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# Identifying baseline standards in agriculture

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# Identifying baseline standards in agriculture

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# Executive summary

1. This report covers a two-phase study by the Institute for European Environmental Policy (IEEP) for English Nature on 'Identifying Baseline Standards in Agriculture'. The study aimed to identify and recommend a set of basic standards for sustainable agriculture which would meet key environmental concerns in a UK context and could be promoted as a set of standards for all farms to adopt.

2. The study included the following stages:

Phase 1 - analysis of current standards and identification of gaps and weaknesses

- compilation of an inventory and comment upon current environmental standards applying on farms in England;
- a consideration of key environmental issues which UK farming standards would need to address;
- a discussion of farm-level standards, in the context of key environmental concerns, in other EU Member States;
- a summary of gaps and weaknesses in environmental standards for UK farming.

Phase 2 - consideration of potential actions and new measures for raising standards

- brief consideration of alternative models - standards as applied in other sectors;
- criteria for assessing new actions and measures to raise standards;
- a recommended package of measures to promote a broad baseline standard on all farms.

3. There is currently a growing interest in basic environmental standards for agriculture. This reflects a variety of factors, including continued concern about environmental pressures from agricultural practices, adverse trends in farmland biodiversity and a broader trend towards the establishment of environmental standards for a range of different economic activities. The Agenda 2000 reform of the CAP has also given new impetus to the debate on standards, in both the common rules Regulation 1259/1999 and the rural development Regulation, 1257/1999. These moves reflect a growing interest across Europe to ensure that all farmers in receipt of public funds should meet certain minimum environmental requirements.

4. However, the study is being carried out at a time when farming incomes in the UK are under severe pressure and the government has taken a number of steps designed to ease the burdens on the industry from a variety of sources, including regulation. It is important for this study to be sensitive to the current climate, presenting recommendations in a constructive and practical manner and emphasising those

initiatives which may offer some benefit to the farm sector as well as to the wider public.

5. This report therefore aims to outline the required ingredients and approach to establish a new 'environmental standard' for farming in England using a variety of policy and voluntary measures. This standard could serve to underpin the desire of the industry to be recognised as environmentally responsible, as well as providing assurance to the public, as both consumers and taxpayers, that basic environmental concerns are being addressed in day-to-day farming activities.

## Current standards in England

6. 'Standards' are generally thought of as meaning certain levels of performance which can be set as aspirational targets or as basic requirements for a sector. In the context of this study, the focus is clearly on the latter, baseline standards which can set a 'reference level' of environmental management performance to be sought from all farmers in England.

7. It is also important for this study to embrace 'standards' in their broadest sense, ie the necessary steps to ensure a basic level of responsible practice on farms, rather than just environmental 'standards' narrowly defined as quantified thresholds or limits in regulations. These latter have been an important starting point for scoping the study, but the analysis has been extended to cover a range of mechanisms and initiatives which together result in the attainment of environmental standards on farms.

8. A mix of regulatory and policy standards, with a direct or indirect impact upon agriculture, exist for water, soils, air, biodiversity, landscape and cultural heritage. In addition, some further 'standards' exist in the form of cross-compliance conditions on direct payments to farmers under the CAP and, increasingly, other standards are expressed in voluntary initiatives including farm quality assurance protocols operated by producers and/or processors and retailers. Among this mix of measures, some are compulsory while others are advisory or voluntary, and their effectiveness in establishing or maintaining standards on farms varies considerably between the measures. In future, it seems likely that voluntary standards will be a growth area for the industry, and although their primary focus will be on food safety and animal welfare, the environment may also be covered.

## Environmental Concerns Relating to Agricultural Standards

9. To identify critical issues for baseline environmental standards in England, a questionnaire was circulated to selected English Nature local teams and discussions were held with national experts with particular experience of agriculture's impacts. The common issues identified, where farming practices are felt to fall most short of achieving basic standards to date, are:

- *inappropriate arable cropping* on former pasture or semi-natural habitat land, on sensitive soils or near valuable water-bodies (often SSSIs);

- *inappropriate grazing management* of valuable semi-natural areas – overgrazing by sheep on upland sites, and the decline of extensive cattle grazing on lowland sites;

- *inappropriate management and decline of field boundary and other farmland features*, including ditches (mechanised cleaning), hedges and trees, and arable field margins;

- *water management issues* relating to field drainage, loss and decline of wet grasslands and other wet sites, lowering of water tables which threatens isolated wetland areas;

- *diffuse pollution* by agrochemicals (particularly pesticides) and fertilisers (notably farm wastes, nitrates and phosphates) of rivers, semi-natural features, wetlands, coastal habitats, etc.

10. These concerns are mirrored by those expressed by other expert bodies both in the UK (eg Environment Agency, 2000, Land Use Policy Group, 1999) and across Europe (EEA, 1998, FNCP, 1999). Some arise partly because there are currently no environmental standards to cover a particular issue; for example, phosphate leaching from farmland which contributes to eutrophication.

    Others are likely to be the result of poor awareness or insufficient incentive to implement existing standards, particularly where these are expressed mainly in written guidance rather than through regulations, or where regulations are not widely promoted or effectively policed and enforced.

11. Considering gaps and weaknesses in more detail, the following points emerge.

- Many regulatory or public policy standards are not primarily concerned with environmental impacts, but rather with impacts upon human health. This is particularly true of many of the measures affecting basic resource protection and some of those for pesticides. If they were adjusted specifically to address environmental damage or risk of damage, some of the standards would need to be considerably tightened.

- The main gaps in relation to resource protection issues include eutrophication of water (fresh and marine) from phosphates and soil erosion, and the indirect effects of pesticides upon food chains.

- While existing regulatory standards for land use, landscape and biodiversity are more particularly about protecting environmental qualities than those for basic resources, they are mainly focused upon special sites and features, rather than the wider countryside.

- Few existing standards relate to basic issues of land cover (eg temporary vs permanent cover types, grassland vs arable use, spring vs winter cropping), which can be a very important determinant of its environmental value.

- Many of the direct farm standards to prevent pollution (eg for building design or waste storage requirements) address significant 'point source' issues, rather than cumulative pollution from diffuse sources. The latter is more commonly addressed by

indirect standards such as those for water quality (eg for pesticides and nutrients), where the effects of the standard on farming practices depend upon a range of less binding measures such as codes of practice and/or appropriate training.

- There are significant concerns about the effectiveness of the wide range of standards which are promoted mainly through codes of good practice and other forms of guidance, training or information, unless this is linked to a stronger incentive measure (eg via cross compliance, authorisation, or product certification schemes).

- Broad quality assurance standards, promoted as a voluntary measure, are increasingly affecting farming activities and may be an efficient way to raise standards across the sector, but most of these currently incorporate few environmental considerations and there are some concerns about the proliferation of such schemes in recent years.

12. These gaps and weaknesses, and the resulting environmental concerns, could potentially be addressed by a range of policy measures to promote new or enhanced environmental standards on all farms. These could include:

- greater effort to raise awareness among farmers of the environmental impacts of their practices, and to encourage the uptake of less damaging techniques;

- the development and promotion of a new 'conservation code' of good agricultural practice to address appropriate field boundary management and the protection of remaining semi-natural habitat from degradation or destruction;

- a mix of measures to achieve improved application of codes of good agricultural practice including those for water, soils and pesticides, and in particular, more use of mineral budgeting, soil conservation techniques and integrated pest control methods;

- more widespread use of farm plans as an information and management tool (for managing wastes, grazing, nutrients, phosphates and conservation features);

- new conditions applied through cross-compliance to ensure sensitive management of certain valued areas or features, including buffer zones and arable field margins;

- new conditions applied in the area of pesticide authorisation, to ensure that mitigating measures are put in place to avoid indirect effects upon biodiversity, soils and water;

- more thorough and timely implementation of EU and national regulations to protect key resources eg Nitrates Directive in relation to marine habitats, Habitats Directive site and wider countryside goals, Environmental Impact Assessment Directive to prevent irreversible loss of high nature value sites and features, Integrated Pollution Prevention and Control (IPPC) to cover farm wastes and in particular, ammonia;

- a greater incorporation of many of these environmental considerations into farm quality assurance schemes and related voluntary initiatives, so that they become part of standard practice for quality agricultural production in Britain.

13. These options provide a starting point for further development in this report. However, the choice of measures to raise standards can also be informed by a consideration of potential models in other Member States, and in other industrial sectors.

Standards and measures in other Member States

14. The standards faced by farmers in other Member States arise from a combination of EU and national or regional measures. Many environmental standards are laid down at EU level but many more are determined by national or regional authorities. Several important EU measures relevant to farmers have been subject to an unsatisfactory level of implementation by Member States, including the Nitrates and Habitats Directives.

15. The basic environmental standards applied to agriculture vary significantly between Member States. Generally speaking, regulatory approaches are more common in relation to the protection of physical resources from significant, large scale pollution or contamination (water, soil and air) and the prevention of dramatic irreversible losses of remaining valued landscape qualities, features or nature conservation sites. There are interesting examples of broader or more comprehensive standards than those applied in England, particularly among other northern Member States.

16. Some of these examples could be potential models for new standards here. They include:

- *input use* - compulsory records of fertiliser use and mineral budgeting/planning requirements, and restrictions on phosphate applications apply in Germany, the Netherlands and have recently been proposed in Belgium;

- *buffer zones and water channel management* – Denmark, Germany and Sweden have a more comprehensive approach to protect these features than yet exists in the UK, mainly through planning-type controls applied at national or regional level;

- *air and soil protection* – no special standards have been found in Europe, but the USA has cross-compliance standards requiring soil conservation plans on all farms with erosion vulnerable soils, which are reported to be effective (Dwyer, Baldock and Einschütz, 2000);

- *pesticides* - pesticides taxes are used in several Member States in conjunction with major government Action Plans for pesticide reduction (e.g. Denmark, Sweden), with some apparent success;

- *land use and biodiversity conservation* - planning-type controls apply to changes to semi-natural habitats, certain landscape features or certain kinds of land use change in several Member States (eg Austria, Germany, Denmark, Netherlands, Sweden, Luxembourg and France). More local management restrictions are also available in certain areas (such as 'conservation orders' for discretionary local government use to protect particular sites or features of local importance).

17. This study has not examined the effectiveness of these measures in other Member States in any detail. Nevertheless, we believe those listed above have helped to promote enhanced standards on farms, where they have been applied. It is therefore worth considering their potential to address key environmental concerns in an English context.

Standards in other sectors

18. From a brief examination of standards as applied in forestry and particular sectors of manufacturing industry, the following points emerge.

- While the nature of the sectors examined and the level of regulation varies greatly, all show signs of a growing complementarity between regulatory and voluntary approaches to raising environmental standards.

- This developing synergy may perhaps reflect a realisation of the limits to ensuring standards through regulation, or it could simply demonstrate where regulation may yet need to expand.

- Among the voluntary approaches, one finds both specialised, high quality labels which are used to distinguish specific products with environmental attributes, often representing a small proportion of output; as well as more general certification schemes which aim to apply to most of the output of a particular sector, over time.

- 'Good management' initiatives for a particular sector may be built on approaches such as 'EMAS', extending beyond a single firm to the whole sector, and some cover a range of specific concerns eg. the 'responsible care' approach by the Chemical Industries Association.

- A recent development has been the use of specific, sectoral voluntary agreements between industry and government or the EU, typically on a leading issue, such as greenhouse gas emissions. These are often seen as a direct alternative to regulation because they represent a 'contract' with society which, if broken, would trigger a more strict regulatory approach.

Several of these points suggest models which could apply in the special circumstances of the farm sector.

Proposed New Standards for Further Evaluation

19. In the light of the findings of phase one, phase two examines steps for the enhancement of basic standards which would target the key issues identified above, namely:

- diffuse water pollution and enrichment by fertilisers, manures and soil sediments;

- land use change – in particular, conversion of permanent cover to arable and loss of semi-natural land;

- more sensitive conservation management of semi-natural land and features on farms, in particular margins and boundaries, and isolated areas;

- water management and wetland protection issues; and

- pesticide problems, particularly those arising from general use rather than dramatic, point-source pollution.

20. This report suggests a set of six criteria for evaluating alternative policy measures to raise standards, seeking to reflect some of the main concerns arising from environmental, agricultural and administrative perspectives. They are as follows:

- new standards or measures potentially should be applicable to the largest number of farms possible;

- any new measures should provide clear additional environmental benefits over and above existing ones and they must seek to address the main gaps and weaknesses identified in this report;

- new measures to raise standards should not impose significant additional costs on responsible farmers;

- they should avoid additional red tape for farmers, as far as possible;

- any measures should avoid creating significant additional inspection and enforcement burdens;

- where possible, measures should provide an opportunity for positive marketing of farm produce.

21. In considering potential measures for raising standards, we see particular benefit in aiming to identify a simplified system that can nevertheless achieve wider coverage of environmental issues than is currently the case. Discussion with industry representatives suggests there is willingness in the farming sector to countenance the use of broader, code-based or 'whole farm' standards that meet public concerns, particularly if they could partially replace the current, complex mix of individual standards, guidance and enforcement procedures.

22. An assessment of future policy options based on the above criteria provides a potential model for promoting 'a new environmental standard' for English farming. This could be based on an industry agreement with government to raise standards on all farms through a 'six-point plan' including a range of measures to target the issues identified in paragraph 12.

23. The plan might include the following.

i. A commitment by government to *enhance the coverage and environmental effectiveness of on-farm advisory services, farmer-led support groups and demonstration initiatives*, particularly in the most sensitive areas, so that farmers receive more help to greatly

increase awareness of key environmental issues and application of mitigating techniques.

ii. An undertaking by the sector *to achieve specific targets for the proportion of farms that use key planning tools to reduce their environmental impacts*, over a number of years.

These would include farm waste management plans, nutrient budgets, soil conservation plans, pesticide reduction strategies and more holistic farm environmental audits (eg the LEAF model). The use of different types of plan could potentially be targeted by region or issue (eg 100% use of farm waste plans in the most sensitive river catchments, in dairying areas). The targets would need to be agreed following advice from the relevant environmental agencies. The uptake of plans could be reinforced by industry or supply chain promotion (eg Sainsburys' support for FWAG farm biodiversity action plans).

iii. *The development by government of a new code of good agricultural practice for biodiversity and landscapes.* This would complete the coverage of key environmental resources on farms, by the suite of codes of practice.

iv. *New measures to increase the economic incentive for farmers to understand and apply the codes of good agricultural practice* for water, soils, air, pesticides and upland management, as well as the new code for biodiversity and landscape. These measures might include:

- the development of a 'broad and shallow' agri-environment scheme designed to attract the majority of farmers, to promote the application of higher standards as discussed in some of the codes;

as well as the application of:

- environmental conditions as 'cross-compliance' under the CAP; and/or
- compliance with the codes of practice as a standard ingredient in all major farm assurance schemes;

to help ensure adherence to the most basic 'essential' ingredients of the codes.

v. *A more straightforward approach to agriculture under the town and country planning system*, enabling farmers to benefit from rural development and ensuring that their businesses are treated in a comparable way to other rural business. This would need to incorporate the requirement for environmental impact assessment and control of farm change which could lead to the irreversible loss of valued semi-natural habitats (eg ploughing up flower-rich meadows or draining wetlands), and would cover more farm buildings than the present system. However it should also lead to a more sympathetic treatment by planners of proposals for farm diversification and 'change of use' of farm buildings, reflecting the likely future direction of structural change in the industry.

vi. A commitment to develop and adhere *to an industry-wide strategy for reduced pesticide use*, which could involve a mix of voluntary, economic (eg tax-based) or regulatory measures but would set specific targets designed to reduce pesticide impacts upon wildlife and basic resources of soils, water and air. Among the measures considered in this report, we would highlight the potential value of applying conditions to the authorisation and/or permitted use of certain substances, including new technologies, to require mitigating measures, particularly to deal with significant indirect effects upon biodiversity.

24. This suggested plan and the detailed components within it could not be evaluated fully as part of this study: that is a task for further work by the agencies and other stakeholders. Nevertheless, the evidence gathered in this report suggests that such a plan, or a similar commitment to introduce the kinds of measures outlined within it, could make a major step towards establishing a broad 'environmental standard for English agriculture' of which the farming sector could be justly proud.

# Introduction

This report on 'Identifying Baseline Standards in Agriculture', has been undertaken on behalf of English Nature by the Institute for European Environmental Policy (IEEP). The purpose of the study is to allow English Nature (EN) to move beyond its current position on basic standards for sustainable agriculture and to be able to recommend a more coherent and balanced set of standards, covering most aspects of sustainable agriculture of environmental relevance. This involves:

- building up a reliable inventory of current environmental standards affecting agriculture;
- taking account of current and foreseeable changes in policy;
- identifying the deficiencies in these standards, by reference to environmental issues in England and by comparison with policies and practice in other parts of Europe and standards in other economic sectors;
- developing a proposed model of new standards, in dialogue with EN; and
- recommending the changes required in order to establish these new standards, taking account of political, administrative and economic considerations as well as environmental objectives.

The project is being undertaken at a time of growing interest in basic environmental standards for agriculture. This reflects a variety of factors, including continued concern about environmental pressures from agricultural practices, adverse trends in farmland biodiversity and a broader trend towards the establishment of environmental standards for a range of different economic activities.

The Agenda 2000 reform of the CAP has also given new impetus to the debate on standards. Some of this stems from the new obligation upon Member States in the 'common rules' Regulation 1259/1999, to ensure that CAP support is compatible with 'environmental protection requirements'. Under this Regulation, the concept of cross-compliance – applying environmental conditions to the receipt of support payments – is put forward alongside regulation, as a means of addressing this new obligation. Also, within the Rural Development Regulation 1257/1999, Article 2 specifies that support for rural development may concern 'the preservation and promotion of a high nature value and a sustainable agriculture respecting environmental requirements'. Standards regarding the environment which are described as 'usual good farming practice' are referred to in the implementing regulation as common to several rural development support measures. In the revised support regime for Less Favoured Areas (LFAs), one of three key objectives for compensatory requirements is to maintain and promote sustainable farming systems 'which in particular take account of environmental protection requirements'. In relation to agri-environmental support, the text refers to the need for these supports to 'involve more than the application of usual good farming practice'. Thus in submitting their draft rural development plans to the European Commission, the Member States have been required to set out a definition of 'verifiable standards' of usual good farming practice, with respect to the environment, in order to demonstrate that they are complying with these aspects of the Regulation.

However, it is also worth noting that the study is being carried out at a time when farming incomes in the UK are under severe pressure, largely as a result of factors outside the direct sphere of agriculture.

Recent months have seen a series of moves by government to cushion the pressures on the industry by a combination of increased temporary aids to particular sectors, and reduced or deferred costs associated with the enforcement of a variety of health and safety, welfare and environmental regulations. The government's 'Action Plan for Farming', announced on 30 March 2000 by the Prime Minister, aims to 'meet environment objectives.... with the minimum administrative and cost burden, regulating only where necessary'. It is therefore important to consider its findings in the context of the current political climate, presenting recommendations in a positive light and emphasising initiatives which offer some benefit to the farm sector as well as to the wider public.

This report contains six chapters:

1. a summary of the principal measures giving rise to farm-level standards in England and a consideration of key environmental issues which remain to be addressed;

2. a description of environmental standards targeting similar issues, as applied in other European Member States;

3. a first evaluation of weaknesses and gaps in existing standards in England. This is an extended commentary derived from the consideration of items 1 and 2 above;

4. a consideration of possible models for improving standards, briefly assessing developments in other industrial sectors;

5. a set of criteria for testing new standards or complementary measures to enhance the effectiveness of existing and new standards;

6. a set of recommendations for actions and initiatives to help establish a more balanced and effective 'baseline environmental standard' for English agriculture.

Annex 1 contains an inventory of existing standards briefly describing the main existing environmental standards for agriculture, as expressed in UK and related EU policies, with details of how these standards directly or indirectly affect farm practices.

