask the farmer** Has there been any alteration to drainage, or any recent mole drainage, subsoiling etc. on the farm since the plan was prepared? Yes 1  
No 2

18b. If 'Yes' at 18a, please provide details

- 18c. If 'Yes' at 18a, has the risk status in the MMP been amended accordingly? Yes 1 No 2

19. Is the farm or are parts of the farm in a Nitrate Vulnerable Zone (NVZ)? Yes 1 No 2

20. **Ask the farmer** Do you have sandy or shallow soils on this farm? Yes 1  
**Confirm by looking at a soils map if available and check the RB209 definitions** No 2

21. If the farm is in an NVZ area and has sandy or shallow soils, are these soils marked on the field map with cross hatching? Yes 1  
No 2

22. Have the sandy and shallow soils been accurately identified on the manure management plan?  
In most cases 1 In some cases 2 Not at all 3

23. Do you agree with the figure, which shows the total area for spreading?

- Yes <sub>1</sub>                                  No <sub>2</sub>                                  Not included in the plan <sub>3</sub>
24. Do the overall sizes for each risk category as identified in the plan appear accurate?  
In most cases <sub>1</sub>                                  In some cases <sub>2</sub>                                  Not at all <sub>3</sub>
25. Does the calculation of the area needed to spread farm generated manure seem logical based on your visit and knowledge of the number of livestock?                                  Yes <sub>1</sub>  
No <sub>2</sub>
26. Does the farm import organic manures/wastes onto the farm                                  Yes <sub>1</sub>                                  No <sub>2</sub>
27. Does the plan accurately record whether or not other organic manures/wastes are imported from elsewhere?                                  Yes <sub>1</sub>  
No <sub>2</sub>
28. Does the amount of available land for the spreading of organic manures seem accurate?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
29. Does the storage capacity for slurry appear correct?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
30. Does the storage capacity for dirty water appear correct?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
31. Is the figure for the storage capacity for dirty water based on a best estimate or did the farmer or adviser undertake a definitive calculation? *Ensure you see written proof of the calculation*  
Best estimate <sub>1</sub>                                  Definitive calculation <sub>2</sub>                                  Other <sub>3</sub>
32. Does the yard area and roof area included in the plan appear accurate?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
33. Is a separate map supplied for buildings to illustrate roof and concrete areas?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Unnecessary as already on main plan at an appropriate scale <sub>3</sub>
34. Dairy Farms Only: For dairy farms, does the figure for total amount of parlour washings produced over the 6 winter months appear correct?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
35. All farms: Has the winter volume of dirty water appear to have been calculated using data that seems sensible for the farm?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
- 36a. Did the farmer use accurate rainfall figures to calculate dirty water and slurry volumes?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Difficult to tell <sub>3</sub>
- 36b. If 'Yes' at 36a, what was the source of this information?  
Met office data <sub>1</sub>                                  Local weather station <sub>2</sub>                                  Own rain gauge <sub>3</sub>                                  MANNER <sub>4</sub>
37. Has the minimum area for spreading dirty water in winter been calculated using data that seems sensible for the farm?  
Yes <sub>1</sub>                                  No <sub>2</sub>                                  Information not included in the plan <sub>3</sub>
38. And does the farm have sufficient storage for slurry?

- Yes 1                      No 2                      Information not included in the plan 3
- 39a. Do you agree with the information in the plan, which states whether or not the farm has sufficient storage for slurry?  
 Yes 1                      No 2                      Difficult to tell 3
39. If storage for slurry is insufficient, is this due to:  
 Number of animals 1                      Other (Please specify below) 3  
 Insufficient clean/dirty water separation 2
40. Do you agree with the information in the plan, which states whether or not the farm has sufficient storage for dirty water?  
 Yes 1                      No 2                      Information not included in the plan 3
41. Is the farmer applying manure in line with the risk categories identified for the farm?  
 In most cases 1                      In some cases 2                      Not at all 3                      Impossible to tell 4
- 42a. Has the farmer taken on extra land since the plan was first prepared?                      Yes 1                      No 2
- 42b. If yes at Q42a, has the plan been updated since the land was taken on?                      Yes 1                      No 2
- 43a. Has slurry or dirty water production increased since the plan was first prepared?                      Yes 1                      No 2
- 43b. If yes at Q43a, has the storage assessment been updated since the slurry or dirty water production increased?                      Yes 1                      No 2

## The Impact of the ELS MMP on Farm Practice

44. Assess the impact of the ELS MMP on farm practice, by indicating whether there has been no change/improvement, some improvement or significant improvement for each of the issues listed below since preparing the plan. Use evidence from the plan, other farm records and discussions with the farmer to help you accurately answer this section.