Annex 2 contains the questionnaire distributed to English Nature's local team staff asking them to identify problematic farm practices.

## Defining 'standards' in the context of this study

*The notion of 'baseline standards'*

The focus of this study is upon standards designed to address the environmental impacts of agriculture. In their widest sense, standards can embrace both aspirational targets for performance as well as statutory requirements, and they can be set by the public or private sectors. However, this study is looking in particular at 'baseline' measures – that is,

standards set as a basic minimum of responsible farming practice, to protect and enhance environmental value on farms. This corresponds to the so-called 'reference level' in European and international policy discussions – i.e. what every farmer is obliged to do as a matter of course, to comply with the law or official but non-statutory guidance, without specific environmental payments. Thus the standards need to be set by reference to the public interest, which implies some degree of public sector endorsement. They also need to apply to the vast majority of farms or farmed land, rather than a self-selecting minority (for example, such as those farmers who choose to enter agri-environment schemes or apply for organic certification).

In surveying existing standards, therefore, greatest emphasis is placed upon standards as expressed in public legislation and associated guidance, rather than standards negotiated within the private sector. This allows an assessment of the gaps and the weaknesses in standards in relation to key environmental concerns.

However, where the report considers potential models for new or improved environmental standards for agriculture, it is necessary to look more widely at standards as they are reflected in a range of both statutory and voluntary approaches. A brief consideration of standards in other sectors can also shed light on the extent to which different approaches may be used in establishing or raising standards.

*Types of standard*

Even among regulatory or public policy standards, their nature varies.

- Some are specified in unambiguous, often quantified, statutory obligations, for example prohibiting the use of a particular product or limiting the contamination of a type of food with pollutants above a given concentration. Many EC Directives specify standards in this way, which are then transposed into national law. However, some statutory obligations may be expressed in a more general form, prohibiting serious damage or requiring the adoption of 'best available practices' without specifying these in a quantified way.

- Many environmental standards do not apply directly to the farmer per se; liability may lie elsewhere and the impact on farming operations may be more difficult to ascertain. This is the case with some legislation on water quality standards, for example.

- In relation to some issues, statutory guidance may need to be considered alongside legislation, in setting and upholding standards of behaviour. For example, farmers will be exposed to potential prosecution if they cause a major fish kill, even if they have complied with all the relevant pollution legislation. In such cases the degree of compliance with guidance as expressed in the formal Codes of Practice, not themselves legally binding, can be relevant.

It is therefore necessary to include all these kinds of measure in any inventory of existing environmental standards applying to agriculture.

*Raising standards*

In seeking to address gaps and weaknesses in standards, issues arise in relation both to *coverage* and *effectiveness*. Issues of coverage may best be addressed by the development of new standards, whereas issues of effectiveness may require complementary measures such as improved advice and information, or increased discipline upon farmers to adopt existing standards. Even where new standards are proposed, it is important to consider how best they should be established and pursued, using one or more of the range of policy instruments or initiatives available. These issues have therefore been central considerations for the second phase of this report, where an attempt is made to address gaps and weaknesses by taking a number of steps to promote a new environmental standard for English agriculture.

# Chapter 1. Current environmental standards affecting agriculture in England, and key environmental issues

## 1.1 The inventory of existing standards - overview

In cataloguing current environmental standards for farming, the study had to consider the legitimacy of different sources of standards, and their status in law. Existing environmental standards have thus been interpreted as those aspects of *legislation and associated government policy* which set out 'what is required' or more broadly 'expected' of farmers, in environmental terms. This includes standards embodied in Codes of Practice and official guidance documents because they carry the weight of official endorsement even though they may lack the punitive force of regulations.

Using this definition, the principal domestic standards relating to environmental issues and currently applying to agriculture in England have been identified and catalogued in Annex 1. Within 'government policy' we include key EU and UK legislation, as well as a discussion of the ways in which these are reflected and implemented at more local level (e.g. in the planning system), through local government or through the various NDPB agencies working to fulfil government aims. In addition, in this chapter we refer briefly to two other kinds of 'standard' affecting agriculture's impacts upon the environment:

- standards as expressed in conditions for the receipt of public funds, where these affect a sufficiently large number of farmers to be considered akin to 'industry-wide' conditions (notably, cross-compliance on CAP direct payments). We do not consider other conditions which are tied only to the minority of farms affected by specific voluntary schemes, in which case they cannot yet be regarded as baseline standards (this is most relevant to agri-environmental schemes);

- voluntary or industry-led standards, most of which have no specific endorsement by the public sector but which represent the dominant form of 'standard' applying to certain aspects of agricultural practice and which may affect a significant and increasing proportion of the industry. As with cross-compliance, some of these initiatives are designed to be taken up by most farms (eg the 'red tractor logo') while others are specifically targeted towards particular market segments (eg organic standards) and are therefore less akin to baseline standards.

In the inventory, each entry describes the instruments of policy that set the standards concerned. Text boxes are used to summarise, as far as possible, the kinds of direct, on-farm constraint that result from the standard. Under each theme, the various standards that affect farming have been ranked on a scale of one to three, indicating the extent to which they are likely to have a significant effect in influencing farming's impact upon the environment.

- Priority one indicates a significant effect.

- Priority two indicates an intermediate level of effect or a potentially significant effect in certain circumstances or in the future (particularly for standards which are not yet wholly defined but which are part-way through the legislative process).

- Priority three indicates that these standards are likely to have only very indirect, localised or limited influence upon farming's impact on the environment.

The standards include a broad range of legislation, conditions and codes. Key points for each entry are tabulated in brief below (see Table 1). Non-binding or guidance materials, including codes of practice, are listed in italics and regulations in normal type.

## 1.2 Commentary on the summary of standards

The standards covered here embrace a broad range of potential environmental impacts from farming activities. However, it is important to note that many of them are not primarily concerned with environmental impacts, but rather with impacts upon human health. This is particularly true of the measures affecting basic resource protection and some of those for pesticides. The implication of this is that some of the standards may not be as appropriate for pursuing or achieving environmental protection as others which are more clearly focused upon the environment. For example, the 50mg N/litre limit for nitrate in water may be entirely appropriate for the protection of human health but a lower threshold would be needed if the basic aim were to protect certain aquatic species or ecosystems which depend upon very low nutrient levels.

Further observations in relation to the coverage of these standards include the following:

- While the standards for land use, landscape and biodiversity are more particularly about protecting environmental qualities, most of these focus upon a limited number of 'special' protected sites and particular features, rather than the generality of the wider countryside;

- few standards relate to issues of farm land cover, which can be a very important determinant of its environmental value; and

- many of the standards which focus directly on pollution from agriculture and other activities address the most potentially significant 'point sources'. The potentially damaging effect of cumulative pollution from diffuse sources, which is characteristic of modern farming in many areas of the UK, is only indirectly affected by water and air quality standards.

In terms of their effectiveness, the current standards are also likely to vary significantly. Broadly speaking, standards which are part of statutory requirements should be more effective than those which are embodied in voluntary codes. However, even among those standards which are required in law, a lack of farmer awareness and difficulties of policing and enforcement may significantly reduce their effectiveness in practice.

## Table 1. Inventory of existing standards

| ISSUE | EU MEASURES | UK MEASURES | COMMENT |
|---|---|---|---|
| **WATER** | | | |
| **PRIORITY 1 measures Nutrients** | Directive on Nitrates from Agricultural Sources 91/676 | Protection of Water Against Agricultural Nitrate Pollution Regulations 1996 and the Action Programme for Nitrate Vulnerable Zones (England and Wales) Regulations 1998. The *Code of Good Agricultural Practice* to protect waters from pollution by nitrates. | Sets a standard limiting the levels of nitrates in water that come from agricultural sources, which in turn requires certain farm-level standards to be met in 'nitrate vulnerable zones' where water is vulnerable to nitrate leaching from farmland. The code of practice gives guidance applicable to all areas, not just NVZs, but it is not compulsory. |
| **Pollution -ground and surface water** | Directive on the protection of groundwater against pollution caused by certain dangerous substances 80/68<br><br>Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (76/464/EEC) | The Groundwater Regulations 1998. | Sets a standard for ensuring that groundwater and surface water resources do not become seriously contaminated by dangerous substances, including those from agricultural sources (e.g. farm wastes, herbicides and pesticides). |
| **Pollution - general** | | The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (as amended 1996 & 1997)<br>*The Code of Good Agricultural Practice for the Protection of Water* | These instruments are mainly concerned with standards for water quality which have a potentially significant but indirect effect upon farms via their influence on the enforcement authorities in acting to uphold these standards through farm inspections and advisory work. |
| **Abstraction** | | The Water Resources Act 1991 | Governs access to water through abstraction licensing. |
| **PRIORITY 2 Water resources planning** | The EU Water Framework Directive: agreed late last year. | Awaits legislation to transpose it into UK law | An overarching framework likely to lead to some significant changes to water management and enforcement policies in the UK, once transposed. Potential requirements with direct bearing upon farm practices include cost recovery, record keeping and strategic responsibilities of enforcement agents. |

| ISSUE | EU MEASURES | UK MEASURES | COMMENT |
|---|---|---|---|
| **Contaminants - surface water** | The Directive concerning the quality required for surface water intended for the abstraction of drinking water in the Member States 75/440. | Water Act 1989<br>Surface Waters (Abstraction for Drinking Water) Regulations 1996 | Affects surface waters in the UK, and thereby puts an onus upon enforcement agencies to take action to prevent contamination of surface waters by pollutants, including those from agriculture. Its effects are indirect. |
| **PRIORITY 3**<br>**Contaminants - drinking water, bathing water, fish** | Directive on the quality of water intended for human consumption 80/778 – to be replaced by 98/83/EEC.<br>Directive concerning the quality of bathing water 76/160<br>Directive on the quality required for shellfish waters 79/923 | Directive 98/83 awaits legislation to transpose it into UK law.<br><br>Bathing Waters Regulations 1991<br><br>Fishlife Regulations 1997 | Concern specific types of water quality, but place few direct constraints upon farms. Water can be treated prior to use for drinking, to remove harmful substances eg pesticides, wastes. Agriculture has been regarded as a minor influence upon the other categories of water. However, the standards can exert indirect farm effects where enforcement agencies take action to reduce abatement costs, or where standards influence pesticide manufacturers' choice of ingredients. |
| **SOIL, AIR & IPC,** | | | |
| **PRIORITY 1**<br>**Soil, Air and IPC** | Directive on the protection of the environment and in particular the soil, when sewage sludge is used in agriculture 86/278 | Sludge (Use in Agriculture) Regulations 1989 and, amendments in 1990 plus accompanying code of practice | These standards have been described together since many relate to the general issue of wastes produced by agriculture or used in agriculture, and conditions regarding storage, handling and application or disposal. |
| **General air and soil protection (also indirect water protection)** | | The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991<br><br>The Crop Residues (Burning) Regulations 1993<br><br>*The Code of Good Agricultural Practice for the Protection of Soil*<br><br>*The Code of Good Agricultural Practice for the Protection of Air* | All of these regulations and codes directly affect farm operations in relation to:<br>• the use and disposal of potentially hazardous substances on farms, including manures, sewage sludge used as a fertiliser, and crop residues such as straw and stubble;<br>• the management of farming operations in order to minimise damage to soils and air quality, including soil erosion and contamination, and air pollution (both localised and more general).<br><br>There is also a retailer agreement on Sewage Sludge applied in growing crops, which has effectively set a standard for the farming sector. However, this is a voluntary approach. |

| ISSUE | EU MEASURES | UK MEASURES | COMMENT |
|---|---|---|---|
| **PRIORITY 2 General pollution control from wastes** | Directive on Integrated Pollution Prevention and Control 96/61 (IPPC)<br><br>The Waste Framework Directive 75/442<br>Directive on hazardous waste 91/689 | The Waste Management Licensing Regulations 1994<br>The Special Waste Regulations 1996<br>Environmental Protection Act 1990 and Environmental Protection (prescribed processes and substances) Regulations 1991, as well as the Waste Management Regulations 1994. | Legislation is mainly aimed at controlling other industries producing high levels of hazardous wastes (water- or air-borne). IPPC will also lead to the setting of critical loads and levels for atmospheric pollutants However, will have certain potentially significant impacts upon farming wherever farm businesses produce significant levels of hazardous waste – mainly intensive, indoor livestock eg large pig/poultry units. |
| **PRIORITY 3 – soil contamination** | Proposed EU-wide ban on methyl bromide as a soil fumigant, which is used in horticulture prior to cropping | | In the UK, the majority of producers have already stopped using this method for soil preparation so it is not considered to represent a significant future constraint upon the industry. |
| **PESTICIDES** | | | |
| **PRIORITY 1 – Pesticides authorisation and use** | Directive 79/117 prohibiting the placing on the market and use of plant protection products containing certain active substances | The Control of Pesticides Regulations (COPR) 1986 (amended 1997). Both regulations are made under Part III of the 1985 Food and Environment Protection Act.<br><br>*Guide for Local Environmental Risk Assessment for Pesticides* (LERAPs)<br><br>The Green Code (Code of Practice for the Safe Use of Pesticides on Farms and Holdings) which refers in particular to the above regulations and the Control of Substances Hazardous to Health Regulations (COSHH) 1994. | This body of legislation and accompanying code of practice affect farmers' ability to use synthetic pesticides:<br>• by limiting access to approved substances only<br>• by requiring them to observe use instructions as given on the labels, (with a few exceptions)<br>• by controlling pesticide use in sensitive areas (eg. alongside watercourses) and in sensitive conditions ( eg. controls on aerial spraying in wind or near SSSIs).<br>• By requiring all who use pesticides to have received appropriate training.<br>These effects are specifically designed with environmental protection, as well as human health, in mind. |

| Issue | EU measures | UK measures | Comment |
|---|---|---|---|
| **Pesticides authorisation and use** | Directive 91/414 concerning the placing of plant protection products on the market | The Plant Protection Product Regulations 1995 which were followed by the new Plant Protection Products (Basic Conditions) Regulations (SI 1997 No 189). These were passed under the 1985 Food and Environment Protection Act, Sections 16 (2) and 24 (3) and set out controls and enforcement procedures as required by the 1991 Directive. | The EU Directive will eventually determine which pesticides can be sold and used within Europe, through the application of a rigorous and standardised testing and authorisation procedure which examines both risks to human health and to the environment. However, the process of implementation is lengthy: to date, only a few active substances have completed authorisation and many more are still under consideration. In the meantime COPR 1986 remains the principal determinant of pesticide availability to farmers in the UK. |
| **Land Use and Landscape Features –** | | | |
| **PRIORITY 1 Habitat loss** | EC Directive on the assessment of the effects of certain public and private projects on the environment (the so-called EIA Directive 85/337) | Town and Country Planning and Forestry Acts (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999 No 293). | Already affects large-scale indoor livestock production units and forestry proposals via modification of planning systems, requiring them to prepare EIAs as part of the application process. It will in time affect other aspects of farming (see item below under priority 2). |
| **Site protection** | EC Directives 79/409 on the conservation of wild birds and 92/43 on the conservation of natural habitats and of wild fauna and flora | The Conservation (Natural Habitats etc) Regulations 1994 implement the habitats Directive in the UK and include these planning aspects | Those aspects of the Directives that relate to land use planning controls have an impact upon farm development in this respect |

| ISSUE | EU MEASURES | UK MEASURES | COMMENT |
|---|---|---|---|
| **Pseudo planning controls** | | General development control policy under the Town and Country Planning Acts (TCPA), as applied by local authorities and shaped by *central government guidance (PPGs)*. Also:<br><br>• Limestone Pavement Orders under the 1981 Wildlife and Countryside Act<br>• Farm Notification/Determination Procedures under the Town and Country Planning Orders<br>• The Hedgerows Regulations 1997<br>• Tree Preservation Orders (TCPA 1990)<br>• Scheduled Ancient Monuments in the Ancient Monuments and Archaeological Areas Act 1979<br>• *The Code of Good Upland Management*<br>• Felling controls under the Forestry Act 1967<br>• *UK Forestry Standard* | These affect some areas of more irreversible land use change on farmland (e.g. built development above a certain size or near to roads and housing)<br><br>All these measures could have direct impacts upon farming practices wherever they apply to these particular features (built development, other 'projects', hedgerows, woodlands, upland vegetation) or important sites (semi-natural habitats, important bird areas, limestone pavements, SAMs) located on, or close to, agricultural land. |
| **PRIORITY 2** | Environmental Impact Assessment for projects involving agricultural intensification on semi-natural and uncultivated land, as part of EIA Directive 85/337 | | A requirement that the UK has yet to implement, to ensure that EIA will be carried out wherever major agricultural intensification projects significantly threaten the environmental value of land. Could represent a significant constraint but few implementation details are yet confirmed. |

| Issue | EU measures | UK measures | Comment |
|---|---|---|---|
| **strategies** | | *Countryside/Rural Strategies*<br>*Forestry Strategies*<br>The Conservation (natural Habitats etc) Regulations 1994 require local planning authorities to develop policies in respect of the management of landscape features of major importance for wild fauna | The 'standards' in this group include a variety of measures which will have only indirect effects upon farming practice via their influence on the interpretation of broader planning policies in particular areas. |
| **Biodiversity Standards** | | | |
| **Priority 1** | Directive 79/409/EEC on the conservation of wild birds<br>Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora | Sites of Special Scientific Interest, National Nature Reserves, Nature Conservation Orders and species protection measures, as defined under the Wildlife and Countryside Act 1981, now amended by the Countryside and Rights of Way Act 2000. The habitats Directive is implemented in the Conservation (Natural Habitats etc) Regs 1994 | These measures comprise the basic legislative framework for the identification, designation and subsequent protection of 'special sites' and 'important or protected species' in the UK. They can therefore have a direct impact upon farming practices in all areas where they are found on, or adjacent to, farms (generally speaking, this means the majority). |
| **Priority 2** | | *The draft Code of Good Agricultural Practice for Conservation* | Not yet finalised or published by the Ministry of Agriculture. However, there is a Ministerial commitment to produce a code and it is expected that once introduced, it will cover practices for the conservation of habitats and species in the wider countryside (e.g. hedgerow management, field margins, low-cost practices beneficial to wildlife). |

| ISSUE | EU MEASURES | UK MEASURES | COMMENT |
|---|---|---|---|
| | | • *Biodiversity and Wildlife plans and strategies*<br>- *BAPs*<br>- *Natural Area profiles*<br>- *Species Recovery plans*<br>- *Habitat restoration plans* | Biodiversity Action Planning (BAP) at national and local levels has an indirect, but potentially significant, influence on farming. Targets are set which government departments and agencies pursue through policies. The Countryside and Rights of Way Bill 2000 has given this some statutory backing which could increase their future impact. Most other plans and strategies are likely to have minor indirect effects on farming via use by authorities to guide other policies with more direct influence (eg development control).<br>As yet, no deliberate commercial planting of GM varieties has taken place in the UK. No standards yet exist but they may be developed in the next few years. Likely to include minimum separation distances between GM and non-GM crops but could also include other aspects to protect biodiversity, subject to the findings of current trials. |
| | Directive 90/219/EEC Genetically Modified micro-organisms - contained use. | • GMO policies | |

## 1.3 'Cross Compliance' - Environmental conditions on agricultural support payments

Two kinds of environmental cross-compliance have been applied to farm support payments since 1992 in the UK, to attempt to control overgrazing of upland vegetation by sheep and other livestock, and to maximise the potential benefits to wildlife of set-aside, through particular management conditions.

1. The receipt of all headage payments for beef and sheep under the Premium Schemes, Extensification Premium and Hill Livestock Compensatory Allowances under the Less Favoured Area scheme, are conditional on livestock not causing significant *overgrazing*. Any farmer in receipt of direct payments on livestock must not stock so heavily or offer supplementary feeding in ways which cause severe ecological overgrazing of land.
2. The receipt of Arable Area Payments, including set-aside payments, has been made conditional on farmers obeying certain environmental conditions for the *management of set-aside* land.

3. These are designed mainly to protect habitats and species in cropped landscapes, partly through minimising damage to ground-nesting birds and other species which may breed or feed in set-aside fields. Environmental conditions include:

    - the retention of traditional field boundaries adjoining set-aside land;
    - restrictions on the timing of certain operations on the land, including ploughing, spraying and sowing of new crops;
    - the establishment of green cover by natural regeneration, sowing wild bird grass etc;
    - the avoidance of pesticide and herbicide applications without prior approval from MAFF and restrictions on fertiliser application (organic and inorganic).

These 'standards' only apply to farmers in receipt of these particular CAP aids, and not to others. However, the majority of livestock farmers and all farmers with larger arable farms are likely to be affected by them. Although farmers can avoid being subject to these conditions by not claiming the direct payments to which they are attached, few can in practice afford to do so.

The penalties for non-observance of these conditions may be large or small, depending on which conditions are breached and to what degree. Generally, the penalties for causing ecological overgrazing have been potentially more significant than those for not observing set-aside management conditions, but the former have proved costly and time-consuming to apply, so only the most severe cases have been pursued.

Judgements about the effectiveness of these mechanisms are complex because there is limited evidence in the public domain. However, a recent report for the Department of the Environment, Transport and the Regions (Dwyer, Baldock and Einschütz, 2000) concluded that both measures had achieved environmental benefits and were worth retaining.

## 1.4 Voluntary Industry Standards

The detailed inventory of legislative or publicly endorsed standards in agriculture in Annex 1, summarised above, shows how the current range of standards affect farming operations mainly through 'upstream' controls on farm inputs or food/fibre production processes. It is also possible to influence farming through 'downstream' links to food processors and retailers. In this area it appears that voluntary standards have taken the lead, particularly via farm assurance schemes and organic certification but also through supermarket chains laying down their own specific food standards. These industry standards have an indirect effect upon certain farming practices which in turn will affect impacts upon the environment. To the extent that they are adopted within the sector, they could represent 'baseline standards' of interest to this study.

Voluntary industry standards can also apply to upstream and on-farm production processes – for example, individual farm businesses can apply for the same environmental standards as the rest of industry under the ISO scheme which is discussed later in this report (Chapter 4). However, these kinds of voluntary standard are currently relatively rare in the farm sector. Nevertheless, the concept of 'industry standards' for agriculture and the environment has recently gained currency in relation to the ongoing debate about pesticides and how to reduce their environmental impacts. We therefore include a brief discussion here about the proposed 'pesticides action plan', as well.
Although this proposal has not found favour with the current government, it illustrates how a voluntary approach might contribute in this area of environmental concern.

### 1.4.1 Farm Assurance Schemes

Organisations such as the Assured British Meat Association (ABMA) and Checkmate International (CI) run an increasing number of quality assurance schemes setting standards of on-farm production and off-farm food processing. All schemes are independently verified and are designed to guarantee the retailer and ultimately the consumer, products that are produced to high quality standards in animal welfare, food hygiene, health and safety and environmental management. However, the environmental content of these schemes is variable. For example, the Assured Chicken Production (ACP) scheme has few environmental elements. It establishes standards to cover all aspects of chicken breeding, hatching and growing. The standards relate to breeder layers, breeder replacements, hatcheries, chicken growing and transport and slaughter. They also specifically require that feeding stuffs do not contain antibiotic growth promoters, meat and bonemeal and poultry by-products meal. In contrast, the Assured Combinable Crops (ACC) scheme is more orientated towards environmental issues, for example, farmers are obliged to:

- have copies of the Water, Soil, Air and Pesticide Codes of Good Agricultural Practice, and the LEAF Practical Guide to Integrated Crop Management;

- take precautions to prevent fertilisers entering field margins, have a spillage plan, store chemicals away from drains and ditches, recognise conditions leading to run off and have a record of fertiliser application which also takes into account the residual value of organic manure from previous cropping;

- choose the most environmentally benign insecticides;

- avoid pesticide contamination of waterways.

The new British Farm Standard (BFS) is based upon six quality assurance schemes, referred to in England as the Farm Assured British Beef and Lamb standard (FABBL), the National Dairy Farm Assured Scheme (NDFS), Assured Chicken Production (ACP), Assured British Pig (ABP), Assured Combinable Crops (ACC), and Assured Produce (AP) schemes. Illustrated by a blue and red tractor logo, the standard represents the production of high quality British food in accordance with BFS requirements. All farms wishing to use the logo must meet the requirements of the relevant quality assurance scheme under ABMA or CI, register with the BFS administrative body - Assured Food Standards - and provide a licensed certificate demonstrating compliance with the relevant quality assurance scheme. Compliance with the standards is generally enforced through ABMA or CI farm inspections but also relies on farmers themselves maintaining accurate records of their activities. In this regard, there is an ongoing debate in the farming media about the extent to which the bureaucracy of these schemes outweighs their real benefits to producers and consumers alike.

Despite these reservations, it is anticipated that quality assurance schemes will experience an increasing uptake among farmers in the UK. Voluntary retailing agreements between the farmer and the retail chains are increasingly based upon assurance scheme standards and farmers must comply in order to be able to sell their produce through these outlets. Supermarkets also regularly lay down their own food standards, which can and do exceed those of the Assurance Schemes in many cases.

### 1.4.2 Organic certification

Specific food standards for the production and processing of organic produce include those specified by the Organics Directive 2090/91/EC. The Directive requires that anyone marketing products as 'organic' in the EU must be licensed by an approved certification. The approved standards forbid conventional pesticide and fertiliser use, require high levels of animal welfare and may include measures to protect wildlife and habitats on farms, thus offering some clear environmental benefits as well as products with particular qualities. An increasing minority of farms is converting and looking for certification but as yet, conversion depends heavily on the availability of grant aid which is limited.

The best established organic certification body in the UK is the Soil Association Certification Limited (SA Cert). More than 70% of all organic producers, processors and retailers in the UK are certified by SA Cert. However, this standard is unusual in that it includes some requirements which exceed those set out in the Organics Directive. The SA is also accredited with the International Federation of Organic Agriculture Movements (IFOAM) which sets similar basic standards for organic agriculture and runs an international accreditation programme for other organic certification bodies.

### 1.4.3 Pesticide action plans

In April 2000, in response to government consideration of a possible tax on pesticides, the Crop Protection Association (CPA) proposed a voluntary action plan to address the potential environmental and health impacts of the use of crop protection products in agriculture. The twenty point plan included commitment to the funding of a wide variety of

research projects, for example, EA projects on pesticide handling, the UK Foresight programme and the SAPPIO LINK programme.

In addition, the plan promised to:

- identify trends in pesticide application, both in terms of equipment use and current application;
- promote integrated crop management on all farms and examine the potential for further uptake;
- ensure adequate information provision through current product labelling systems;
- review environmental, biodiversity, integrated crop management and conservation information needs; and
- provide specific environmental information for each crop protection product.

The plan also promised to increase farmer awareness of environmental issues and that of the agronomists working for CPA, all of whom should be members of the BASIS professional register. It promised to develop training resources; improve spray operator training and certification; audit compliance with CPA training requirements and appoint a Biodiversity Officer for the crop protection industry. 'Best practice' publicity campaigns, promotion of the Local Environmental Risk Assessment for Pesticides (LERAP) initiative and support for more technical programmes were also proposed.

The government released the CPA's proposals for consultation during 2000. Responses were critical of the lack of any clear goals or quantitative targets in the plan (eg for specified reductions in pesticide application). The CPA and a broader consortium of the 'user chain' have therefore recently outlined four new proposals:

- the introduction of individual farm crop protection management plans;
- extension of compulsory BASIS membership to all who advise and specify on the use of such products;
- efforts to increase biodiversity in arable areas through education, better information provision and enhanced training, and
- a code of practice for the use of insecticides in crop production.

As with the first proposal, the government has rejected this new suite of actions as inadequate from an environmental perspective. However, it provides interesting evidence of the kinds of farm-level action that is seen as feasible and acceptable (as opposed to the alternative of taxation) by representatives of the agrochemical and agricultural industries working together.

## 1.5 Key environmental issues to be addressed, in raising standards

To compile a rapid checklist of key environmental issues which should be central to our consideration of new or enhanced standards, a simple questionnaire was circulated to selected English Nature local teams during January and February 2000 (see Annex 2). The questionnaire sought views on the key agriculture-related issues that are of concern for English Nature's core interests. IEEP received ten questionnaire responses – covering Northumbria, Cumbria (a combined team response), North and East Yorkshire, Three Counties (2 responses) Norfolk, Suffolk, Somerset (2 responses) and Kent.

### 1.5.1 Overview of responses

The issues raised at local team level include many which are critical to the achievement of English Nature's core objectives for natural areas in England. Also, many of the issues are ongoing concerns which show no clear sign of diminishing in the near future. We can group the concerns into five main categories:

- issues surrounding *inappropriate arable cropping* on former pasture or semi-natural habitat land, on sensitive soils or near valuable water-bodies (often SSSIs), where soil erosion, nutrient leaching and other consequences of repeated cultivations are also seriously threatening the survival of nearby fragile habitats and the species that they support;

- issues of *inappropriate grazing management* of valuable semi-natural sites – a clear distinction here between significant overgrazing by sheep on upland sites, and undergrazing or inappropriate kinds of grazing due to the decline of extensive, mature cattle grazing on lowland sites as a direct result of the consequences of BSE and the over thirty months scheme, as well as longer term decline in the profitability of such enterprises;

- issues surrounding the *inappropriate management and associated decline of field boundary and other farmland features*, including ditches (mechanised cleaning), hedges and hedgerow trees, scattered trees, and field margins on arable land;

- a range of critical *water management issues* relating to field drainage, loss and decline of wet grasslands and other wet sites, lowering of water tables by drainage and abstraction which threaten remaining isolated wetland areas;

- *diffuse pollution* by agrochemicals and fertilisers (including phosphates and farm wastes) of rivers, semi-natural features, wetlands, coastal habitats, etc, by run-off from farmland, causing nutrient enrichment and related loss of biodiversity.

These concerns echo many which have been highlighted at national level, both in discussion with EN's expert staff working in these areas, as well as:

- in the recent Environment Agency consultation document *Agriculture and the Environment* (EA, 2000);

- in government Rural White Papers in 1998 and 2000; and

- in the British countryside agencies' Land Use Policy Group suite of working papers on the Agenda 2000 CAP reforms (LUPG, 1999).

They also coincide with environmental concerns expressed at European level – most notably in the European Environment Agency's *State of the Environment* reports (eg EEA, 1998) and reports by the European Forum for Nature Conservation and Pastoralism (EFNCP, 1999).

Suggested solutions to these issues cover a mix of strategies. Some are clearly potential areas for new or improved standards, for example:

- the improved application by farmers of codes of practice for water, soils and pesticides;

- more use of farm planning (for wastes, nutrients and conservation features); and

- the development of a conservation code to address appropriate field boundary management and the protection of remaining semi-natural habitat from pollution or deliberate removal (the latter could perhaps also be tackled via implementation of the Environmental Impact Assessment Directive for projects of agricultural intensification on semi-natural or uncultivated land);

- the use of conditions applied through cross-compliance, to ensure some more sensitive kinds of management, including the more widespread adoption of buffer zones and wider arable field margins.

On the other hand, some are clearly issues where EN staff feel that a positive, incentive based approach is the solution – this is most evident in relation to grazing management concerns. Here, standards are felt to be difficult to use on their own, as a means of achieving lasting or widespread change. In these cases, respondents favour the positive development of sustainable farm management systems which also meet farmers' business goals, using agri-environment and/or rural development incentives (including management payments, labelling and marketing initiatives, etc).

A third area of proposed solutions involves the acquisition of land by conservation organisations. This would allow management to be more directly controlled by means of time-limited and defined management contracts (e.g. grazing licences) on agricultural sites, or by direct intervention on sites which are really no longer agriculturally viable and which may otherwise pass into inappropriate non-farming uses.

In conclusion, therefore, there appear to be several important areas where new or improved farm standards could help to resolve current issues of widespread concern.

In many of these cases, standards might be sufficient to achieve desired changes, but in some cases standards are likely to have a more limited role in underpinning more positive or more directly interventionist management strategies.

# Chapter 2. Environmental issues and agricultural standards in other Member States

## 2.1 EU Legislation and national standards

The standards applying to farmers in any Member State arise from a combination of EU and national or regional standards. While there are several items of EC environmental regulation of particular relevance to agriculture, the EU does not have exclusive competence with regard to legislation in all the relevant fields. Many environmental standards are laid down at EU level but a significant proportion, such as the standards applying to protected areas, to irrigation and to various aspects of odour and nuisance, are determined by national or regional authorities. In several cases, such as pesticide law, authorities at a variety of different levels may be involved in setting the standards which apply to farmers.

Furthermore, EU legislation, where it exists, does not necessarily result in the application of identical standards at farm level. EU legislation takes a variety of different forms, the two most relevant being Regulations and Directives:

- *Regulations* are the dominant form of legislation in agricultural and health policy but they are much less prevalent in environmental policy. About 10% of Community environmental law takes the form of regulations (CEC, 1998a). Regulations are directly applicable as law in the Member States and allow very limited discretion for national authorities to depart from the obligations set out in the text. Council Regulations are legal mechanisms, well suited to establishing uniform rules, that are enforceable throughout the Union. Normally, they are used when a unified system is required (e.g. eco-label schemes or the control of trade in endangered species);

- *Directives* are the primary form of legislation for most EU environmental policy. They are binding as to the results to be achieved, but they leave to Member States the choice of form or method to be used. They are sufficiently flexible to take into account the various legal and administrative procedures and traditions that apply in Member States. States may choose to adapt their existing legislation, introduce new legislation or pursue the required goals through administrative procedures. Frequently, Directives allow Member States two years in which to meet the requirements set out in the text. As a result, there can be significant differences in the legislation in place in different parts of the EU, even when governments comply with the requirements of Directives in a satisfactory and timely way.

EU environmental legislation is not always implemented in a satisfactory way at Member State level and standards of monitoring and enforcement also vary. Since environmental policy relies heavily on Directives there is a greater possibility of variation in standards than would be expected if the legislation took the form of Regulations. The Commission has reported that in 1995 only 91 per cent of the then total number of Community environmental Directives had been the subject of transposition notifications from the Member States. Such notifications indicate how the EU measure has been implemented at national level. Consequently, around 22 Directives appear not to have been transposed into national measures in some Member States. A total of 265 suspected breaches of Community

environmental law were registered by the Commission in the same year (CEC 1996). At present around 30% of all infringement proceedings against Member States, around 400 a year, are on environmental cases (Wallstrom 2001).

Some of the measures relevant to farmers have been subject to an unsatisfactory level of implementation. The outstanding example is the nitrates Directive 91/676 specifically concerned with protecting water against pollution caused by nitrates from agricultural sources. With the exception of Denmark and Sweden implementation of the Directive has been extremely unsatisfactory. The Commission has been slow to censure Member States and there is a backlog of referrals to the European Court of Justice. In view of this, the European Parliament is recommending that the Commission set a deadline for full implementation of the Directive (EP 2000a).

A less severe, but still notable, example is the habitats Directive 92/43. The Directive is more than eight years old and still not fully operational due to some Member States failing to transpose and implement the Directive appropriately. The European Parliament is now welcoming the Commission's decision to deny EU funds to Member States that have not ensured the requirements of environmental protection are incorporated into the definition and implementation of measures supported by the EU Structural Funds and Rural Development Funds. (EP 2000b).

## 2.2 Member State standards - overview

The mix of standards applied in other Member States, as in the UK, includes those set and enforced by regulatory approaches, and others, arising at least for some farmers, through various kinds of voluntary approach (e.g. farm assurance schemes, codes of practice and advice). Generally speaking, regulatory approaches are more common in relation to the protection of physical resources from significant and large scale pollution or contamination (water, soil and air) and the prevention of certain irreversible losses of remaining valued landscape qualities, features or nature conservation sites.

Specific taxes and charges have been used to encourage higher environmental standards in some domains in certain Member States, particularly in relation to water use and energy consumption, and in recent years taxes have been applied to fertiliser or pesticide use in some countries, including Denmark and Sweden.

Land use planning controls over agricultural buildings are widely applied within the Member States in order to protect landscape quality in certain areas, or to prevent nuisance to nearby residential settlements, including noise and odour. However in some countries these controls extend to other land-use changes. For example, in the Netherlands there are controls to prevent the ploughing of meadows. In some States a range of controls of this kind can be applied at regional or more local level, as determined by the respective authorities – for example among the German Länder.

Recent years have seen an increasing range of commercially driven initiatives linking environmental quality to product marketing. These have been applied both to large-volume, commodity outputs (e.g. grains and vegetables) where standards are established through initiatives such as 'producer protocols' and farm assurance schemes; as well as small-volume, speciality outputs (regional cheeses and meats, unusual horticultural and other crops and

organic foods) where standards are linked to product labelling or branding. In some cases, these standards may apply to a significant proportion of the total output of a commodity or a region.

Voluntary standards such as these may be developed through a formal system of rules for a designated local or speciality product or through less formal arrangements. Some are initiated by producers, others are developed between farmers or growers and retailers. For example, the European Retailer Produce Working Group (EUREP) has developed quality assurance schemes based on protocols of good agricultural practice. There are also instances where farmers are obliged to meet certain standards set by purchasers with a powerful place in the market. There are many cases where pesticide residue standards in foodstuffs or hygiene standards in food production and processing are required by major supermarket groups, which can create more stringent requirements for farmers than those laid down in national or EU legislation. The UK may be a leader in this respect, among the Member States. However, the Netherlands has taken a particularly active stance in supporting private-sector, producer-led environmental initiatives in recent years.

## 2.3 Summary of issues and on-farm standards

### 2.3.1 Water quality

*Issues*

Contamination of both ground and surface waters and soils, usually associated with more intensive farming systems is a serious problem in some parts of Europe. This applies particularly to regions where there are concentrations of intensive livestock production (notably pigs and poultry) or large areas of specialised crop farms, including intensive horticulture and vines. In these areas, nitrate leaching and phosphate loading of soils is widespread; this can lead to significant water pollution problems.

About 20% of water from agricultural soils sampled in the EU has nitrate levels that are above the maximum admissible concentration for drinking water of 50mg/litre, mainly in the Netherlands, Denmark, Belgium, Germany, the Po Valley in Italy and the western part of France. The aggregate supply of nitrogen from the production of animal manure in the EU exceeds 100 kg per hectare in Belgium, Denmark, parts of Germany (Nordrhein-Westfalen and Niedersachsen), Spain (Galicia and Cantabria), France (Bretagne), Luxembourg and the Netherlands.

In coastal areas of Portugal, Spain and Greece, a significant and growing incidence of nitrate pollution of groundwater - now affecting 25 per cent of Portuguese sampling points, for example - is related to the spread of intensive irrigated horticulture, which uses high levels of inorganic fertilisers.

Nitrate pollution is also a serious problem for some of the EU's surface waters. Apart from Nordic countries where 70% of sampling sites have concentrations below 0.3 mg N/litre, 68% of the sites in all other European rivers had annual average nitrate concentrations above 1 mg/litre between 1992 and 1996. The highest concentrations were found in the northern part of Western Europe, where much intensive agriculture is concentrated. The main source of nitrate in these cases is diffuse pollution from agriculture, which is

exacerbated by high rainfall at certain times of the year (CEC, 1998b). Areas of intensive dairy farming in northern and western regions, including Normandy and the Republic of Ireland are particularly affected.

Phosphorous levels are also a major concern. Concentrations of above 50mg/litre in rivers are generally expected to have resulted from human activities. However, data from around 1000 river sites in Europe suggest that only 10% of all rivers have mean total phosphorous concentrations below 50mg/litre (EEA 1998). As other sources of contamination by phosphorous are removed the contribution from agriculture become more important and is the focus of concern in several countries.