	Change since preparing the MMP			
	No change As already good practice for ELS	No Improvement Poor/moderate practice before ELS	Some improvement	Significant improvement
Spreading manure on very high risk areas in winter	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Slurry storage capacity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Dirty water storage capacity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Number of fields spread each year	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Manure field application rates	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Slurry field application rates	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Dirty water field application rates	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Manure spread or stored within 10m of a water course	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

# Farm Visit Questionnaire

## Section 2 – On Site Visit:

### *Crop Protection Management Plan*



If you do not already have a copy of the Crop Protection Management plan for this farm, ask for this and a map of the farm, from the farmer.

Answer this questionnaire by reviewing the plan, touring the farm and asking the farmer for information/evidence where necessary. Where evidence is not contained within the plan you need to identify if this exists elsewhere on the farm.

Important – Enter ELS Agreement Number:

### Background

1. What crops are grown on the farm?

2. What is the typical rotation?

3. What are the dominant soil types?

Light sand 1

Shallow 2

Deep clay 4

Organic 6

Medium 3

Deep fertile silty 5

Peaty 7

### The Plan

4a. In what month and year was the Crop Protection Management Plan (CPMP) produced?

Month

Year

4b. Is the plan specific to this farm?

Yes 1

No 2

4c. Has the plan been updated since it was produced?

Yes 1

No 2

5a. Is a map of the farm available?

Yes 1

No 2

5b. Are all the surface waters marked on the map?

Yes 1

No 2

6a. What harvest year is the plan for?

2006 1

2007 2

6b. Does the plan contain crop management information for the current year and/or the previous year?

Current year only 1

Previous year only 2

Both current year and previous year 3

7. Which recognised scheme was used to prepare the plan?  
 Voluntary Initiative CPMP 1 Other scheme (Please specify below) 4  
 LEAF (Linking Environment and Farming) 2   
 EMA (Environmental Management for Agriculture) audit 3 No evidence of a recognised scheme 5
- 8a. From detailed inspection of the plan, associated paper work and a discussion with the farmer/land manager, has the plan been completed by or in association with a BASIS qualified person? Yes 1  
 No 2
- 8b. If 'Yes' at 8a, was this the farmer/land manager or some other qualified person?  
 Farmer/land manager 1 Other (Please specify) 2

### Management Decisions

9. Which of the following cultural control methods are used on the farm to reduce reliance on pesticides?  
 (Tick all that apply)
- Crop rotation includes break crops/set-a-side 1  
 Crop varieties selected for disease resistance 2  
 Field margins/buffer strips/banks used to encourage beneficial species 3  
 Full ICM (Integrated crop management) employed 4  
 Other (Please specify below) 5
- 
- None that can be detected 6
10. How are pesticide selection/use decisions made? (Tick all that apply)
- Frequent crop inspections to determine appropriate timing/treatment 1  
 BASIS qualified agronomist recommends timing/treatment of applications 2  
 Knowledge of resistance issues on the farm 3  
 Pesticides are selected with regard for there environmental impact/impact on non-target species 4  
 Environmental information Sheets (EIS) are used where available 5  
 Other (Please specify below) 6
- 
- None of the above can be detected 7
11. Does the farmer carry out his own spraying or use a contractor? Own 1 Contractor 2

## Equipment and Application

12. How if at all does the farm pesticide store comply with current regulations? (*Tick all that apply*)

Store is built to Basis standards 1

Store is locked, bunded and is frost proof 2

There is no evidence of safe storage facilities 3

### Training of Spray Operators (including contractors)

13a. Have all spray operators been properly trained in the application of pesticides?

Yes 1 No 2 No evidence 3

13b. Do all operators hold the relevant NPTC certificate (unless derogations apply)

Yes 1 No 2 No evidence 3 Derogations apply 4

13c. Are all operators registered with National Register of Sprayer operators (NRoSO) to ensure continuing professional development?

Yes 1 No 2 No evidence 3

### Maintaining/Using Spray Equipment

14a. Is application equipment calibrated/serviced regularly?

Yes 1 No 2 No evidence 3

14b. Is application equipment tested annually at a test centre operating under the National Sprayer Testing Scheme (NSTS)?

Yes 1 No 2 No evidence 3

14c. Are low drift nozzles used whenever possible?