Phosphorous pollution from agriculture is a serious problem in some, but not all, Member States. The average level of excess phosphate in soils is estimated at around 13 kg P per hectare per year for the EU as a whole (CEC, 1998b), but the highest surpluses occur in the Netherlands, Belgium, Germany and Denmark.

*Standards*

National and regional authorities in the EU have in place a range of measures designed to control nitrate and phosphate concentrations in water, including controls on manure treatment, application and storage, and certain specific standards in relation to phosphate applications to land. On the whole, these standards are applied mainly in those countries and regions where there are high concentrations of intensive livestock production – including the Netherlands, Denmark, northern Germany and western France (Brittany). The Netherlands, Austria and Denmark have designated their entire territories as Nitrate Vulnerable Zones under the EU nitrates Directive, thereby committing all their farmers to specific standards and, potentially actions to control nitrate leaching.

Examples of legislation and standards, mainly in northern and western Europe are given in Box. 1.

**Box 1. Examples of legislation and standards relating to water pollution**

| Measure | Country examples |
|---|---|
| On-farm nutrient budgets | Since 1998, a Mineral Accounting Act designed to identify and limit mineral surpluses of nitrogen and phosphorous applies to all livestock and arable farms. In the **Netherlands**, the Act requires that surplus nitrogen in 2000 should not exceed 275kg per hectare on grassland and 150kg per hectare on arable land. Maximum surplus phosphate limits in 2000 have been reduced to 35kg per hectare. In **Germany**, mineral balances must be assessed by all holdings over 10 ha with a supply of nitrogen from livestock manure of over 80 kg per hectare. Nitrogen balances are required on an annual basis, and, in addition phosphate and potassium balances are required once every three years. In **Denmark**, reporting on cropping and fertiliser application is compulsory at farm level. Fertiliser balance sheets also need to be kept in **Flanders (Belgium)**. There are plans to introduce more comprehensive controls of this kind throughout the country, over the next few years. |
| Intensive livestock farms | In **France**, an authorisation procedure applies to all sizeable new intensive livestock production units (see Box 5). In **Austria**, a license is required if livestock production exceeds 3.5 Livestock Units per hectare. There are also specific restrictions on intensive pig farms in the **Netherlands**. |

| | |
|---|---|
| Manure storage requirements | Legislation in many countries specifies a level of manure storage requirements on farms, expressed in terms of months of manure production. This is in order to meet constraints on manure application during part of the year.<br><br>Ten months of storage capacity is required in **Finland**, 9 months in **Denmark**, and 6 months in **France, Germany** and the **Netherlands**. Storage facilities in **Sweden** are required for at least 8 months for cattle, horses, sheep or goats, and 10 months for other stock, and apply to holdings with more than 100 livestock units. |
| Manure application requirements | Several countries put restrictions on the maximum amount of animal manure which may be applied per hectare, restrictions on fertiliser application, and restrictions on spreading of animal manure. These may apply to the timing, ground conditions, technology used etc. In **Germany**, the application of animal manure should not exceed 170 and 200 kg N/ha on arable land or grassland respectively. In the **Netherlands** restriction on the maximum amount of phosphate which can be applied in the form of manure is 85kg per hectare for all land. |
| Maximum limits on nutrient inputs or stocking rates | In **Denmark** legislation regulates the ratio between the production of manure and area available for spreading it on farmland, thereby setting standards for the density of livestock. In general these are 1.7 LU per hectare for pigs and 2.1 LU per hectare for cattle. These will be reduced to 1.4 LU and 1.7 LU respectively in 2002. Stocking density in **Sweden** must not exceed 1.6 dairy cows per hectare and land used for spreading manure must be either (i) arable land on the same holding, (ii) other arable land with a contract to spread manure for a period of at least five years, or (iii) grazing pastures on farms with grazing livestock. Density requirements have applied since 1995 to all holdings with more than 10 livestock units. |
| Cover crop requirements | In **Denmark** the proportion of winter crop cover must exceed 65% on all farms. In **Sweden**, at least half of the arable land needs to be in green cover during the winter period, in the southern and central part of the country. |
| Soil testing requirements | Compulsory soil testing is required in the context of the Nitrates Directive in several Member States. |
| Fertiliser taxes/levies | In **Sweden**, a tax applies to cadmium in fertilisers, of SEK 30 per gram Cd per tonne, exclusive of the first 5 gram cadmium per tonne of phosphate. In **Austria**, a levy applied to all fertilisers but this was abolished on accession to the EU. **Finland** had taxes on phosphorus and nitrogen, which were also abolished on accession to the EU. In the **Netherlands**, farmers are charged a levy if their so-called 'acceptable losses' of nitrogen and phosphate exceed certain thresholds. Farmers currently face payments of 2.5 guilders/kg/ha of phosphate and 1 guilder/kg/ha of nitrogen that exceeds the limit. Surplus nitrogen in 2000 should not exceed 275kg per hectare on grassland and 150kg per hectare on arable land. Maximum phosphate limits in 2000 are 35kg per hectare The revenue from the levy is used to administer the Mineral Accounting System (see on-farm nutrient budgets). |
| Manure Quotas | The **Netherlands** government introduced manure quotas in 1994, which are currently based on a phosphate content of 85 kg per hectare. If farmers produce manure above this quota they must pay for a manure collector to store the manure and find a farmer who has not exceeded the quota or, alternatively apply the manure in such a way that 'surplus limits' are not exceeded. In reality, the latter is often a feasible option. |

In several Member States there has been a series of steps to reuse standards of water quality in recent years, with legislation or national programmes being strengthened or developed and resulting in significant changes in the regulatory environment for farmers.

This has arisen because of:

- growing concern in many regions about the agricultural contribution to water pollution, especially from diffuse sources;

- disappointment about the speed of progress in reducing pollution or meeting targets under previous policies;

- pressure to implement EU measures, particularly the nitrates Directive.

An illustration of this process in the Netherlands is given in Box 2. At the time of writing there remained considerable uncertainty about the extent to which policy would need to be developed further in order to meet objections from the European Commission about inadequate implementation of the nitrates Directive in the Netherlands.

It should be remembered that, as in the discussion in Chapter 1, many of these standards are implemented primarily on the basis of concerns about human health, rather than environmental value. Hence although some Member States may have stricter controls on nitrate or phosphorous applications to land, these will often be set at levels which are higher than might be desirable from a purely ecological point of view, for instance in relation to the quality of nearby aquatic ecosystems.

### 2.3.2 Water quantity

A growing area of farmland in Europe is irrigated. Agriculture is the single most significant user of water in Greece (80% of all water abstractions), Italy (50%), Portugal (52%) and Spain (65%). Average rates of use exceed 7,000 $m^3$ per ha of irrigated land in Spain, and are around 3,000 $m^3$ per ha in France. For Europe as a whole, about a quarter of the abstracted water is used in agriculture (EEA, 1996). Where too much water is drawn up from limited groundwater supplies, the water table is lowered. Salts, either drawn in from nearby seawaters or dissolved from newly exposed soil strata, may contaminate such waters. These environmental problems are increasingly common, particularly along extensive coastal strips in southern Member States where horticulture has intensified.

Significant proportions of horticultural and other cropland in the extensively drained countries of the Netherlands, southern Denmark and Flanders (Belgium) are also irrigated during the dry summer season. Crops such as potatoes, salad vegetables, soft fruit and sugar beet are particularly prone to damage from drying-out in summer, so irrigation is frequently used, drawn primarily from groundwater sources. As a consequence, the water table is being lowered in many areas and this is leading to problems of salinisation similar to those found in Mediterranean areas.

*Standards as enforced through permits and charges*

It is common but not universal in the EU for water to be viewed as a public good, controlled and administered by public bodies at national or regional level. Many Member States entrust this role to river or drainage-basin management authorities which may be public bodies, or may be organisations with membership drawn jointly from public and private water interests. In most cases therefore, farmers require permits from such an authority in order to abstract water from ground or surface waters. They may also be subject to various interventions by the authority in order to further control timing, quantity, costs and other aspects of abstraction. Examples of how these structures may set standards for water use are described in Spain and France (See Box 3 & 4).

## Box 2. Manure policies in the Netherlands

In the **Netherlands** a growing recognition of environmental issues led the Dutch government to pass major legislation in 1986 for the control of manure. The law involved three phases of action from 1987 to 1999. During these phases farmers were placed under increasing obligations to limit manure production, to balance application rates more closely to the absorption capacity of land and to reduce the use of fertilisers in order to prevent saturation of soils by nitrates and phosphates.

In relation to manure, all farms (livestock , arable and horticultural must adopt detailed minerals accounting procedures (known as 'MINAS ' standards) under the final phase of the manure law, which was enacted in 1998. MINAS obliges farmers in the Netherlands to work out the extent to which mineral content in manure produced on the farm exceeds the land's capacity to absorb it safely. Where significant excess loading is calculated, manure must be taken off the holding, either to be used on farms elsewhere or to be stored and treated in regional waste plants. The Act requires farmers to keep mineral accounts and to adopt mineral accounting procedures. These are to be inspected annually and charges levied if farmers have exceeded either the nitrogen or phosphate limits. Specifically, the Act requires that surplus nitrogen in 2000 should not exceed 275kg per hectare on grassland and 150kg per hectare on arable land. Maximum phosphate limits in 2000 have been reduced to 35kg per hectare.

In relation to phosphates, the Dutch have applied a system of gradually reducing maximum application rates for phosphates from both mineral and organic sources per hectare, (see above table under on-farm nutrient budgets and manure quotas.

This is similar to the system applied to nitrogen under the Nitrates Directive, which covers:

(i) a ban on spreading manure and other organic wastes during the period between December 1 and February 28 (unless manure is being ploughed under soil within 24 hours after application. This restriction is applicable to the whole country as of January 1, 1989;

(ii) a requirement to spread manure and other organic fertilisers during the autumn period in vulnerable zones according to the Nitrates Directive (applicable from 1995 onwards);

(iii) a total ban of spreading manure from 1 January to 15 February in vulnerable zones according to the Nitrates Directive;

(iv) storage requirements for animal manure in vulnerable zones and on large farms.

(v) Requirements to reduce ammonia losses during storage of slurry and urine. Manure must be ploughed under within 4 hours after spreading in the southern part of the country. As of January 1, 1998, spreading of slurry in growing crops must be done with equipment that efficiently reduces losses of ammonia.

Public supported research and development is used to help farmers to diminish their losses of nutrients to the environment. A major programme of training has also been supported to help farmers to adopt nutrient budgeting and waste planning

In several Member States, abstraction licences are granted with associated requirements. For example, a licence may be given to abstract from a river during the wetter part of the year only, on condition that the water is then stored on farm in a reservoir with a certain maximum capacity, for use later in the year. In addition, the licence may specify what techniques of irrigation are to be used (e.g. drip or trickle systems), although this is more commonly left for farmers to decide, using state-funded extension services for advice.

*Other controls*

Some Member States have general protection measures for wetland, marsh and riverbank sites which are intended both to protect biodiversity and to conserve water resources in these areas by preventing drainage or other physical disturbance which might significantly affect the site. For example, in many German and Austrian Länder there are general prohibitions on all activities capable of destroying altering or modifying the state of wetlands, marshes, springs and watercourses. Any farmer wishing to undertake such activities must seek special permission from local authorities, and permission may be refused without compensation. In Luxembourg a permit is required to strip the banks of all running or standing water of their vegetation and permission will be refused if this would adversely affect the site or the natural environment. In Denmark, a 2m strip along both sides of all natural watercourses and lakes larger than 100 square metres, in all rural areas, must be kept clear of any crops, plantations, modifications of the terrain or enclosures (de Klemm, 1996).

**Box 3. Water abstraction for agriculture in Spain**

In Spain, all farmers withdrawing water from a single source or using a single concession to abstract must form a users' association or irrigator community. These bodies must democratically elect leaders and must assume legislative, executive and judicial functions in respect of the user group, with the aim of ensuring best and most equitable use of water, to avoid waste or misuse, reduce environmental hazards, maintain irrigation infrastructures and settle disputes between users (Ortiz, 1997). Irrigator communities (ICs) must apply to the Basin Authority for permission to abstract water. Concessions are granted for specific purposes and can be withdrawn if the characteristics of use change, or altered if the Authority deems this necessary as a result of a periodic review. Concessions cannot be traded. The IC must then agree an irrigation rotation for sharing the available water between users and a roster for bailiffs to turn water outlets on and off, maintain the distribution network, and police and report any misuse of resources. It must also maintain a census of water used by each irrigator so that water charges can be levied accordingly. Through the main irrigation season, IC committees may meet once a week to assess and agree a weekly schedule of water use and distribution between the various users. Often, water availability may be limited to 2 or 3 hours per hectare of land, each week. The water users who belong to these ICs must comply with IC rules about levels and timing of water usage and may be subject to fines if they transgress.

In addition they must pay charges in relation to the amount of water used, which are imposed to cover the costs of preservation, cleaning or improvement of the water resource and its distribution system. These charges for a traditional IC may be fairly modest - a 1997 study of the Urgel Plain in Spain calculated an average charge for a user of 600 cubic metres per hectare per year of 21,000 pesetas, or around £120 per year (Ortiz, 1997). In fact, research in Spain on the issue of water charging has estimated that irrigators themselves only pay around 15 per cent of the total cost of irrigation systems, with the remainder being subsidised by public finances (Mediluce, 1993)

### 2.3.3 Soil

*Issues*

The main environmental concerns associated with agricultural soils in Europe are contamination by heavy metals and other persistent substances, diminishing organic content of soils, erosion and salinisation. Soil erosion is particularly a problem in a number of Mediterranean countries, including Spain, Portugal and Greece. However, although there are standards for soil contamination at both EU and Member State levels, we have not found any such standards for controlling soil erosion.

**Box 4. Water abstraction for agriculture in France**

In France, a 1992 Water Law was passed to institute a common framework for the control of water use and management, which strengthened the policing powers of the state and clarified the responsibilities of Communes (local community-level government administration) in relation to the water resource. Water use is planned by Basin Authorities using SAGE plans (Schemas d'Amenagement et Gestion d'Eaux), which define the purposes of water use in the area and set up the mechanisms to control use. SAGE plans must be approved by the state. The majority of rights to abstract water for irrigation are time-limited (usually 5 years or less - commonly annual rights are awarded to groups of farmers), and they can be suspended by the state in periods of severe shortage.

Farmers pay charges for abstraction but, as with Spain, these are mainly designed to contribute towards water management and infrastructure maintenance costs, rather than to reflect the scarcity of the resource itself. On average, the level of charge is likely to be around 1FF per cubic metre of water used per year, which would equate to only about 50% of the Spanish costs estimated above. In addition to these user charges, the local Communes have to pay a 'redevance' charge to the Basin Authorities to cover additional infrastructure costs and some of the costs of environmental protection associated with water use restrictions and management. There has been some debate about increasing charges to users and installing water metering, but this has met with considerable farmer resistance in some areas (Min of Ag, pers comm).

Soil contamination arises from different sources including sewage sludge, pesticides and agricultural wastes. Salinisation is particularly associated with irrigation, e.g. along the Mediterranean coastline of Spain and parts of Italy and Greece, as well as some drained areas of the Netherlands, Flanders and Denmark.

Some Member States, including Germany and the Netherlands, have relatively comprehensive soil protection legislation, although this is concerned with all aspects of soil management, rather than primarily farmland.

*Standards - sewage sludge*

While the major risk of soil contamination by heavy metals in the EU come from industry, the use of sewage sludge and other industrial by-products as fertilisers for agriculture has led to some significant incidences of soil contamination in particular regions, particularly in east Germany.

The EU regulates the use of sewage sludge in agriculture. However, the main burden of meeting standards set in these regulations normally falls on water companies or similar authorities, which are responsible for analysing sludge, testing soils and providing farmers with information about the sludge that they use.

Several Member States have adopted Codes of Practice for the use of sewage sludge on agricultural land. While Codes of Practice have no direct regulatory status, clear instances where applicators have disregarded the codes can be cited as evidence in individual prosecutions for pollution offences, in some Member States. However, as with the Directive, most of the recommendations in Codes of Practice are made in respect of those who undertake to apply the sludge to farmland and in the majority of cases this will be a water company or their contractors, rather than the farmer.

*Standards - cadmium in fertilisers*

Austria, Finland and Sweden all impose national limits on the cadmium content of inorganic fertilisers. Products exceeding this concentration are prohibited from use by law. These were introduced prior to accession to the Community but all three countries were authorised to keep them for a limited time period when they joined the EC in 1995. The authorisation has since been extended to 2001 to allow the Commission sufficient time to collect data on cadmium to determine whether an EU-wide limit is justified. In Sweden a tax applies to cadmium in fertilisers, currently of 30 Swedish Krona per gram of cadmium per tonne, exclusive of the first 5 grams of cadmium per tonne of phosphate. Revenue from this tax is not 'earmarked' for the use of any specific project (Min of Ag pers comm).

### 2.3.4 Air

*Issues*

Intensive livestock production in some regions is now a significant contributor to the production of both greenhouse gases (GHG) and ammonia. The most serious concerns are in the Netherlands, Flanders, Denmark - northern Germany, some areas of north-western France and northern Italy. Well over 90% of total emissions of ammonia originate from agricultural activities. Across the EU as a whole, farms are responsible for 8 per cent of total greenhouse gas emissions but are the principal sources of methane and nitrous oxide, contributing around 41 per cent of these two gases. Methane is a particularly powerful greenhouse gas and may be the target of future EC measures. An agriculture working group is being established within the European Climate Change Programme.

Other issues include pesticide drift which is a particular problem on intensively managed arable land and subject to varying degrees of control in different Member States at national or more local level. The practice of burning crop residues such as straw can cause significant nuisance to nearby settlements, road users and others and there are additional nuisance issues in livestock farming, for example odour and noise from intensive units.

*Standards*

The main existing EU legislation relevant to the reduction of acidifying emissions from farms includes Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC). Other important EU measures, such as the Large Combustion Plant Directive, do not apply to agriculture.

In general, air quality concerns arising from large intensive livestock units are dealt with through systems of land use and development control, sometimes operating through a consents procedure for the construction of more sizeable livestock units, especially for pigs and poultry. In France, Germany and the Netherlands, guidance is provided to farmers about how any new livestock units should be designed in order to meet environmental quality standards, including those for landscapes, environmental impacts, noise and odour. Permission to install new units or to make major changes to such units is covered by relevant local and national development consent procedures. At EU level, the EIA Directive (85/337) specifically covers large intensive livestock units, but the requirement for an environmental impact assessment procedure sits within the broader land use planning

process of the Member State concerned. An illustration of how the process is applied in France is given in Box 5.

Controls on crop residue burning are the subject of national or regional legislation many Member States, including Germany (e.g. Schleswig-Holstein), Ireland and Denmark.

**Box 5. Livestock buildings in France**

In **France** any producer who wishes to construct a new building for livestock must follow several procedural steps in order to obtain permission to go ahead, as follows.

- For buildings too small to qualify under French law as 'classified installations', producers must ensure that their proposals meet the requirements of Department sanitary controls, as set out in specific standards concerning, *inter alia*, distances from other buildings, ventilation requirements, watering and hard standing requirements, and minimum land area available for the spreading of manure;

- in the case of "installations" of medium environmental risk, corresponding to farmily conventional farms (see thresholds below) a 'declaration' system is in place. The producer must follow a more detailed set of general prescriptions set out by the Departement in relation to health and environmental requirements. A dossier must be prepared including a detailed plan and description of the proposal explaining stocking levels and provisions for waste handling, siting and other measures designed to minimise environmental and hygiene risks. The dossier will be scrutinised at County level and may be approved subject to certain additional conditions;

- in the case of classified installations of significant environmental risk, producers must prepare a similar dossier seeking authorisation for the installation and the Departemental Hygiene Council must subject this to a full public enquiry and analysis of the proposal, before authorisation is given.

Once this stage is completed, the producer must seek planning permission from the local Commune (village or parish), submitting the dossier of information including detailed plans and a landscape assessment of the proposal.

The decision as to whether a new installation requires a declaration or a full public enquiry depends upon the size of building concerned. Public enquiries are required for any dairy cow units of over 80 head, veal calf or beef fattening units over 200, indoor fattening of pigs above 450 head and poultry units of more than 20,000 birds. Declaration procedures are required for dairy units between 40 and 80 cows, over 40 suckler cows, 50 to 200 fattening cattle or veal calves, 50 to 450 pigs and 5,000 to 20,000 poultry birds.

### 2.3.5 Pesticides

*Issues*

Pesticides may threaten groundwater and surface waters by leaching, run-off or spray drift. The EC Drinking Water Directive (80/778/EEC) specifies Maximum Acceptable Concentrations (MAC) for various substances in drinking water, including 0.1 µg/l for residues of individual pesticides, and a requirement that the sum of all pesticides should not exceed 0.5 µg/l. These limits are set primarily for human health reasons but they also will influence their environmental impacts.

Approximately 800 active substances (organic and inorganic) are registered and authorised for use in Europe, although the major usage is of only a small proportion of these. Some countries such as Germany and Sweden have carried out reviews of 'older' agro-chemicals,

and these tend to have relatively low numbers of registered compounds. Countries without review programmes as such (e.g. France, Italy and Spain) tend to have the highest number of authorised active ingredients. The number of active ingredients registered in France exceeds 700 (Oppenheimer, Wolff & Donnelly, 1996).

Levels of pesticide use are currently increasing in several Member States including Greece, Ireland and Portugal, but in others they are apparently stable or in decline (Brouwer and Lowe, 1998). However, changes in pesticide efficiency, toxicity and specificity make it difficult to relate these trends to environmental impacts.

Pesticide sampling across the EU in recent years suggests that high levels of pesticides in water are associated mainly with areas of intensive arable - including forage maize cropping on livestock farms – horticulture and fruit farming. Monitoring generally finds levels over 0.1 micrograms/litre in between 5 and 25 per cent of samples in these regions, including northern France. France has a comparatively high level of pesticide use, which has increased dramatically over the last 20 years. As a result, drinking water samples in several parts of the country regularly exceed the EU limits for common pesticides, such as atrazine (90% of samples in Brittany and 94% in the Central region, in 1993).

In the Netherlands, high levels of pesticide use - four times the EU average - particularly in arable areas, are causing water pollution and soil contamination. The use of soil disinfectants for potatoes and horticulture has been particularly damaging to biodiversity. It is estimated that 80% of identifiable toxins in Dutch soil, water and air come from agricultural pesticides.

Other issues that are of concern in a number of Member States include the impacts of drift from aerial spraying operations, and the potential for transboundary atmospheric transport of pesticides between Member States.

***Pesticides measures in some Member States***

*a. Constraints on permissible use*

In Germany, pesticides should be used in accordance with Codes of Good Agricultural Practice which have been designed to meet national requirements. In total some 60 active substances (or around 6% of the authorised pesticides) are banned for use in water protection areas, which cover about 15% of the country. In these regions, active substances may not be used if they are vulnerable to leaching (Oppenheimer Wolff & Donnelly, (1996)).

*b. Reduction plans*

Several Member States have overall pesticide reduction plans or programmes which provide a framework for different measures and may also specify national targets in a quantified form. These are distinct from farm level standards but within the programmes these can be measures which do stipulate such standards. Examples are taken from three countries:

i. In Denmark, the first National Pesticide Reduction Plan was introduced in 1986 and aimed to reduce pesticide consumption by 25% relative to 1981 – 85 levels by 1990

and a further 25% by 1997. In 1997 a progress report was drawn up, showing that the quantity of active substances sold had been almost halved, but that treatment frequency had not been reduced. Since then, the government has introduced Pesticide Action Plan II. The stated goals of this are to:

- reduce the treatment frequency index to as low a point as possible. This index is defined in the plan as "the average number of times per year agricultural land can be treated with the sold quantity of pesticides, assuming that the pesticides are used in the prescribed normal dosages". A target for reduction is to be set for 2002 for a frequency of less than 2.0 and new targets after that will be set every three years. Research indicates that the present treatment frequency can be reduced to between 1.4 and 1.7 within 5 - 10 years without serious loss to farmers or the economy;

- offer greater protection in certain areas by introducing a buffer zone along targeted water courses and lakes over 100 squared metres. It is expected that the introduction of a buffer zone will result in 20,000 ha of buffered land.

- increase the acreage used for organic production.

- set a target to increase the area of organic production by 170,000 ha by the year 2003, (In accordance with the Danish Action Plan on the Aquatic Environment II).

- Revise the pesticide approval scheme.

A number of instruments are to be used to fulfil these targets. Measures intended to achieve a reduction in the frequency index include: a) provision of increased advice to farmers on reducing pesticide consumption, b) the establishment of demonstration farms and information groups, c) increased use of decision support and warning systems, d) targeted information campaigns by agricultural associations, e) supplementary training of farmers and consultants, f) the introduction of targets for pesticide usage in the different crops as a control instrument at farm level and g) advice to farmers on reducing pesticide consumption, using relevant tools eg. targets, action plans and spraying logs.

In order to establish buffer zones the intention is to target the use of set-aside under the area aid scheme and to establish the buffer zones. To promote achieving the target by means of these instruments further information campaigns and advice will be channelled to farmers. A research project will set up to identify areas particularly sensitive to pesticide leaching. This will be followed by regulatory measures on pesticide usage in these 'sensitive areas', approval schemes and guidelines on pesticide use in private homes in gardens. The development of organic farming through additional funding for research into farming practices and the promotion of development activities, such as marketing. Finally, the government intends to tighten the approval scheme for pesticides. The intention is to ban those pesticides posing a threat to groundwater and to limit dispensation for use of such pesticides. Consideration is also being given to ways of promoting integrated prevention and control. The action plan will be evaluated at the end of 2002 against the original objectives but also in terms of its economic impact (DEPA 2000).

ii. In 1991 the Netherlands government introduced a Multi-Year Crop Protection Plan to reduce pesticide use as well as emissions of pesticides into the environment. At the end of the first phase of the program in 1995 considerable progress could be measured, including: a 35% reduction in overall pesticide use compared to 1984-88 levels, a 40% reduction in emissions to soil and groundwater and a 70% reduction in emissions to surface waters. This was achieved through the market and voluntary action by farmers. The second phase was to reduce pesticide use by 50% by the year 2000 from 1988 levels. Pesticide emissions to soil and groundwater were to fall by 75%, to surface waters by 90% and to air by 50%. The recent cross compliance measures introduced in the Netherlands concerned with reduced pesticide applications in maize and starch potatoes are an additional means of trying to ensure that these targets are met. The government is also trying to encourage farmers to reduce pesticide use by growing pest-resistant crop varieties and adopting organic or low input farming methods.

It is doing this by extension projects, training, research on integrated pest management and by offering subsidies to farmers to adopt these changes, (Min of Ag pers comm).

iii. Sweden introduced an Action Programme on Pesticides in 1986. It aimed to reduce environmental and health hazards and in particular to cut the quantity of active ingredients in pesticides by 50% by 1990, compared to the average amount used during the period 1981 – 1985. This was achieved. The main measure used to reach this target was a mandatory four-day training programme on pesticide use for all farmers. A certification of course completion was awarded at the end which has to be renewed after five years. The Swedish Board of Agriculture provided a comprehensive advisory service on integrated pest management and other environmentally friendly alternative practices to pesticide application. The success of the programme was monitored through testing pesticide residues in food.

In 1991, a second programme was introduced with the target of a further 50% reduction of the volume of active ingredients in pesticides used in agriculture. However, this was not achieved. Instead, a third and more comprehensive action programme, introduced in 1997, has taken the target forward to 2001. This programme includes two new elements. Firstly, it incorporates the use of local voluntary groups (usually organised by the local association of Swedish farmers) who run their own campaign for 'Safe Pesticide Use' . They provide local advisory and information services on how to reduce the risk of pollution to ground and surface water and help farmers to fulfil regulatory obligations. For example, all farmers who use pesticides in Sweden are obliged to calculate a buffer zone distance between the area of application and any watercourse. A standard formula is used, but all farmers must calculate the effect of external factors eg. wind drift. Local guides are provided to aid farmers in this calculation and the voluntary groups provide information and advice.

The second element refers to the development of new 'risk indicators' used to measure risk reduction. Use of this indicator requires the calculation of the amount of active substance in each pesticide product on the market. This figure is then weighed up against a 'risk index' which consists of two indicators. The first is a

classification of the health risk of the product (based on certain criteria) and the second is a classification of the environmental risk of the product, based on criteria such as bio accumulation and persistence. The relative reduction in risk associated with the use of pesticide use can be gauged from the reduction in the use of that pesticide (SEPA 2000 pers comm).

c. *Taxes on pesticides*

Some Member States, particularly in Scandinavia, have levied charges or taxes on pesticides at the point of sale. While these have generally been intended to discourage heavy use of pesticides they have also served as a significant source of revenue for governments in some cases. A few governments have specifically earmarked the proceeds from pesticide taxes for agricultural purposes. In Denmark a 37% pesticide tax is in place. However, the Danish government is looking into the possibility of changing the pesticide tax from the present ad valorem tax basis into a tax on the treatment frequency index. This would require new legislation.

Finland has a tax of 2.5% on the retail price. Belgium has introduced a banded pesticide tax, whereby the highest tax rates (BEF 10,000 per kg of active ingredient) apply to those pesticides frequently observed in water at concentrations exceeding statutory maximum levels. Sweden has an environmental levy on pesticides, which is 20 Swedish Krona per kilo of active substance. At the moment the revenue from this levy is not earmarked for a specific project, but discussions are now taking place regarding the possibility of re-directing revenue back to the farmer. (Sources: Information from national governments and Rayment *et al* (1998)).

### 2.3.6 land use, landscapes and biodiversity

*Issues*

Europe's cultural landscapes vary greatly in type and form and support a great diversity of fauna and flora. Since a high proportion of these species depends upon semi-natural habitats and mosaics of farmed and forested land cover, the trends affecting agriculture have had severe consequences for European biodiversity. Major detrimental impacts have occurred and continue to occur from a variety of causes, including:

- the drainage of land for intensive grain, vegetable and fodder cropping, which has been a particular phenomenon in southern Member States in recent decades, and was very important during the last century in northern countries including Germany, France, the Netherlands, Denmark;

- the removal of landscape features, loss of permanent grassland and destruction of other semi-natural habitats including heaths and woodland in many Member States, as farms have restructured, enlarged, intensified and specialised - this trend has most affected mixed farming landscapes in certain parts of Europe including north and west France, Austria, Ireland, southern and central Germany, and more productive areas of Spain, Portugal, Greece and Italy;

- the abandonment of species-rich habitats due to marginalisation, the loss of proper management of moorland, grassland and heaths, the degeneration of small woodlands and field boundary features, and the abandonment of water and soil conserving features and practices – these trends particularly affect mountainous and inaccessible regions of both the north and south in Europe, as well as some lower lying areas with poor soils.

As a result, a high proportion of species are threatened in many Member States: for example, over 50 per cent of mammals in Greece and France, more than one-third of birds in Austria, Germany, the Netherlands and Italy and over three-quarters of reptile species in the Netherlands, Luxembourg and Belgium (Eurostat, 1995).

More than one-third of bird species of European importance are in decline, mainly due to habitat degeneration and land-use changes caused by agricultural intensification. There has also been a general and dramatic decline in the area and condition of many semi-natural pastures, meadows, wetlands, low-intensity arable and woodland habitats in Europe over the past 50 years.

*Standards*

It is not easy to translate the wide variety of legislation and other legal instruments applying in this field to standards at farm level. The following paragraphs give some examples.

All EU Member States have protected areas for particular species and/or habitats. In Spain, Italy, Sweden and some German Länder, specific standards apply within certain categories of protected area, e.g. Nature Parks and biosphere and landscape reserves. In other Member States this kind of restriction is more generally reserved only for isolated sites (such as 'sites classes' in France) of special landscape or historic value.

Other Member States including Austria, Germany and Denmark have legislation permitting the authorities to restrict agricultural activities in relation to particular habitat types, wherever they occur. Commonly these will be semi-natural habitats such as dry grasslands, marshes, heathlands, wet meadows and coastal systems, most of which can benefit from extensive agricultural management but which are very sensitive to intensification.

In some Member States there are also specific constraints related to particular landscape features – for example hedgerows, spinneys and scrub vegetation in Luxembourg, stone walls, ponds and the margins of watercourses in Denmark. There is a general system of protection applying to certain biotopes in the agricultural landscape in Sweden, including avenues of trees, stone walls, ponds and wetlands. There is a similar system in Denmark.

Many of these restrictions are compensated for. In Finland, like the UK, farmers of protected sites have to go through a notification procedure if they wish to undertake 'potentially damaging operations' on a site, and compensation may be paid. In Denmark, county Nature Conservation Boards may decide to restrict farmers' activities on sites not subject to general protection, and when this occurs, compensation is obligatory. However, compensation is not payable on sites where general protection applies. In Ireland, compensation may be offered to farmers facing restrictions on sites designated under the habitats Directive and birds Directive.

Restrictions on 2m margins along watercourses and upon damage to nationally important semi-natural areas in *Denmark* are not compensated, neither are the Swedish equivalents. In the Netherlands, there is an uncompensated prohibition on the ploughing or intensification of management on all semi-natural habitats, including land that has been left fallow for several years and pasture that has not been fertilised. In France, landscape protection measures apply to the process of land consolidation programmes, whereby fragmented landholdings are reorganised at Commune (Parish) level via a process of exchanges allowing farmers to rationalise their holdings. In the past this had led to widespread landscape damage as field boundaries and green lanes were removed once holdings were regrouped. Since 1984 a national law has introduced compulsory environmental impact assessment to the process and steps are now frequently taken to avoid these problems where possible through prior agreement between farmers and the authorities. Again, this is done without specific compensation from the state.

Most EU Member States also impose:

- general regulations for the protection of endangered species and their breeding or resting sites; and

- constraints upon built development on farms, usually including livestock housing, stores and waste handling or treatment facilities and often roads and other structures. Building constraints may be imposed for a variety of environmental and human-health related reasons (e.g. nuisance, pollution, etc), and have already been discussed under the previous sections on water and air.

*Protected area standards*

All Member States in Europe have protected area policies, some of which relate to the International IUCN categories of protected area. Around 10% of the total area of the EU is covered by some kind of protected status.

In some national and regional parks and biosphere reserves, farmers may be subject to particular controls upon their activities including tighter development controls, regulation of stocking rates, prohibitions upon ploughing of pasture or drainage of wetland areas, or controls on intensive cropping. However, the strength and the enforcement of such conditions vary enormously from one Member State to another.

In addition to these areas, many Member States have game reserves where hunting is prohibited, and some have other kinds of protected area including watercourses, woodlands, flora reserves and geological sites, and wetlands and reservoirs.

*Controls on genetically modified organisms*

There are currently widespread consumer concerns in many countries in Europe about the potential risks to human health and to the environment that may be posed by the production and consumption of genetically modified food products. Currently, the market for GMOs is limited. Herbicide tolerant plant and insect resistant crops are the most important types of agricultural biotechnology applied to plants.

These concerns have led France to issue a moratorium on the planting of GMO crops. In the other Member States commercial growing of such crops is temporarily prohibited or has been voluntarily stopped until field trials in crop safety considerations have been completed and the EU Directive on GMOs has been amended in the light of new developments. Policies on GMO release continue to be developed and it is not yet possible to identify particular environmental standards that relate to farmers' ability to grow such crops commercially within any Member State. However, some of the conditions developed for trials (e.g. minimum separation distances between GM and conventional crops) are likely to be applied to commercial plantings if these eventually go ahead.

## 2.4 Conclusions

It is clear from this brief discussion that basic environmental standards applied to agriculture vary significantly between the Member States. While the UK's standards are probably above average for the EU as a whole, the same cannot be said by comparison with the northern Member States. Among these, there are some interesting examples of broader or more comprehensive standards applied in other Member States. Some of these examples could be considered as potential models for addressing new UK standards, in the future.

The main areas where other Member States have standards that would appear of possible relevance are as follows:

- *Water- nutrient enrichment by phosphates.* One striking contrast to England is the identification of surplus phosphate on farmland as a significant environmental issue in several Member States and the consequent introduction of a range of measures such as levies on surplus phosphate, stocking rate restrictions, compulsory records of fertiliser use, mineral budgeting, and/or restrictions on phosphate applications in certain circumstances. In the UK, a zoned approach to any limits or requirements may be preferable to country-wide standards, following the pattern of Nitrate Vulnerable Zones designation under the Nitrates Directive.

- *Water – manures and diffuse pollution.* Again, there are possibilities for raising farmer awareness of the nutrient content of manures, and encouraging better waste planning and management. The examples of the Netherlands, Denmark, and Sweden may be relevant here.

- *Water – buffer zones and channel management.* There are already measures in the UK to provide some protection for buffer zones along watercourses (e.g. LERAPs) but the feedback from local EN staff suggests that more could be warranted. It would be possible to compare English standards with those in Germany, Sweden, Luxembourg and Denmark to see if a more comprehensive approach might bring additional benefits.

- *Air and Soils.* Few apparent standards present themselves from other Member States. However, IEEP's recent cross-compliance study (Dwyer, Baldock and Einschutz, 2000) found that the USA has an effective and more comprehensive approach to soil conservation. This is through the use of cross-compliance conditions requiring the implementation of soil conservation plans on all farms with vulnerable soils. Farmers in these areas have to draw up a plan with help from state advisory services,

selecting from a range of potential soil conserving techniques to ensure that vulnerable soils will be protected. Plans have to be approved by the environmental authorities as representing an adequate response to the threat of erosion, on the farms concerned.

- *Pesticides*. A full analysis of differences in pesticide standards is difficult without a major study. Some of the more interesting ideas from other Member States include:

  - the use of pesticides taxes and levies in several Member States - a move which has been put 'on hold' for the time being by the UK Government;

  - the development and adoption of 'pesticide reduction plans' which may include quantified targets, in some countries;

  - the greater use of 'water protection zones', mainly intended to protect groundwater but with benefits for surface vegetation as well;

  - differences in the levels of authorisation of specific pesticides: restrictions on the sale and use of certain active ingredients vary considerably within the EU.

- *Land Use, Landscapes and Biodiversity*. Here there seem to be potential models for standards from other Member States. In particular, the use of legislation and land-use planning controls to protect semi-natural habitats, as in Germany, Denmark, Sweden, the Netherlands and Austria, and landscape features, as in Luxembourg, Denmark and Sweden, seems pertinent to concerns in England. The possibility of applying more local forms of management restriction in certain areas, as in the case of Denmark, could also be worthy of some consideration – there are possible parallels with notions such as 'landscape conservation orders' or local nature conservation designations, which have been discussed in England.

It is important to remember, however, that we have not been able, during the course of this brief study, to make a detailed comparative evaluation of the effectiveness of the standards used in other Member States. Some broad-brush conclusions can be drawn from the literature, but very few comparative analyses exist. In general:

- it seems likely that standards enforced through planning systems will tend to be relatively effective;

- standards relating to the preparation of farm plans, budgets or other similar management tools appear potentially effective in promoting the gradual reduction of environmental impacts in certain sectors, often because they help to raise farmer awareness of the consequences of their activities. The evidence from nutrient planning in the Netherlands is broadly supportive of this view.

- standards which are part and parcel of wider 'action programmes' may be particularly effective in some contexts – for example, significant reductions in pesticide usage have been observed in those countries which have comprehensive programmes of this kind, within which targets for overall reductions are set and pursued.