Yes 1 No 2 No evidence 3

14d. Are sprayers kept under cover when not in use?

Yes 1 No 2 No evidence 3

### Spray Application

15a. Are climatic conditions considered before spraying (windspeed rainfall, soil conditions)?

Yes 1 No 2 No evidence 3

15b. Is there evidence that label restrictions (for example compulsory buffer zones) are complied with?

Yes 1 No 2 No evidence 3

15c. Has a LERAP been completed (if allowed by label)?

Yes 1 No 2 No evidence 3 No allowed by label 4

### After Spraying

16a. Is the sprayer washed out before leaving the field?

Yes 1 No 2 No evidence 3

16b. If 'No' at 16a, are the washings disposed of at a Ground Water authorised site?

Yes 1

No 2

No evidence 3

16c. If 'No' at 16b, is washdown carried out on a suitable area where washings are contained for treatment/disposal?  
(Tick all that apply)

Liquid waste and washings collected by specialist waste contractor 1

Liquid waste and washings treated in a Sentinel 2

Liquid waste and washings treated on a Biobed 3

Other (Please specify below) 4

17. How are spent containers dealt with? (tick all that apply)

Recycled using a recognised collection scheme 1

Collected by a specialised waste contractor 4

Returned to supplier for re-filling 2

Other (Please specify below) 5

Sent for disposal at an approved site 3

Difficult to tell 6

18. Are full records of farm pesticide application and storage maintained?

Yes 1

No 2

## Implementation of Plan

19a. Are there records available that provide evidence/justification for a particular course of action. For example crop variety or pesticide selection? Operator training and CPD, equipment testing? LERAP assessments?

Yes 1

No 2

19b. If yes at Q19a, provide up to 3 examples of situations where records have been kept to provide evidence/justification for actions.

1

2

3

20. If yes at Q19a, how is this information recorded (i.e. on software or hard copy) and how complete/clear/accurate are the records?

Rating for completeness/clarity/accuracy

Type of record

Good

Reasonable

Poor

Not applicable

Software

1

2

3

4

Hard copy

1

2

3

4

## The Impact of ELS Crop Protection Management Plan on Farm Practice

21. Assess the impact of the ELS CPMP on farm practice, by indicating whether there has been no change/improvement, some improvement or significant improvement for each of the issues list below. Use evidence from the plan, other farm records and discussions with the farmer to help you accurately answer this section.

	Change since preparing a CPMP			
	No change As already good practice for ELS	No Improvement Poor/moderate practice before ELS	Some improvement	Significant improvement
Use of BASIS qualified advice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Cropping - awareness of resistance issues	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Crop rotation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Crop variety selection	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Cropping - non-chemical control options	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Crop inspections to determine appropriate timing treatment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Consideration for potential environment impact from using pesticides	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Greater understanding of Diffuse water pollution form agriculture (DWPA)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Pesticide storage	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Competence of sprayer operator (NPTC qualified)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
CPD of sprayer operator (NRoSO member)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Equipment testing/calibration? e.g NSTS	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
An understanding of point and diffuse pollution	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Pesticide mixing handling area/facilities	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Use of low drift technology	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Soil and climatic condition considered before spraying	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
In field washing	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Management/disposal of pesticide waste and washings	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Management/disposal of empty pesticide containers and packaging	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4



## **Appendix 3: Farmer Survey**

# Farm Visit Questionnaire

## Section 1 – Farmer Survey



- Please complete this section in the farm house/office away from distractions. It is likely to take about an hour to complete, depending on the number of management plans prepared for this farm.
- Please tape record your conversation to ensure you don't miss any important points. Go through the tape when you have left the farm and add in any sentences/points that you have missed.
- Where the question has tick boxes, simply tick the box next to the appropriate response.
- Where you are asked to write the answer in the space provided, please write your answer as fully as possible using the farmer's words. Please do not summarise or add your own interpretation to the answers. Please ask the farmer to expand on his answer to ensure you get a good understanding of the reasoning behind his reply.

Important – Enter ELS Agreement Number:

1. Which of the following best describes your farm type: *READ OUT THE POSSIBLE ANSWERS*

Cereals 1

Dairy 5

General cropping 2

Cattle and sheep 6

Horticulture 3

Cattle and sheep (low ground) 7

Pigs and poultry 4

Mixed 8

Other (*Please specify below*) 9

2. What are the main environmental issues you face on this farm, for example insufficient manure or dirty water storage, problem soil types etc.?

***Use this information as needed to help assess the management plans.***

3. First of all can you briefly tell me your overall thoughts on the management plans for ELS, indicating what is good and not so good about them?  
**THIS IS INTENDED TO BE A GENERAL QUESTION ABOUT ALL PLANS, BUT WHERE COMMENTS ARE MADE ABOUT A SPECIFIC PLAN PLEASE RECORD THE ANSWERS IN THE RELEVANT BOX BELOW.**

Information relevant to all plans
Soil MP
Nutrient MP
Manure MP
Crop Protection MP

4. Which management plans have you produced or do you intend to produce as part of your ELS agreement?

**READ OUT THE PLAN TYPES**

	Produced	Intend to produce
Soil management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Nutrient management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Manure management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Crop protection management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2

**FOR EACH OF THE FOLLOWING QUESTIONS YOU WILL NEED TO ASK THE FARMER ABOUT EACH PLAN THAT HAS BEEN PRODUCED FOR HIS FARM**

**RECORD ANSWERS FOR ONE PLAN AT A TIME**

**READ OUT** I will now ask you some questions about each of the plans you produced for this farm.

**5a.** Did you receive any help or advice from an advisor, agronomist or agent when completing the plan?

**ASK OF EACH PLAN THE FARMER HAS ALREADY PRODUCED – REFER TO QUESTION 4**

	Soil	Nutrient	Manure	Crop
--	------	----------	--------	------

Yes	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
No	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

**IF THE FARMER DID NOT RECEIVE HELP FOR ANY OF THE PLANS HE HAS PRODUCED SKIP TO QUESTION 6 (I.E. NO, ON ALL RELEVANT PLANS AT Q5a)**

**5b.** Ask this question for plans where an agent/advisor/agronomist was used – refer to Q5a

Did the agent/advisor/agronomist provide advice to help you prepare the plan or did they complete it for you?

	Soil	Nutrient	Manure	Crop
Agent/advisor/agronomist gave advice to help <u>the farmer</u> prepare the plan	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Agent/advisor/agronomist completed the plan	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

**5c.** Ask this question for plans where an agent/advisor/agronomist was used – refer to Q5a

Approximately how much did it cost for someone to complete the plan or help you prepare the plan?

Soil MP	£	Manure MP	£
Nutrient MP	£	Crop protection MP	£

**5d.** Ask this question for plans where an agent/advisor/agronomist was used – refer to Q5a

How aware are you of the information that was put in the plan(s) by the advisor, particularly in terms of the actions you need to carry out on farm?

**READ OUT THE POSSIBLE ANSWERS FOR EACH PLAN**

**RECORD ANSWERS FOR ONE PLAN AT A TIME**

	Soil	Nutrient	Manure	Crop
Very aware	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly aware	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Not very aware	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Not at all aware	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4

5e. Ask this question for plans where an agent/advisor/agronomist was used – refer to Q5a

How easy or difficult was it to get someone to help you prepare the plan or complete the plan for you?

**READ OUT POSSIBLE ANSWERS FOR EACH PLAN**

**RECORD ANSWERS FOR ONE PLAN AT A TIME**

	Soil	Nutrient	Manure	Crop
Very easy	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly easy	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Just ok	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Fairly difficult	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Very difficult	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5

6. **ASK QUESTION 7 OF ALL PLANS THAT HAVE ALREADY BEEN PREPARED FOR THIS FARM – REFER TO Q4**

Apart from a consultant or advisor, what other help or information did you use to prepare the plan?

**READ OUT POSSIBLE ANSWERS FOR EACH PLAN**

**RECORD ANSWERS FOR ONE PLAN AT A TIME**

	Soil	Nutrient	Manure	Crop
Attended an ELS event	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
ELS handbook	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Sources of help and information mentioned in the ELS handbook	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3

**Read out for Soil Management plans only**

	Soil	Nutrient	Manure	Crop
The Defra field guide for erosion risk assessment	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
The Defra advisory booklet for management of agricultural land	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
The Defra manual for the assessment and management of agricultural land at risk from water erosion in lowland England	<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
Defra advisory leaflets on preventing erosion	<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7
Example soil management plans and templates	<input type="checkbox"/> 8	<input type="checkbox"/> 8	<input type="checkbox"/> 8	<input type="checkbox"/> 8
Environment Agency Best Farming Practices handbook	<input type="checkbox"/> 9	<input type="checkbox"/> 9	<input type="checkbox"/> 9	<input type="checkbox"/> 9
National Soil Resources Institute Guide to Better Soil Structure	<input type="checkbox"/> 10	<input type="checkbox"/> 10	<input type="checkbox"/> 10	<input type="checkbox"/> 10
Soil Management Initiative Guide to Managing Crop Establishment	<input type="checkbox"/> 11	<input type="checkbox"/> 11	<input type="checkbox"/> 11	<input type="checkbox"/> 11