# Chapter 3. Evaluation of potential gaps and weaknesses in standards in rural England

This chapter assesses potential gaps and weaknesses in standards in rural England by looking in turn at each main area of environmental impact, as used in the inventory of standards and the examination of standards in other Member States. For each area, the discussion is divided into a consideration of:

- coverage – whether the existing standards cover the critical environmental issues for this area of concern;
- effectiveness – whether the existing measures to promote standards in this area are effective in achieving results on the majority of farms.

## 3.1 Basic resource protection -water

The main standards applying in this area concern nutrient enrichment and water contamination (specifically, nitrate contamination of waters) - and pollution - controls on hazardous substances that may pollute waters, including wastes (manures, slurry, silage, dairy washings, etc) and pesticides. Specific standards in relation to pesticides are discussed in section 3.3.

*Coverage issues*

*Phosphates and sediments* - There is a clear issue of coverage in relation to the nutrient enrichment of waters. Nitrates are only one important source of nutrient enrichment of water from agricultural activity. The other two notable sources are phosphates, and soil sediments, which are generally subject to far less on-farm control.

There is evidence to suggest that in some areas, phosphate enrichment from agriculture can be a problem for surface waters, particularly coastal and estuarine waters. In addition, the 'enrichment' of water by soil sediments, often as a result of arable cultivation on unstable soils on slopes upstream, is known to be a significant problem in particular areas of the country, especially where aquatic ecosystems are characteristically nutrient-poor (e.g. southern chalk streams, Marches rivers). A range of EU Directives including the drinking water, bathing water and shellfish Directives specify maximum acceptable levels for a variety of contaminants in water, including nutrients, but these do not have direct impacts upon farming practices. Instead, they affect the policies of enforcement agencies – in England, the Environment Agency – which will affect advice and liaison with farmers, in relevant areas.

*Nitrates in surface waters* - it is now apparent that the UK has not yet fully implemented its obligations under the EU nitrates Directive. Current Nitrate Vulnerable Zones in Britain are limited to those areas where nitrate loading of *groundwater* sources, or those used for drinking water supplies, is an issue. No NVZs yet address areas where nitrate contamination of *surface waters* from agricultural activities is a problem. This gap is expected to be tackled within the next 1-2 years following pressure from the European Commission, as the Ministry of Agriculture designates a further suite of NVZs specifically targeted at surface waters, including estuaries.

*Effectiveness issues*

*Nitrates* - the Action Plans for NVZs were only agreed in 1999. At this early stage, therefore, it is not possible to give a full evaluation of their effectiveness in limiting agricultural leaching of nitrate into groundwaters. However, given the Ministry's prior detailed research into nitrate leaching and techniques for its reduction (partly through the previous Nitrate Sensitive Areas and Nitrate Advisory Areas pilot schemes), it is to be expected that the policies should result in environmental benefits. We are not aware of any significant issues as regards ineffective implementation of NVZ obligations, to date.

*Other farm wastes* - In the course of IEEP's recent study on cross-compliance (Dwyer, Baldock and Einschutz, 2000), the Environment Agency (EA) made it clear that they believe SSAFO and Groundwater regulations, in particular, are not fully complied with on a significant minority of farms. With limited resources for enforcement and policing, the EA therefore tends to concentrate its actions on particular localised areas where pollution incidents have been a recurrent problem. Often, farms may face problems in making the investments necessary to comply fully with SSAFO. It is also possible that farmers in some areas remain unaware of their new obligations under the Groundwater Regulations.

The basic problem with SSAFO enforcement is often related to past structural change in farming which has encouraged an intensity of livestock production at a particular site or within a particular area which is now above the true absorption capacity of the area. Thus farms are producing more manure than they can truly safely dispose of, on site. There is currently little transport of such materials off site (in contrast with some other Member States such as the Netherlands). What is more, enriched farm wastes are often undervalued by farmers in respect of their potential contribution to crop fertilisation, and they are produced most heavily when stock are housed indoors (i.e. in Autumn and Winter), which are the times when these nutrients are less utilisable by crops. Thus the practice of spreading slurry in the Autumn continues, despite the fact that it brings few direct benefits to crops and can lead to significant water quality problems.

*Diffuse pollution* - the existing standards as expressed through SSAFO regulations, Groundwater regulations, together with pesticides regulations, LERAPs and the Green Code for Pesticides (see Annex 1, section 3 for a discussion of these last three) include both action to avoid serious point source pollution risks and damage, as well as the cumulative impacts of diffuse pollution. However, diffuse pollution remains a particular concern, from relatively low levels of contaminants affecting water over a number of years. This can arise in lowland catchments with heavily stocked farms (often dairy farms), which impose significant loadings from both point and diffuse sources. While acceptable levels of contaminants in water are specified through a range of EU water quality Directives, these do not require preventative action by Member States at farm level.

It could be argued that this kind of issue is difficult to address through particular standards related to water, and that tackling diffuse pollution would require broader changes in agricultural practices which could also provide other benefits (e.g. to soils, habitats and landscape). Thus to fill this gap, one might consider the development of a more general 'good practice' guide or set of environmental standards, than a set of specific measures to tackle the impacts of farming upon water quality. Alternatively, one could consider the application of a similar 'zoned' approach to phosphate enrichment as has already been used

for nitrates, with the designation of vulnerable zones and imposition of standards within these.

## 3.2 Basic resource protection: soils, air and integrated pollution control

### 3.2.1 Soil standards and IPPC

The legislative standards in this section mainly cover the prevention of serious contamination of soil from wastes used on farmland. These include those produced on-farm (e.g. manures) and those spread on farmland but produced by other sectors (e.g. sewage sludge, industrial byproducts). The use of the term 'waste' is something of a misnomer in this particular context since these substances can be seen as useful inputs, from a farming point of view, if they are handled correctly, with the potential to boost crop yields and quality and improve soil structure.

The main source of 'standards' dealing with techniques for conserving soil is the Soil Code, which is purely advisory in nature. It is not a binding standard, but could be considered as providing a model of good practice to address issues related to soil conservation and the avoidance of sediment transport and siltation in water.

*Coverage issues*

*Wastes* - Most classes of 'waste material' used on farms are now covered by the standards for waste, however farm manures are not thus classified. The implementation of IPPC legislation will add impetus to ensuring that intensive farms and those accepting wastes are following appropriate procedures to prevent serious environmental damage. On the whole, the onus is on the generators of the waste materials to ensure that standards are maintained, through appropriate contractual arrangements with farms, rather than on farmers themselves.

*Soil conservation* - the Soil Code involves consideration of a fairly comprehensive range of issues and the adoption of a variety of practices appropriate to most British farms. However, this Code has no statutory force (unlike the Water Code and Green Code), and it is not possible to ascertain the extent to which it is known, understood or implemented on farms across the country.

*Effectiveness issues*

*Wastes* - as discussed in the 'water' section, enforcement is an issue in relation to wastes produced on-farm. In relation to off-farm wastes spread on farm land, most of the obligations for meeting standards fall on the firm that has produced the waste material, and they are under an obligation to ensure that their products are safely disposed of. Generally speaking, this should be an effective method of ensuring that standards are upheld since many of the companies concerned will be specialists in the production and handling of these materials. Farmers themselves rarely get directly involved in upholding standards but are likely to follow the instructions given to them by their suppliers under the terms of any supply contracts.

*Soils* - the Code is only advisory, so there are no means of enforcement. It is anticipated that adherence to the Code will not be widespread among farmers. In 1995, MAFF commissioned a survey to investigate farmer awareness and application of the various Codes of Practice, including the Soil Code (COI, 1996). This found the following results:

- under half the farmers surveyed were aware of any of the codes and only one in five owned a copy of a code;
- ownership is associated with good farming practice but this mainly appears to reflect greater interest in acquiring and using the codes amongst those interested in good practice rather than a 'conversion' due to the code;
- interest in acquiring codes is weak for many farmers;
- the perception of their need for advice is low amongst those who are not conforming with good practice.

Since 1995, the Ministry reports a much increased farmer demand for copies of the Codes, which were revised in 1998 with a view to making them more readable and accessible. The increased demand is thought to be partly a result of greater environmental awareness among farmers, to some degree stimulated by participation in environmental schemes and projects, and partly because many Codes feature in new voluntary farm assurance standards. However, uncertainties remain among environmental organisations about whether the Codes are properly applied in the management of most UK farmland.

The 'soil watch' campaign promoted by environmental NGOs in recent years was designed to highlight where soil erosion due to poor farming practices was a continuing problem, but its conclusions are not yet known. However, a recent report by the Royal Commission on Environmental Pollution has highlighted continuing problems relating to inadequate soil conservation on farm land.

### 3.2.2 Air

With the exception of pesticide standards (see Annex 1, section 3), the only binding standard that yet applies directly to agriculture in this category is the ban on straw and stubble burning, which deals with a particular issue of localised air pollution and nuisance. However, other standards will indirectly affect the impacts of agriculture upon air quality – most notably, the standards as expressed through the land-use planning system and building standards for certain types of agricultural building. Others will affect farming in future, such as the effects of critical loads and levels for emissions in the implementation of IPPC. Planning and building standards are separately described and considered under Annex 1, section 4.

The Air Code contains useful information on ameliorating air quality impacts, but like the Soil Code, it is a purely advisory document.

*Coverage issues*

Agriculture's impact upon air is likely to affect environmental interests in two ways – both directly through localised pollution leading to a deterioration in habitat quality in certain areas (e.g. close to intensive, indoor livestock units); and indirectly through its significant cumulative effects in contributing to global warming. As such, the current standards as expressed through the stubble burning ban, various planning controls and emissions standards for agricultural vehicles (not described in detail in this study) appear likely to cover the first of these potential impacts with the notable exception of ammonia damage, but not the second.

Under its commitments as a signatory to the Kyoto protocol, the UK is committed to achieving significant reductions in its greenhouse gas emissions, in the coming decade. Some work has been initiated within the Departments of the Environment and Trade and Industry, to look at agriculture's potential contribution to meeting these commitments (for example, in relation to methane reductions), but no new measures have yet been developed. It is unclear at this stage whether action might involve having to restrict further increases in livestock numbers in the UK (or even attempt to achieve declines), or whether technical solutions to reduce emissions may be feasible. The latter might include installation of better systems to capture and make use of methane and other GHGs produced by farm livestock, as well as changes to feeding practices so as to reduce the production of gases during the digestive process.

The Air Code covers the principal sources of air pollution from agriculture, with sections on odours, ammonia, smoke and greenhouse gases, but does not deal with noise, spray drift from pesticides (which is covered in the Green Code), or air pollution caused by dust. Also, the nature of much of the advice is clearly linked to the need to avoid causing nuisance (which has a statutory definition and can be the subject of enforcement by local authority Environmental Health Departments), rather than focused on issues relating to wildlife and habitats. For example, to avoid problems arising from odour or ammonia due to slurry spreading, farmers are advised, *inter alia,* not to spread at weekends or on bank holidays.

The IPPC Directive requires the UK to set emissions limits for the principal gases from agricultural livestock installations; however, no quantitative limits have been set to date, since limits are implied through the minimum 'best available technology' process (EA, pers comm).

*Effectiveness issues*

It is widely accepted that the ban on straw and stubble burning has been a particularly effective measure in encouraging farmers to find alternative ways of dealing with these residues. Incorporation into the soil has now become the normal practice and this is likely to have brought some environmental benefits in terms of improved soil structure and increased soil biodiversity.

While the effectiveness of planning controls in limiting air pollution from intensive livestock units through conditions on building design and siting has probably been variable, there is no clear evidence to suggest that this is a major problem.

The Air Code is probably too general in nature, and too focused on the avoidance of nuisance to people, to achieve specific beneficial effects for wildlife and habitats. However it may 'add value' where it highlights practical ways for farmers to meet the constraints of other more binding standards, such as in the design, siting and ventilation of farm buildings as controlled through the planning system (via notifications and formal planning permission requirements). The effectiveness of the Code is of course dependent upon its level of adoption by farmers, which is unlikely to be extensive – see the previous discussion on the Soil Code.

IPPC should, over time, increase air quality standards in relation to intensive livestock installations. However, the decision by government to delay implementation of IPPC in relation to agriculture will significantly postpone this effect.

## 3.3 Pesticides

Environmental standards for pesticides include those regulations that control which substances are authorised for use as pesticides in the UK and how they are used (e.g. dose rates, frequency of applications), as well as more general standards concerning pesticide use on farms (e.g. buffer zones and precautionary measures).

*Coverage issues*

Whether the current legislation prohibits or restricts a sufficient range of potential agricultural pesticides is a subject of hot current debate among different parties. It is perhaps fair to say that the development of both generic measures and controls over individual substances via bans and restrictions is an ongoing process. Controls are progressively being tightened as more scientific evidence becomes available to indicate the levels of risk to human health and the environment from the use of a wide range of chemical substances as pesticides. Currently, environmental restrictions apply mainly to those substances which are known to be persistent in the environment for some time and to be capable of accumulation in ecosystems. Though toxicity assessments cover all trophic levels, there is no assessment of non-target plant and invertebrate risk, at present.

The application of more general controls on pesticide use on farms through the use of buffer zones for certain products clearly provides some protection for water courses from this kind of pollution. However, there are no similar mechanisms for protecting other natural resources which may be vulnerable to such contamination (e.g. hedge bottoms, unimproved pastures), unless these areas are subject to separate designation and protection under landscape or biodiversity standards (see Annex 1, sections 4 and 5). Also, there are no measures to deal with indirect effects upon farmland biodiversity, for example via effects upon food sources.

The measures contained in the Green Code concerning environmental precautions for pesticide users include steps to protect SSSIs, as well as bees and other non-target beneficial insects, requirements for aerial spraying and advice on how to meet obligations to 'take all reasonable precautions' to avoid spray drift. If followed, these are likely to offer fairly good environmental protection against serious, one-off pollution incidents and wildlife kills. However, these actions do not address any potential environmental problems from

cumulative use of a wide range of pesticides in the farmed environment, which is now recognised as a possibly serious impact for a number of species and habitats.

*Effectiveness issues*

In relation to pesticides standards, as legislated for and as embodied in the Green Code, we are not aware of evidence to suggest widespread non-compliance among farmers but neither is there strong evidence of compliance. The development of the LERAPs system, which offers a more complicated but potentially more flexible system to farmers to allow them to avoid serious pollution of watercourses, suggests that the sector was aware of its general obligations in this regard. Also, anyone who sprays has to attend a course where the regulations and measures in the Code are explained, which should encourage effective compliance at farm level. However, a recent survey by the Pesticide Safety Directorate (PSD, 2000) indicates that LERAPs is the source of much confusion among farmers, and suggests that farmer awareness of pesticides' environmental impacts may still be too low.

## 3.4 Land use and landscape feature standards

These standards include the controls applied to farms under the Town and Country Planning Acts, and a range of more specific measures designed to protect particular features of value in the countryside, including hedgerows, scheduled ancient monuments, individual trees, larger areas of woodland (felling controls) and limestone pavements. The EU Directive on Environmental Impact Assessment (EIA) also represents a form of indirect standard on farms that is worthy of consideration in this context, and the Code of Good Upland Management, while not binding, represents a potentially valuable model for standards relating to these particular issues.

*Coverage issues*

This category of standards is really a mixed bag of mechanisms which has come about through a variety of disparate concerns and policy initiatives. As such, *a priori* reasoning would suggest that it is unlikely to represent a coherent and comprehensive body of appropriate standards for farmers, in the general field of public concerns about land use.

*Planning* - planning controls limit farmers' development rights and ability to alter certain land uses, but they do not constitute standards in a conventional sense because their effects vary from one case to another. They may or may not entail specific standards for those developments that are permitted.

Under the planning system, only buildings of a certain minimum size, in certain locations (e.g. near to housing or a road), require full planning permission under normal local authority procedures. A second class of building or installation requires prior notification to the local authority under a simplified procedure. Nevertheless, many other farm buildings in all areas except National Parks, can be erected without prior planning approval. Given the generally irreversible nature of building works and their potentially damaging effects upon landscapes and natural ecosystems, this is one area where the coverage of existing standards can be seen as inadequate.

*Other specific mechanisms* - most have acknowledged limitations, in terms of coverage.

- The Hedgerow Regulations in England and Wales protect only a minority of hedges from deliberate removal or irreversible damage. Although all proposed removals must be notified to local authorities, the latter can only refuse permission to remove the hedgerow by reference to tightly defined national criteria of 'importance' which apply only to a minority of hedgerows (DETR, 1998).

- There is no equivalent protection for other traditional field boundaries or other features (e.g. ponds) of ecological and landscape value, other than where they are sufficiently important to have been designated either as SSSIs (see biodiversity section) or as Scheduled Ancient Monuments, or are trees covered by a TPO (House of Commons, 1998).

- The coverage of regulations protecting Scheduled Ancient Monuments is known to represent only a small proportion of valuable historic sites and artefacts on farmland. County Sites and Monuments Records, which are themselves known to under-record the existence of such sites in the countryside, include an order of magnitude of sites greater than the number which are designated as SAMs and so benefit from protection (EH, pers comm).

- Limestone pavement orders now apply to all known areas of pavement remaining in England, as defined by their characteristic flora and fauna and geological structure (the same cannot be said of other parts of the UK).

- Tree Preservation Orders come into play only as a reactive mechanism and local authorities have significant discretion to determine whether particular trees are worthy of protection, on a case by case basis. In theory, the mechanism can be used to protect a wide variety of trees in a range of different situations including farmland. In practice, TPOs are applied mainly to notable individual specimens and are less well-suited to protecting broader kinds of dispersed 'tree cover' (e.g. hedgerow trees), which are also in decline in many parts of Britain.

- Felling controls for forestry operations appear to offer a fairly comprehensive coverage of environmental issues, in that they provide powers to prevent any large-scale felling of trees where this does not meet the requirements of the UK Forestry Standard (see Chapter 4). Because planting on any scale and an increasing proportion of woodland management are now undertaken with the help of grant schemes, the conditions attached to grants, also based upon the UK Forestry Standard, are effective in ensuring that these operations also meet basic environmental standards. The main gap in this area is where woodland is neglected, or where the various controls might benefit from being strengthened specifically for nature conservation objectives.

Other kinds of land use change which can give rise to environmental problems, but which are not covered by any existing standards, include the conversion of permanent grassland and other semi-natural habitat to arable use. To date, this is only included within the non-statutory *Code of good upland management*, where it only applies to moorland. Thus there are coverage issues with this code.

It was traditionally argued that agricultural land use change was inappropriate for control through regulation since cropping patterns have historically changed over time and many such changes are reversible. However, the relative irreversibility of certain kinds of habitat loss – particularly for species-rich, unimproved grasslands, moorland, heath, marsh and bog – and the extreme scarcity of existing semi-natural habitats in England, compared to what existed only fifty years ago, mean that these arguments no longer hold such force.

Some semi-natural habitats will already benefit from protection under specific designations (e.g. SSSIs – see next section) and from other more local designations which may influence development control policies. However, outside these areas semi-natural habitat in the wider countryside remains vulnerable and not protected through any comprehensive system such as land use planning policy.

The effect of the EIA Directive and its implementation in the UK is an indirect one, in relation to environmental standards on farms. The requirement of the Directive is simply to ensure that prior assessments are made of the potential environmental consequences of certain projects or developments, so that they can be minimised or avoided wherever possible. The Directive clearly envisages application to be within the context of (often pre-existing) Member State control procedures which ensure that such developments cannot proceed without some recourse to public authorities.

The implementation of EIA in the context of farm developments already requiring planning permission has added few new constraints upon farming practices since it is part of the existing process. Likewise, in the area of forestry, it has probably had minimal additional impact since it has become a stage in the already established procedures for applying for grant aid to establish new woodlands or for felling licences. However, its forthcoming application to projects involving 'agricultural intensification on semi-natural or uncultivated land' will involve the development of new environmental standards. Here, EIA appears likely to stimulate development of new pseudo-planning control procedures within which it will sit, and in this sense, therefore, it will soon have direct impact upon environmental standards on farms.

The UK should have implemented this part of the Directive by April 1999, but its proposals for doing so are still in preparation after several years of internal discussion between the Ministry of Agriculture and other government Departments and agencies.