	Soil	Nutrient	Manure	Crop
<b><i>Read out for Nutrient plans only</i></b>				
PLANET	<input type="checkbox"/> 12	<input type="checkbox"/> 12	<input type="checkbox"/> 12	<input type="checkbox"/> 12
MANNER	<input type="checkbox"/> 13	<input type="checkbox"/> 13	<input type="checkbox"/> 13	<input type="checkbox"/> 13
<i>Read out for Manure plans only</i>				
Defra handbook Managing Manures on Organic Farms	<input type="checkbox"/> 14	<input type="checkbox"/> 14	<input type="checkbox"/> 14	<input type="checkbox"/> 14
Defra advice on manure management in the “Step by step guide for farmers”	<input type="checkbox"/> 15	<input type="checkbox"/> 15	<input type="checkbox"/> 15	<input type="checkbox"/> 15
Defra advice on manure management in the Water Code	<input type="checkbox"/> 16	<input type="checkbox"/> 16	<input type="checkbox"/> 16	<input type="checkbox"/> 16
<i>Read out for Crop plans only</i>				
Guidance under the Voluntary Initiative relevant to the crop protection management plan	<input type="checkbox"/> 17	<input type="checkbox"/> 17	<input type="checkbox"/> 17	<input type="checkbox"/> 17
All plans	<input type="checkbox"/> 18	<input type="checkbox"/> 18	<input type="checkbox"/> 18	<input type="checkbox"/> 18
Any other sources ( <i>Please specify below</i> )				

7. How useful was the information that you used? *Ask of all forms of information used, irrespective of the plan type*

**READ OUT EACH OF THE INFORMATION SOURCES  
TICKED AT QUESTION 6, FOLLOWED BY THE POSSIBLE  
ANSWERS**

	Very useful	Fairly useful	Not very useful	Not at all useful
Attended an ELS event	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
ELS handbook	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Sources of help and information mentioned in the ELS handbook	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The Defra field guide for erosion risk assessment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The Defra advisory booklet for management of agricultural land	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The Defra manual for the assessment and management of agricultural land at risk from water erosion in lowland England	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Defra advisory leaflets on preventing erosion	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Example soil management plans and templates	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Environment Agency Best Farming Practices handbook	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
National Soil Resources Institute Guide to Better Soil Structure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Soil Management Initiative Guide to Managing Crop Establishment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
PLANET	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
MANNER	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Defra handbook Managing Manures on Organic Farms	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Defra advice on manure management in the "Step by step guide for farmers"	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Defra advice on manure management in the Water Code	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Guidance under the Voluntary Initiative relevant to the crop protection management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Other ( <i>Please specify below</i> )	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

8. What is your opinion of the amount and type of help available to prepare the plans?

**READ OUT POSSIBLE ANSWERS FOR EACH PLAN  
THAT HAS BEEN PREPARED FOR THIS FARM  
RECORD ANSWERS FOR ONE PLAN AT A TIME**

	Soil	Nutrient	Manure	Crop
Very good	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly good	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Not very good	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Not good at all	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4

9. For each plan, what additional or different help would you have preferred? **RECORD ANSWERS NEXT TO THE RELEVANT PLAN. WHERE NECESSARY READ OUT PLANS ALREADY PRODUCED ON THE FARM**

Soil
Nutrient
Manure
Crop
Help relevant to all plans



10. Overall how easy or difficult did you find it to prepare the plans?

**READ OUT POSSIBLE ANSWERS FOR ONE PLAN  
AT A TIME  
ONLY ASK FOR PLANS ALREADY PRODUCED FOR  
THIS FARM**

	Soil	Nutrient	Manure	Crop
Very easy	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly easy	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Just ok	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Fairly difficult	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Very difficult	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5

11. What aspects of the plans did you find more difficult and why did you find them difficult? By difficult I mean hard to understand, hard to complete or difficult to link with your farm.

**Probe fully to ensure you understand the reasons for the difficulty**

**RECORD ANSWERS NEXT TO THE RIGHT PLAN**

**ONLY ASK FOR PLANS PRODUCED ON THIS FARM**

Soil

Nutrient

Manure

Crop

12. Over what time period did you prepare the plan? For example, did you get it all prepared within a week or did it take 3 months from start to finish? ASK OF PLANS PREPARED FOR THIS FARM

Soil
Nutrient
Manure
Crop

13. Approximately how many hours or days did you spend preparing the plan, that is hours or days spent gathering information or putting information into the plan? ASK OF PLANS PREPARED FOR THIS FARM

Soil
Nutrient
Manure
Crop

14. Thinking about your answers to the 2 previous questions, do you consider the time it took to prepare the plan far too long, a little too long, or about right? ASK OF PLANS PREPARED FOR THIS FARM

**ASK OF ONE PLAN AT A TIME**

	Soil	Nutrient	Manure	Crop
Far too long	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
A little too long	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
About right	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3

15. How easy or difficult did you find it to complete the plan within 1 year of setting up your agreement?

	Soil	Nutrient	Manure	Crop
Very easy	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly easy	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Just ok	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Fairly difficult	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Very difficult	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5

16. What would have made it easier for you to prepare each of the plans? Probe Fully

Soil

Nutrient

Manure

Crop

17. Has there been or is there likely to be any change in your practices as a result of preparing the plan?

	Soil	Nutrient	Manure	Crop
Yes	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
No	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

18. How will or how have your farm practices changed as a result of the plan?  
Probe fully for possible changes, such as frequency of soil testing, best use of manures or fertilisers

**ASK OF PLANS WHERE CHANGES HAVE HAPPENED OR ARE LIKELY TO HAPPEN AT Q17**

Soil
Nutrient
Manure
Crop

19. Have any of these changes made a positive environmental difference on your farm for example to the level of run-off or soil erosion. ASK OF PLANS PREPARED FOR THIS FARM

	Soil	Nutrient	Manure	Crop	Don't know
Yes	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
No	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

20. If yes at Q19: Please explain what positive environmental differences have occurred?

**ASK OF PLANS WHERE A POSITIVE DIFFERENCE HAS BEEN NOTICED – REFER TO Q19**

Soil
Nutrient

Manure

Crop

**21. ASK OF PLANS WHERE NO CHANGES TO FARM PRACTICES HAVE HAPPENED/CHANGES ARE UNLIKELY TO HAPPEN – REFER BACK TO Q17**

Why do you feel the plan has not influenced you to make changes in your farm practices?

Soil

Nutrient

Manure

Crop

**22. How, if at all, could ELS management plans be improved to ensure they encourage the protection of soils and a reduction in diffuse or point source pollution from farms? ASK OF ALL PLANS PRODUCED FOR THIS FARM**

Soil

Nutrient

Manure

Crop

23. How worthwhile has preparing the plan(s) been for you?

**READ OUT POSSIBLE ANSWERS FOR ONE PLAN AT A TIME**

Soil

Nutrient

Manure

Crop

**ASK OF ALL PLANS PRODUCED FOR THIS FARM**

Very worthwhile	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Fairly worthwhile	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Not very worthwhile	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Not worthwhile at all	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4

**READ OUT** I would now like you to think about your motivations for preparing the plans

24. Was the plan produced specifically for ELS or was it developed as part of another scheme?

	Soil	Nutrient	Manure	Crop
Just for ELS	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Voluntary initiative	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
LEAF audit	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Farm assurance scheme	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
EMA (environmental management for agriculture) audit	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Other ( <i>Please specify below</i> )	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5

Soil:

Nutrient:

Manure:

Crop:

25. What would you say was your main reason for preparing the plan?  
**ASK OF ALL PLANS PRODUCED FOR THIS FARM**

Soil
Nutrient
Manure
Crop

26. For each of the plans, how would you rank the following 5 issues in terms of their influence on your decision to produce the plan? A ranking of 1 suggests it is the most important and 5 is the least important.

**ANSWER FOR EACH OF THE PLANS PREPARED FOR THIS FARM**

**READ OUT THE ANSWERS, AND ALSO SHOW THE FARMER THE ANSWER GRID BELOW**

**FOR EACH PLAN WRITE IN THE NUMBER 1, 2, 3, 4 OR 5 FOR EACH OF THE ANSWERS, 1 BEING THE MOST IMPORTANT, 5 THE LEAST IMPORTANT**

	Soil	Nutrient	Manure	Crop
To gain points for ELS				
Improve yields				
Save money				
To reduce the impact of farming on the environment i.e. reduce diffuse pollution				
Increase profits				

- 27a. Have you made any cost savings as a result of applying the plan?