*Effectiveness issues*

*Planning* - The controls applied to farms under the Town and Country Planning Acts have the potential to uphold a range of environmental standards, in particular in relation to designated sites and protected species.

However, a significant number of cases exist which call the effectiveness of these mechanisms into question, whereby local authority, planning inspectorate or even Ministerial decisions have failed to afford adequate weight to nature conservation, landscape or other environmental values in weighing up the pros and cons of new development. Nevertheless, the most celebrated cases are largely outwith agriculture.

*Specific measures* - their effectiveness varies.

- It is probably too early to judge the effectiveness of hedgerow preservation orders, since these have only been available to local authorities since 1998.

- Scheduled Ancient Monument regulations are known to work relatively well in protecting features which are located on or under permanent grassland on farms, but the 1998 Monuments at Risk Survey (MARS) by English Heritage has highlighted problems arising from the continuing attrition of the boundaries of sites on arable land. There may also be problems on neglected sites where scrub encroachment or tree invasion threaten the survival of monuments but farmers have insufficient resources or commitment to prevent these natural processes from occurring.

- Tree Preservation Orders (TPOs) are generally effective where they are applied. However, there remain concerns that a system which relies on public or local authority concerns being raised, in the absence of any more comprehensive survey of trees in an area, could result in inappropriate application of orders in some cases, or under-application in others.

- Limestone Pavement Orders have proved very effective at preventing further breaking up and destruction of these features in England, particularly because they cover action by third parties as well as that by landowners and farmers themselves. Their effectiveness has been largely as a deterrent, since policing of the orders is particularly difficult due to the remote location of sites and their relative inaccessibility (many are also in woodland). There have only been two prosecutions as a result of the orders. One continuing concern for these features, however, is that they are also threatened by inappropriate management, most notably overgrazing. A recent EN research survey indicates that 60 per cent of pavements are declining in quality due to overgrazing. Finally, there is also evidence that the application of orders to so many sites in Britain has led to the export of the problem overseas – especially to Ireland. This highlights the problems that can occur if environmental standards in one Member State are significantly higher than those in others (EN, pers comm).

- Felling controls – we have found no evidence to suggest that these are not effective.

*Codes* - The Code of Good Upland Management, like other Codes of Practice for soil and air, is non-statutory and therefore its effectiveness in setting a standard remains subject to farmers' knowledge and voluntary implementation of it. However, in contrast to the soil and air codes it is written and presented almost as though it were a binding standard, and this may affect its uptake and effectiveness. Its guidance on overgrazing is, of course, strengthened by the use of environmental conditions on livestock payments, which are discussed in the next section.

*Environmental Impact Assessment* - It is not possible to comment upon the effectiveness of EIA as a standard, since it must operate within a broader regulatory framework which should itself be subject to an evaluation of effectiveness. However, it is perhaps worth noting that EIA alone will not ensure that environmental standards are upheld on farms if

the systems within which it is embedded give inadequate recognition to environmental concerns.

## 3.5 Biodiversity standards

These standards include measures for the protection of valuable habitats and important or rare species where they occur on farmland. The principal tools are the protected site and species protection laws embodied in the 1981 Wildlife and Countryside Act and, at a wider level, the ongoing development and strengthening of measures under the EU habitats and birds Directives.

*Coverage issues*

Undoubtedly, one of the key issues in relation to the coverage of these mechanisms is the 'special areas' versus 'wider countryside' debate about how best to protect and enhance biodiversity in the UK. This applies particularly in relation to habitats. However it also applies to species, in that much wildlife legislation still focuses on geographical delimitation of important areas used by certain species, and that the measures in general are focused upon a minority of most threatened or vulnerable species, rather than the full range of UK flora and fauna.

*Wildlife legislation* - Most of the existing standards applied to farms to protect biodiversity are targeted on special areas, most notably SSSIs. Notwithstanding recent trends towards designating a larger area of the UK as SSSI, this series still focuses on identifying the best examples of valuable habitat around the country and then attempting to put in place mechanisms to ensure that these examples are preserved for the future. It is known that for a significant proportion of semi-natural habitat types, as much of the habitat may exist outside SSSIs as within them. Recent survey work for the Department of the Environment (the 'Key Habitats' study) has supported this view, and has also indicated that the quality of habitat within designated sites may be little different from the quality of habitat outside these sites, where it remains. The series also fails to identify or target prime areas for habitat re-creation, where protective mechanisms could also be used to stimulate appropriate change.

This is perhaps one of the underlying reasons why the UK's initial application of the habitats Directive was judged inadequate by the EC, based largely as it was upon the pre-existing SSSI series. EC officials point out (DG Environment, pers comm) that in some other countries which had no previous comparable systems of site designation, application of the Directive proceeded in a much more inclusive way, so that proposed SACs included a mix of good and poor quality habitat and covered much larger areas of land, including buffer zones. A new, enlarged list of sites has now been proposed by the UK, to address the shortfall.

In relation to species protection, the coverage of standards is focused upon those species which are deemed most important, although there are also some general prohibitions on the killing, capture and collection of wild species which are not specific to agriculture. However, as highlighted by BTO survey work in recent years, some of the largest declines in population size and range for birds have been among formerly common species which were not subject to any specific protective mechanisms. Some such species are now covered by

Biodiversity Action Plans but currently these do not have any 'teeth' as mechanisms to achieve standards.

*Other mechanisms* - Recent years have seen the development of a few specific mechanisms to tackle particular problems and issues relating to wider agricultural management and its biodiversity impacts, including BAPs, the hedgerow regulations, cross compliance conditions on CAP payments, and the draft conservation code of practice. These measures offer some potential to ameliorate biodiversity impacts but none is yet comprehensive in its coverage, either of issues or of farmers and farmed land. Furthermore, they include mechanisms which are not yet fully established and/or which have been the subject of recent controversy and strong resistance by the farming sector. The draft conservation code, in particular, has been persistently delayed in proceeding to a final agreed version.

***Effectiveness issues***

It is perhaps inappropriate for IEEP to make exhaustive comment to English Nature about the effectiveness or otherwise of its key mechanisms for species and habitat protection. Nevertheless, a few points are worth highlighting in the particular context of this study.

- SSSI protection may have been effective at arresting further destruction or significant one-off damage to some designated sites, but much recent evidence suggests that it has failed to protect many others. Equally of concern is the fact that without a commitment to positive management, it is an ineffective way to arrest gradual decline and deterioration in the quality of many habitats. Many farmed semi-natural habitats are either SSSIs without management agreements, or they remain outside the SSSI series, with no formal protection. A closely integrated package of obligatory standards and effective incentives appears to be critical to the future success of protected sites policies in England. There remain questions about the extent to which some semi-natural habitat types should now be offered much more comprehensive site-base protection through designation (e.g. under the Habitats Directive) or through an extension of the planning system.

- Even where sites are protected by designation, management may suffer where it is difficult to facilitate appropriate agreements. The most obvious example of this is in relation to common land.

- Species protection measures may suffer from enforcement difficulties since the legislation requires proof of deliberate damage or disturbance if prosecutions are to be successfully pursued and it is often difficult to gather the appropriate evidence for such action. If the action is an incidental result of an otherwise lawful activity then this is an acceptable defence, often known as 'the farmer's defence', in respect of many species. The new Countryside and Rights of Way Act adds 'reckless destruction' to the list of punishable actions, which gives some more weight. Nonetheless, the legislation will still be more effective in those cases where the value of sites and their species are known to the authorities in advance, most notably in the case of SSSIs.

- Neither the SSSI series nor the species legislation offer effective protection to species that require a mix of land use and/or habitat types in order to fulfil their life

cycle functions, nor to species which depend upon intensive farmland habitats including arable fields and improved pastures. It is not designed to achieve appropriate farm management in the wider countryside, which appears critical for many species. Similarly, the effectiveness of on-site measures for habitat protection may be reduced by off-site actions which gradually erode the viability of appropriate management on these sites. Examples would include:

- where incremental field drainage or irrigation abstractions by a number of individual landholders over a period of time lower a water-table or reduce river volumes and thereby slowly undermine the survival of wetland or aquatic habitats (eg Wicken Fen); or

- where gradual transformation of a catchment from pastoral to arable farming increases sediment transport into that catchment with knock-on detrimental effects upon downstream habitats (as in Slapton Ley, Devon).

- Many of the standards concerned with basic resource protection, pesticides and land use policies contain elements which are designed to promote benefits to wildlife. However, relatively few of them constitute effective regulatory mechanisms – often, the 'wildlife' parts of codes and guidance are less binding and therefore less potentially effective than other aspects of these standards (eg in relation to human health).

In summary there are several arguments for broadening and to strengthening environmental standards relating to biodiversity protection, especially on farmland. Addressing this need could be important for the UK in meeting its European and International Commitments under the UN Convention on Biological Diversity. Perhaps more importantly, the EU habitats and birds Directives require Member States to address these issues within the next decade, in order to achieve 'favourable conservation status' for important habitats and species wherever they occur. The full implications of this requirement have only recently begun to be reflected in domestic policy priorities but they will assume increasing importance as time goes on.

# Chapter 4. In search of new models - some characteristics of standards in other sectors

The purpose of this chapter is to explore potential new models for standards in the agriculture sector through a brief consideration of approaches in three contrasting industry sectors, namely: forestry, automotive and chemical industries. Of these, the discussion on Forestry concentrates upon those standards not already covered in Chapter 1, since many aspects of forestry standards also apply directly to farmers.

Environmental standards applying to industry take a wide range of forms. Many are regulatory and frequently impose restrictions on specific activities, define pollution emission limits or control product composition. Many are expressed in quantitative terms. Other standards are more holistic, applying to a multi-stage process, an entire plant or the life cycle of a product. Some bring together emission limits, process standards and codes of conduct and can be sufficiently extensive to cover a whole production cycle, including material inputs.

## 4.1 Forestry standards

The main legal framework for forest management is set out in the Forestry Acts of 1967, 1979 and 1981. Other legislation affecting forestry management includes the Environment Act 1995, Pesticides Regulations 1986 and the Plant Health Act 1967, which controls the import of timber species. Forestry is also influenced by a range of environmental legislation which also affects agriculture and is therefore covered elsewhere in this study – including the EIA Directive, wildlife legislation and Tree Preservation Orders (see chapter 1).

The 1967 Forestry Act empowers the Forestry Commission (now Forestry Authority) to issue felling licences, which are required for the felling of almost any trees (exceptions being parks and gardens, individual trees or groups of small trees, and trees that need to be felled for developments that have already been granted planning permission). Licences must be obtained from the Forestry Authority before logging commences, providing the total volume of wood to be felled exceeds $2m^3$ per calendar quarter if the wood is to sold, or $5m^3$ per calendar quarter if the wood is for personal use. All cases of suspected illegal felling are investigated, and prosecution may ensue. It is the policy of the Forestry Authority that areas felled will be replanted or naturally regenerated except where felling is allowed for environmental improvement or to enable development authorised under planning regulations.

As with agricultural change, 'Forestry development' is exempt from Town and Country Planning legislation, so there are no legislative controls on the planting of forests outside protected areas. However, grants are nearly always sought for planting and this requires submission for 'determination' by the Forestry Commission.

A wide range of guidelines must be conformed with (see Box 6), in order for any planting grant or felling licence to be given. These have been brought together under the UK Forestry Standard, published by the UK Forestry Commission in 1998. The document sets out criteria, indicators and standards for sustainable management of all forests and woodlands in the UK. It covers all aspects of management from impact on landscape, nature

conservation and water quality through to archaeology and the safeguarding of public rights of way. It works on the principle that the objectives and management of any woodland should be appropriate to its particular situation, so different parts of the Standard apply depending on the type of trees, the operations to be carried out, and its location.

### Box 6. UK Forestry standard: guidance

*The UK Forestry Standard* comprises guidance in six standard notes.

Note 1 provides guidance on general forestry practice, identifying the basic principles of good practice which apply to most forestry situations. These include:

- being prepared to deal with accidental spillages and the proper disposal of waste materials and equipment;
- ensuring reliable precautions are in place for the general protection of water supplies, aquatic ecosystems, wildlife and other vulnerable features of the environment;
- making specific arrangements for the protection of archaeological sites, protected habitats and protected species of wildlife;
- keeping public rights of way open and respecting private rights of access.

Note 2 refers to the creation of new woodland. The Note requires consideration of the setting when planting a new wood or planting upon open ground within existing woodland. If a proposal would cause adverse environmental, agricultural or other economic impacts not outweighed by potential benefits, alternative planting strategies must be considered. Furthermore, guidance is provided on design issues, taking account of designated and protected sites, semi-natural habitats and open space.

Note 3 deals with the creation of new native woodland, where the special and main objective is to develop natural character using communities of locally native tree and shrub species matched to the site. In these woodlands, nature conservation and reinforcement of cultural landscapes will be primary management goals. Guidance is provided on choosing a suitable site, design, use of natural colonisation and planting and site preparation and maintenance.

Note 4 refers to felling and restocking planted woodland. It gives advice on the preparation of a forward plan, taking account of the effect of land designations, important archaeological sites, protected habitats and species, water, and other issues. Further guidance is given on felling and restocking in broadleaved and conifer woodland.

Note 5 deals with the management of semi-natural woodland. It refers to the national aims for semi-natural woodlands, which include:

- to maintain and restore natural ecological diversity;
- to maintain and improve their aesthetic value;
- to maintain genetic integrity of populations of native species, so far as is practicable;
- to take opportunities to produce utilisable wood;
- to enlarge woods where possible.

These aims, wherever possible, are to be met while respecting the objectives of individual owners, the distinctive characteristics of individual woods, and the needs of the community. The programmes and targets developed under the framework of the UK Biodiversity Action Plans for semi-natural woodlands are reflected in policy instruments and guidance.

Note 6 refers to the planting and managing of small woods, again providing guidance on choosing a suitable site, design and planting and later management and regeneration.

Voluntary international and national certification programmes have also come to play a significant role in the forestry sector in recent years. These aim to promote sustainable forestry management and to set high standards of forestry practice across the whole sector. Prominent at the international level is the Forestry Stewardship Council (FSC), an independent non governmental organisation promoting certification of forest management. The FSC sets out ten principles for sustainable forestry practice. The WWF 95 Plus Group is an international buyers group of 54 companies committed to purchasing only from FSC certified forests because it is currently the only scheme to offer a globally applicable, independent certification programme which includes product tracing and labelling.

Within the UK, there are also voluntary national schemes in operation. The most widely recognised is the UK Woodland Assurance Scheme (UKWAS), essentially a forest management audit which is based upon the UK Forestry Standard and is also compatible with the FSC standard. The scheme was developed through dialogue between all stakeholders in the UK Forestry Sector and is run by an independent steering group. It has the backing of the public, private and NGO sectors.

Also worth mentioning is the FICGB Woodmark. This is a private sector timber tracking scheme instigated by Forest Industries Council of Great Britain. It applies to UK timber only. Another, relatively minor, industry initiative is 'Forests Forever', implemented by the Timber Trade Federation. Timber companies sign an environmental agreement setting out a formal code of environmental practice which commits them to purchasing timber from well managed sources only.

*Commentary:* This sector has a mix of regulation, comprehensive environmental conditions on the main tools for forest change (planting grants and felling licences), and voluntary industry standards, to encourage the attainment of environmental standards. The concept of setting a comprehensive, all embracing 'forest standard' in detailed guidance notes, which is then tied into the planting and felling processes through conditions, is particularly interesting given the current debate about 'environmental cross-compliance' in agriculture. Similarly, the growth and popularity of forest certification schemes mirrors the development of farm assurance for agricultural products, but in this sector there is a greater emphasis on the environmental credentials of the management processes involved.

## 4.2 Automotive industry standards

In the manufacturing sector, typified by the vehicle industry, standards take on a different emphasis. Input standards play a lesser role, though regulations are applied on the heavy metal content of fuel and on sulphur concentrations in fuel oil, for example. However, a wider range of environmental standards is in place at the processing and manufacturing stages, the most important being the Integrated Pollution Prevention Control Directive (IPPC) 96/61/EC. This is the most widely applicable set of environmental regulations for the manufacturing industry. It requires that companies employ the 'Best Practicable Environmental Option' (BPEO) and the 'Best Available Technology' (BAT) at all stages in production. Companies are also expected to adhere to certain emission levels of specific pollutants, to follow guidelines for prescribed processes and demonstrate a commitment to conserving energy, reducing noise and ensuring site restoration.

Interestingly, there are also specific industry wide voluntary agreements on emission limits, arising from concern over climate change. The European Automobile Manufacturers Association (ACEA) committed itself to an overall reduction of 25% in carbon dioxide emissions from new passenger cars by 2008, relative to a 1998 baseline and much progress has already been made in reducing greenhouse gases emissions from vehicles through improved design over the last decade. Partly as a result of this most companies have in place an environmental management system based on an audit of a companies plant and management system. This demonstrates a company's capacity to deal with and minimise its environmental impacts on the environment and a commitment to ongoing environmental improvement. Most companies have implemented systems certified under two schemes, either the International Standard Organisation's ISO14000 series or the EU's Environmental Management and Audit Scheme (EMAS). New vehicles must comply with a range of regulatory standards covering *inter alia* exhaust emissions and noise.

'Output' controls in this sector are also becoming more stringent. The recent European 'End of Life' Directive requires that by 2006, 85% of all new vehicles must be recycled and 75% of old cars. However, voluntary agreements are more ambitious. Many trade associations, manufacturers, dismantlers and materials' recyclers in the UK, have committed through the Automotive Consortium on Recycling and Disposal (ACCORD), to a voluntary agreement to improve the recovery of material from vehicles at the end of their life from the current average of 75% to 85% by 2002 and 95% by 2015. Similarly, the Consortium for Automotive Recycling (CARE), initiated by 10 of the leading car manufacturers, aims to:

a. reduce to an absolute minimum automotive waste material going to landfill;

b. increase demand for materials currently being sent to landfill; and

c. eliminate pollution risks, such as soil and water contamination by vehicle fluids from the car disposal process.

A voluntary partnership also exists between car manufacturers, retailers and motorists organisations with the aim of introducing a programme of environmental labelling for new vehicles displayed for sale. Information will be given on CO2 emissions, fuel consumption, exhaust emission and noise levels. This initiative is well ahead of any legislative requirements.

*Commentary:* The environmental standards in this sector illustrate two points of potential interest to this study. Firstly, there is the use, within a legislative standard, of the 'best practicable/best available' concept to describe how the industry must keep up to date with environmental technologies. This avoids the need to keep re-specifying standards as technology improves, but it also leaves some room for dispute about whether any individual firm is actually meeting the standards required. It is certainly more broad than any legislative standards applied to agriculture (except insofar as IPPC already covers large, intensive livestock installations) but the approach is similar to the kinds of advice contained in the various codes of practice for agriculture.

The second interesting point in this sector is the way in which the industry has taken the initiative to develop its own standards which go significantly beyond those yet required in legislation. This may be in order to pre-empt future legislation, and in that sense there could

be some lessons here for the agriculture sector, particularly in relation to current debates about pesticide reduction.

## 4.3 Chemical industry standards

Most regulation concerning the control of chemicals in manufacturing arises from European Community legislation. The existing Substances Regulation (793/93 EEC) and the New Substances Regulation (92/32 EEC) require all substances to undergo a risk assessment, to determine potential hazards and to conform to labelling requirements and appropriate use restrictions in the EU. The Marketing and Use Directive (76/769 EEC) introduces the framework for such restrictions, but under the Environmental Protection Act (EPA) 1990 the UK can introduce its own marketing and use restrictions on specific chemicals, should it wish to do so. The Dangerous Substances Directive (1999/45/EC), transposed in the UK as the CHIP Regulations 1994, is the primary piece of legislation regarding the labelling of these chemicals. It requires that all suppliers identify the hazards associated with a lengthy list of substances and preparations under 15 classifications, one of which is 'dangerous to the environment'.