	Soil	Nutrient	Manure	Crop
Yes	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
No	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

27b. If costs saved:

Where or how have you been able to save money?

**ASK OF PLANS WHERE COSTS SAVINGS HAVE BEEN MADE AT Q27a**

Soil
Nutrient
Manure
Crop

27c. How much money have you saved over a year?

Soil	£
Nutrient	£
Manure	£
Crop	£

28a. Have you incurred any costs as a result of preparing the plan, other than to pay someone to help prepare it?

	Soil	Nutrient	Manure	Crop
Yes	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
No	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2

28b. What type of costs have you incurred other than paying an advisor to prepare the plan?

**ASK OF PLANS WHERE COSTS HAVE BEEN INCURRED AT Q28a**

Soil
Nutrient
Manure
Crop

28c. What is your estimate of the level of cost incurred? *Probe for each type of cost*

Soil	£
Nutrient	£
Manure	£
Crop	£



29. How much do you agree or disagree with the following statements about your management plans?

**READ OUT THE AGREE/DISAGREE SCALE AND EACH STATEMENT ONE AT A TIME**

**SHOW THE FARMER THE ANSWERS AND THE SCALE TO HELP AS NEEDED**

	Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
Its just something I have to do to get points for ELS	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The plans have increased my understanding of diffuse pollution and the environmental impacts of farming	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Since preparing the plans I haven't really paid much attention to them	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The plans have encouraged me to think more about the impact of my farming practices on the environment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The plans are a good way of ensuring the farmer can secure additional financial benefits	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
They are an ongoing management tool, to be regularly referred back to and/or updated	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The plans have encouraged me to take steps to reduce pollution from agriculture	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The time and cost needed to prepare the plan is greater than the potential benefit to my farm or the environment	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
The plans are unlikely to help reduce diffuse pollution from agriculture	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

30. Defra have included these management plan options in Environmental Stewardship in order to help reduce diffuse pollution from agriculture (including nutrients and pesticides) and to increase resource protection (including soils).

How would you describe your understanding of...**READ OUT EACH STATEMENT TOGETHER WITH THE POSSIBLE ANSWERS**

	Very good	Fairly good	Not very good	Poor
Diffuse pollution	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Resource protection	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The nutrient value of manures	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The importance of good soil structure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The conservation value of farmland habitats	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

**Thank Farmer and now go to Section 2**

## **Appendix 4: Advisor Consultation**

## Evaluation of Management Plan Options in Environmental Stewardship

### Topic guide - Advisers

This document is a guide to the topics that should be raised during the interviews with advisers. It is intended as an aid for the researcher, and as a result the researcher may not necessarily ask all these questions or follow them in order. Some of the questions will be more relevant to certain advisers than others. The guide will be used to check that all relevant issues have been covered.

#### 1. Introduction

##### 1.1. Brief outline of project –

- ADAS has been commissioned by Natural England to undertake a study to evaluate the value and effectiveness of Management Plan Options within Environmental Stewardship.
- It will be important to get your views to assist with an assessment of the value provided by the plans and to identify any refinements that may be needed to improve future delivery of ES and other initiatives addressing diffuse pollution issues.

##### 1.2. I would like to talk to you about:

- Your role as an adviser
- The process for producing the plans
- Farmer motivations
- Your view of the likely effectiveness of the plans, particularly of any specific outcomes

##### 1.3. Interviewer to reassure advisor: “Your comments will not be linked to your name and the information obtained in the interviews will be aggregated within the survey report. Also we will be talking to a cross section of advisors over the country to get a range of views.”

If not too sensitive let him know where we got his name.

##### 1.4. Introductions, describing the following:

1. Name
2. job title
3. organisation
4. are they FACTS or BASIS qualified
5. brief experience and role

## 2. **Role of adviser**

Firstly can you tell me which types of plan you have helped prepare: (If none close interview)

- Soil
- Nutrient
- Manure
- Crop protection

1.5. How many plans have you prepared?

1.6. Please describe your role in preparing any of the plans, did you help with a plan or complete it for the farmer?

1.7. How much did the farmer get involved (explore the farmers' role)?

## 3. **The process for producing the plans**

1.8. Overall how easy or difficult did you find it to prepare the plans?

- Why is that?
- How does this vary by plan type?

1.9. What help (i.e. guidance?) or information did you use to prepare the plan?

1.10. How useful was the help or information that you used?

- Why is that?

1.11. What is your opinion of the amount and type and accessibility e.g as directed to particular web pages, of help available to advisers to prepare the plans?

1.12. What additional or different help would you have preferred?

1.13. How long does it take you to prepare each plan?

1.14. Does this vary by plan?

- If so how and why?

1.15. What do you think about the time it takes to prepare a plan? Too long, about right?

1.16. What would have made it easier for you to prepare each of the plans?

1.17. What would you do differently in the future?

1.18. What changes to the process would help you? –Probe type of information needed in the plan, guidance available, provision of templates

1.19. What do you think the role of the farmer and advisor should be in preparing the plans and why?

1.20. Did you use any other previous plans or others such as the SPR or information recorded under assurance schemes as basis for production of any ELS plans

**4. Farmers motivations with regards to having the plans developed**

- 1.21. How feasible is it to prepare a plan within 1 year of setting up an agreement?
- 1.22. What would you say are the farmers' main reasons for preparing a management plan?
- 1.23. How would you rate the relative importance of the following on the farmers' decision to produce the plans? (Number in order of importance)
- gaining points for ELS
  - improving yields
  - saving money hence increasing profits
  - reducing the potential to cause pollution
- 1.24. What cost savings, if any, do you think farmers make as a result of applying the plans? (Probe for value and type of saving)
- 1.25. What costs if any do they incur as a result of applying the plans, other than the cost for you to prepare it? (probe for value and type of cost)
- 1.26. Would you give me an indication of the amount charged and how this varies?
- by plan type
  - level of involvement
  - farm type and size
  - other

**5. Advisers view of the likely effectiveness of the plans in achieving NE/Defra objectives**

- 1.27. In your opinion how well do you think the plans help farmers identify farm practices that may have an adverse impact on the environment?
- Why is that? (Probe for examples)
- 1.28. And in your opinion to what extent do the plans produce appropriate recommendations and actions that will address potential adverse agricultural impacts? (Explore answers, probe for reasoning and examples) (Do most of plans highlight most of the recommendations?)
- 1.29. In your opinion how well does completion of the plans help in the selection and targeting of HLS options?
- 1.30. How do you think the farmer uses the plans – are they reviewed or updated or ignored once prepared?
- 1.31. Are you aware that the plans need to be updated annually?
- 1.32. Have you asked the farmer to update the plans annually?
- 1.33. To what extent do you think recommendations in the plans are actually carried out on farm? For example are most recommendations carried out on most farms?

- 1.34. How aware do you feel are farmers of the information that was put in the plan(s) by you?
- Particularly in terms of the actions farmers need to carry out on farm?
- 1.35. What proportion of the farms with management plans that you are aware of, have made an improvement in farm practices that will make a positive environmental difference, for example minimising the risk of slurry entering watercourses or to the level of run-off or soil erosion?
- 1.36. How will or how have farm practices changed as a result of the plan? Probe for specific examples
- 1.37. If applicable ask: Why do you think there has been no or little change in practices on some farms, where the plans have been produced?
- 1.38. Overall how worthwhile do you think the management plans are to:
- the farmer and
  - the environment
- 1.39. How, if at all, could ES management plans be improved to ensure they encourage the protection of soils and a reduction in diffuse or point source pollution from farms?
6. Other than those discussed, what if any additional benefits do the plans offer?
7. What drawbacks, if any, do you think there are to the farmer of having or preparing a management plan?
8. Any other comments?

**END OF INTERVIEW**

**THANK THE ADVISER AND CLOSE**

## **Appendix 5: Extract from Farmers Voice Questionnaire**

**Section 10 - ELS and HLS**

**27** Are you currently in ELS and/or HLS?      ELS      HLS  
 Yes  1    No  2      Yes  1    No  2

**28** Which management plans have you prepared or do you plan to prepare as part of your ELS or HLS agreement?

	Have prepared	Plan to prepare
Soil management plan	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Nutrient management plan	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Manure management plan	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Crop protection management plan	<input type="checkbox"/> 4	<input type="checkbox"/> 4

**29** Defra have included these management plan options in Environmental Stewardship in order to help reduce diffuse pollution from agriculture (including nutrients and pesticides) and to increase awareness of resource protection issues (including soils). How would you describe your understanding of....

	Very good	Fairly good	Not very good	Poor
Diffuse pollution	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Resource protection	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The nutrient value of manures	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The importance of good soil structure	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
The conservation value of farmland habitats	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4