In relation to the safety of operating conditions, the Seveso II Directive (96/82), implemented in the UK under the Control of Major Accident Hazards Regulations 1999, sets out steps to be taken by operators to prevent the occurrence of accidents and to limit their consequences for human health and the environment. The Control of Substances Hazardous to Health (COSHH) Regulations also requires employers to prevent the exposure of workers to substances hazardous to health, or if this is not practicable, to adequately control this exposure.

Control of chemical emissions into air, water or soil is extensively regulated, for example through the Water Resources Act, (which requires the Environment Agency to give consent to any discharge to water), and also through the IPPC regulations, as mentioned in the context of the automotive industry. Similarly, voluntary environmental quality standards such as ISO 14001 and EMAS have been adopted by several companies. Management of waste is tightly regulated through the Waste and Special Waste Regulations. These specify guidelines for the transfer of waste from supplier to landfill.

In terms of voluntary standards, there are three significant environmental initiatives which have been implemented by the industry. The first is a 'Programme of responsible care', first launched in 1990 by the relevant trade association, the UK Chemical Industries Association (CIA). It sets out various environmental commitments which all members must accept. In a newsletter of June 2000, the CIA reported that 95 per cent of their manufacturing sites (of 318 members) were now reporting on their performance under the programme. The 1999 data indicated some environmental improvement in the following areas:

- red list discharges to water;
- emissions of VOCs to air;
- treatment and disposal of special waste and non-special waste;
- water intake;

- Environment Agency prosecutions;
- energy efficiency and energy management systems.

The second initiative, also by the CIA, is a newer initiative called 'Confidence in Chemicals' which addresses risk assessment, product stewardship and long term research.

The third initiative, known as the 'Green Chemistry Network', has been developed by the Royal Society of Chemistry. It promises to promote waste minimisation, solvent selection, intensive processing and alternative synthetic routes from sustainable sources. Its aim is to improve standards of education, training and the general practice of 'green chemistry'.

*Commentary*: This is a sector which is strongly affected by tight regulatory controls, many of which derive from EU legislation. Nevertheless, the prevalence of 'voluntary' industry standards, often agreed in partnership with government as a confidence-building measure, is interesting, and there is some evidence that this partnership approach can bring real environmental benefits, over time.

## 4.4 Conclusions

While the nature of these sectors and the level of regulation varies greatly, this brief summary gives a sense of the growing complementarity of regulatory and voluntary approaches in three quite different sectors. This developing synergy may perhaps reflect a realisation of the limits to ensuring standards through regulation, or it could simply demonstrate where regulation may yet need to expand. The use of broad 'best available' concepts for standards in the automotive industry, and the comprehensive use of environmental conditions in the forestry sector, are developments that could have relevance to future standards in agriculture.

There are several common strands among the voluntary approaches, which are also of interest, as follows.

- One finds both specialised, high quality labels which are used to distinguish specific products with environmental attributes, often representing a small proportion of output, as well as more general certification schemes which aim to apply to most of the output of a particular sector, over time.
- 'Good management' initiatives for a particular sector may be built on approaches such as the EU's Environmental Management and Audit Scheme (EMAS), extending beyond a single firm to the whole sector, and some cover a range of specific concerns, eg the 'responsible care' approach by the Chemical Industries Association.
- A recent development has been the use of specific, sectoral voluntary agreements between industry and government or the EU, typically on a leading issue, such as greenhouse gas emissions. These are often seen as a direct alternative to regulation because they represent a 'contract' with society which, if broken, would trigger a more strict regulatory approach.

Several of these approaches have parallels in agriculture and suggest models which could apply in the special circumstances of the farm sector. Some of the different options are discussed in chapter 6.

# Chapter 5. Criteria for new standards

On the basis of the analysis presented in this report and the continuing evidence of adverse environmental impacts associated with agriculture there is a need to consider different ways in which standards can be increased in certain areas over time. This does not imply that standards need to be imposed in regulations or by other established mechanisms, such as codes of good practice. New approaches, including voluntary initiatives, may be appropriate. Before considering some of the options for attaining high environmental standards in Chapter 6, a set of criteria which may be used in evaluating alternative policy measures is presented briefly. These are intended to capture some of the main concerns arising from environmental, agricultural and administrative perspectives. Given the current pressures on the farm sector and the Government's firm commitment to reduce the burden of regulation where possible it is important to recognise the need to balance the attainment of higher standards against the potential impact of new measures.

Six criteria are proposed against which new initiatives could be tested.

- *New standards potentially should be applicable to the largest number of farms possible.*

  A baseline of good environmental standards should apply throughout the farmed countryside. Voluntary agri-environment schemes will introduce higher standards on a selective basis on farms which choose to participate. This is not a substitute for consistent national standards to ensure that a certain minimum environmental level is reached.

- *Any new standards should provide clear additional environmental benefits over and above existing legislation and codes of practice.*

  There should be a clear environmental rationale for any new initiatives and they should not duplicate existing measures. In the realm of nature conservation there is a particular need to fill gaps and rectify deficiencies in the existing suite of measures.

- *New measures should not impose significant additional costs on responsible farmers.*

  Many farmers already pursue higher environmental standards than the minimum required, often out of personal concern or commitment to good management or both. The costs of new standards should fall specifically on those farmers who are not currently meeting their wider responsibilities. At the same time it must be acknowledged that new standards often involve additional procedures, completing forms and other transaction costs. These cannot be eliminated entirely.

- *New standards should avoid any additional red tape for farmers as far as possible.*

  Well designed initiatives can reduce the administrative burden on the farming community. In this context it is not only the measures themselves but the institutions responsible for applying them. The larger the number of agencies with which farmers have to deal, the greater the cost.

- *New standards should avoid creating significant additional inspection and enforcement burdens where possible.*

  Clearly it is impossible to avoid administrative costs, particularly since some monitoring and enforcement obligations arise in connection with all standards. The farm sector is a particular challenge since it constitutes a large number of different enterprises over a widely dispersed area and even a modest programme of monitoring and inspection can constitute a considerable undertaking. For this reason, there are advantages in any arrangement which allows a single agency to monitor a variety of different standards simultaneously.

- *Where possible new standards should provide an opportunity for positive marketing of farm produce.*

  One benefit of higher environmental standards is that they provide a platform for enhancing the market appeal and, potentially, the quality of farm produce. Several countries, such as Sweden, have taken steps to promote their agriculture as a reliable source of 'green' products. These claims may help to increase market share but need to be underpinned by coherent and adequately enforced standards to provide consumers with the appropriate assurance.

# Chapter 6. Options for future standards

A number of aspects of current farming practice have been identified where environmental standards need to be improved or established. These include diffuse water pollution, soil protection, biodiversity loss and landscape management. There is a whole range of policy measures which could in principle be used to achieve better or new standards in these areas, from advice to regulation, and voluntary initiatives to incentive schemes. This chapter begins with a discussion of the most pertinent measures, briefly summarising their current contribution to environmental standards in agriculture and suggesting possible ways of developing them in future. Attention is drawn to a number of initiatives already in place or under development which may contribute to raised standards. In some cases, the ideas are relatively innovative and novel, in other cases they are based upon increasing the range, depth or effectiveness of existing mechanisms and/or integrating these into a more coherent framework.

Following this discussion, the proposals are reconsidered in the light of the criteria set out in chapter 5. In this evaluation consideration is given to the particular priorities for nature conservation, including those identified by English Nature staff. In the final section of the chapter a package of measures is suggested which appears to offer most potential for further development.

## 6.1 Potential measures for raising environmental standards

This section deals first with measures which involve some degree of compulsion (6.1.1-6.1.3), and then moves on to examine more voluntary approaches (6.1.4 onwards). This mirrors the way in which 'standards' are often achieved in practice, by a combination of obligation and voluntary initiative.

### 6.1.1 New regulations

Whereas there is a clear government preference to avoid any new regulations affecting the farm sector unless they are essential, these should not be dismissed entirely. Regulation can be an effective way of dealing with certain agri-environmental issues, particularly where an absolute requirement is appropriate. The control of dangerous pesticides, including the banning of certain active ingredients and, in the land management sphere, the SSSI Regulations, are both examples. Another is the requirement to maintain an unploughed buffer strip along the banks of watercourses in Denmark.

There is not the space in this report to provide a satisfactory analysis of all the different options which could be developed. However, in relation to key concerns for English Nature, the categories of pesticide regulation, town and country planning and biodiversity protection appear particularly relevant. Some possible examples where regulation could be introduced include:

- In the UK and other Member States the Water Framework Directive will create a new structure for developing measures to improve the biological as well as the chemical quality of water. This could be an opportunity for considering the appropriate role of regulations in relation to water management and the impact of pesticides and nutrients on biodiversity, in particular. For example buffer strips and

water protection zones could be an effective means of controlling land management and the use of agricultural inputs in areas which are sensitive from a biodiversity, as well as a drinking water, perspective.

- Another potentially valuable step would be to extend the scope of the town and country planning system to cover agricultural change more fully than at present. The case for 'normalising' farming's treatment within the planning system has been ably made elsewhere by the government's Performance and Innovation Unit report on rural economies (PIU, 1999). Such a move, which would offer some increased simplicity to farm businesses – particularly where they are diversified or diversifying - could also take the opportunity to address potentially irreversible developments on farmland such as the ploughing up of semi natural habitats, construction of farm roads, installation of new drainage schemes etc. Such a change would bring agriculture more into line with the kinds of control that apply to other 'developers' of land and would back up the implementation of the Environmental Impact Assessment Directive in relation to agriculture, as discussed in chapter 3.

- In the realm of pesticide policy, there are several different options for seeking to reduce the adverse effects of pesticide use, including greater restrictions on the application of certain active ingredients, restrictions on the areas or types of land which can be sprayed, and requirements to maintain application equipment to a certain standard. It may also be worth considering the application of these different requirements in the context of a scheme similar to that of Nitrate Vulnerable Zones (NVZs) under the Nitrate Directive, if there are areas where biodiversity concerns merit a more cautious approach. Compliance with regulation could be an issue here, however, since monitoring and enforcement could be costly and difficult.

### 6.1.2 Cross compliance

In the UK, environmental conditions are currently applied in two main spheres, as described in Chapter 1:

- on headage payments in the Livestock Sector; and

- on payments for the management of set aside land.

In addition to these, however, there is potential for further environmental conditions to be attached to the receipt of payments, both through introducing new conditions into the livestock and set aside schemes and also through expanding the scheme into other forms of production. Possible examples of additional environmental conditions might include:

- Conditions which reinforce the application of existing environmental regulations, such as the Groundwater Regulations, the Hedgerow Regulations and sections of the 1981 Wildlife and Countryside Act concerned with SSSIs. The intention would be to increase the effectiveness of these Regulations by achieving a higher level of compliance and more consistent implementation in the countryside as a whole.

- Conditions linked to the existing Codes of Good Agricultural Practice in order to give these a new statutory force. One option would be to distil a number of key

conditions from the current range of codes, including the code of good upland management.

- Conditions which require farmers benefiting from direct payment to draw up and adopt a farm plan. A variety of different farm plans are now the subject of discussion; these include the whole farm conservation plan and the more specialised farm nutrient plan, which is increasingly popular in a number of European countries. Such plans could be introduced within a specified time period and would need to be subject to appropriate quality control.

- Conditions which limit the use of certain inputs, notably nutrients or pesticides. Upper limits could be set on the quantity of nutrients supplied on farmland during one year, which could be expressed as limits of specific nutrients per hectare. This would provide a direct means of addressing several of the diffuse pollution concerns referred to in this report.

- Conditions which seek to protect and improve the management of specified habitats and landscape features. Such conditions could apply to existing features, for example traditional field boundaries and farm ponds or to the creation of new features, such as uncropped or grassy margins around the perimeter of arable fields. Conditions could aim to prevent the removal or damage of the features or to control specific forms of management such as inappropriate hedgerow trimming. More positive forms of habitat management would be better addressed through incentive schemes.

The government will need in due course to respond to any more specific requirements for cross compliance set out in the expected Commission Regulation implementing the Common Rules Regulation 1259/1999. This is expected to appear in the next few months.

There is a large number of possibilities for cross compliance but it must be accepted that new conditions will introduce an additional financial burden on a significant number of farmers and that there are administrative costs when new conditions require monitoring and enforcement (see Dwyer, Baldock, Einschutz 2000). Unlike agri-environment schemes, introducing environmental conditions through cross compliance does not provide farmers with any additional financial support in return. Any conditions likely to be introduced, particularly in the current economic climate, will thus probably be limited to low or no-cost options for most farms. Nonetheless, cross compliance represents a potentially effective mechanism for applying standards across most of the farming sector.

### *'Usual Good Farming Practice' as a Starting Point for Cross Compliance*

Following the adoption of the Rural Development Plan in England there is an obligation on farmers receiving new agri-environment and LFA payments to comply with a baseline standard of 'Usual Good Farming Practice'. This comprises two elements. The first requires compliance with existing environmental legislation. The second introduces a more limited set of new 'verifiable standards'. These are 'criteria' (again based on regulatory standards) but which are capable of verification by MAFF staff to EU audit standards (through field assessment), as part of the checks required on 5 per cent of agri-environment scheme participants and farmers eligible for LFA payments. Box 7. below summarises these verifiable standards by topic.

Box 7. Verifiable Standards

*Verifiable standards*

*Water*

- silage and slurry stores: farmers constructing new silage or slurry storage facilities must notify the EA before starting. Checks will be carried to ensure that this authorisation has been granted on all new construction;

- sheep dip: farmers proposing to use sheep dip must obtain prior authorisation from the Environment Agency. Checks will be made to ensure this authorisation has been obtained.

*Linear features*

- field boundaries: The removal or destruction of hedges and stone walls on the farm is not permitted except by special derogation under the Hedgerow Regulations 1997. Compliance with this regulation will be checked through visual assessment of any recent damage during field checks;

- hedgerows: There must be no trimming of hedgerows on the farm between 1 March and 31 July. Compliance with this regulation will be checked also through visual assessment in these months.

*Designated sites*

- Sites of Special Interest: Checks will be made to ensure that any damaging operations to SSSIs that appear to have been carried out have been approved by English Nature.

*Agriculture/ forestry management*

- Overgrazing: all farms eligible for stocking density of 1.4 LU/ha or above will be subject to physical inspection in 2001 or in the year at which this threshold is first exceeded, at a least once every three years after. In areas where experience shows that overgrazing can occur, MAFF will ensure that the risk analysis used in determining the selection of farms for physical inspections will be weighted towards those farms with the highest stocking densities, even if below 1.4 LU/ha. If overgrazing is occurring a management regime will be prescribed, including a maximum stocking rate for the site, with follow up visits no later than 12 months after the initial inspection. Failure to comply with this will lead to a loss of all entitlement to LFA payments.

*Air, fertilisers and pesticides*

- No verifiable standards identified.

In addition, farmers will be sent copies of the three current Codes of Good Agricultural Practice and required to retain these throughout the period when they are receiving payments. In principle, these standards are equally relevant to farms which are not receiving either LFA or agri-environment payments. The emphasis is on compliance with existing legislation.

### 6.1.3 Codes of good agricultural practice and their potential applications

The MAFF series of 'Codes of Good Agricultural Practice' (CoGAPs) are covered in the inventory of standards and assessed separately in chapter 3. In overview, these codes are substantial documents with contain a mixture of detailed advice and recommendations which farmers are encouraged to adopt. In some cases, for example, the water and pesticides codes, they contain statutory elements but they also go significantly beyond the scope of legislation in an attempt to present 'best practice' for responsible resource management.

As discussed in Chapter 3, an important gap in the current MAFF series of CoGAPs is the lack of guidance on nature conservation and landscape. Given the current level of concern over declining biodiversity levels and the increasing monotony of the landscape in parts of the country, this is a serious omission. MAFF are committed to developing a conservation code to fill this gap but progress needs to be expedited.

In terms of the effectiveness of the CoGAP series there is some indication (see chapter 3) that an insufficient number of farmers possess these documents and that even fewer follow their recommendations. The introduction of concise summaries of these Codes, written in a more accessible manner, would perhaps facilitate farmer uptake. But even with this kind of development, the codes will only be effective if farmers can see direct benefit to their enterprises in understanding and adopting them more fully.

As discussed in previous chapters, the environmental evidence suggests that there is a pressing need to increase the effectiveness of the existing codes of practice and find ways to ensure that they are read, understood and applied on most farms across the country. The most effective means to encourage more widespread adoption of the codes would probably be to link this to an economic incentive – that is, to find a way to make it worth farmers' while, in monetary terms - to know about and apply the codes. Options for achieving this are discussed in more detail later in this chapter.

### 6.1.4 Taxes, charges and quotas

The government has introduced taxes to address an increasing number of environmental 'externalities' in recent years. Most recent examples include the landfill tax and the proposed carbon energy tax. In relation to agriculture, there has been in-depth consideration of a tax on pesticides, and there are precedents for this in other EU Member States such as the Netherlands and Denmark.

In economic theory, taxation is a preferred approach for achieving standards because it should promote a more efficient often reallocation of resources than simple regulation. In reality, however, the implementation of this kind of taxation in the UK has been on a limited scale. The proposed pesticide tax has met with strong opposition from farmers and

the agrochemical industry, which has instead proposed a voluntary pesticide reduction action plan, although government remains unsatisfied with these alternative proposals.

From an environmental point of view, pesticide taxation at a significant level may well result in a significant reduction in pesticide use – detailed economic studies for the government have indicated this. However, tax could not provide a failsafe mechanism for achieving a particular standard of reduced usage on a particular farm. Taxes of this kind allow farmers to adjust in a variety of different ways which contribute to an overall reduction in usage but do not impose an unambiguous standard. As part of a suite of measures, taxes, quotas or levies may be effective in helping to attain new standards.

### 6.1.5 Advice: advisory services

Advice to farmers on environmental issues plays an important role in securing understanding of, and compliance with, legislation and codes of practice and encouraging higher standards above the statutory baseline. It can also be a vital element in ensuring the effectiveness of existing standards – for example, compliance with regulations. The various advisory services also help farmers who are well disposed towards good environmental management to identify opportunities and make best use of them within the constraints of their own resources. Furthermore they can encourage farmers to enter voluntary incentive schemes. In this sense advice is fundamental to the attainment of higher standards, particularly in the sphere of biodiversity and landscape conservation where simple management prescriptions may be difficult to specify and specialised expertise may be needed in order to meet objectives in an effective way on each farm.

While the existing advisory system has many strengths, it is widely accepted that there is room for improvement and that this could be a major element in any strategy to raise standards without substantive reliance on new regulations.

Generally speaking, farmers receive three types of practical farm conservation advice: statutory, specialist and whole-farm advice. Statutory advice is provided by regulatory agencies, local authorities and government departments. Specialist advice (for example, on hydrology, water management, agronomy, building design and specialist biodiversity management), is provided by specialist statutory agencies, such as English Nature, voluntary bodies and/or private companies with local expertise. Whole farm conservation advice is provided by the commercial, public and voluntary sectors, including the Farming and Wildlife Advisory Group (FWAG), Agricultural Development and Advisory Service (ADAS), National Parks and to a lesser extent, other NGOs, local government and private land agents.

Whilst all of these services perform a valuable role, the resulting pattern of advice is not ideally structured or easily understood by farmers. There appears to be a degree of agency overlap. It is also questionable whether specialist advice and whole-farm advice are always appropriately tailored to farmers' requirements. With some notable exceptions (for example, the National Trust), whole-farm advice is rarely provided in a 'farm business' context. However, there are many private and public providers of farm business advice (including the new Farm Business Advisory Service launched by government in its 'Action plan for farming' in 2000) which do not incorporate an environmental element. Yet, there is evidence to suggest that when information is provided in a more integrated way it is more

likely that sustainable farming practices can be achieved, (eg the Bowland Initiative, as reported in Dwyer & Baldock 2000). Advice also needs to be site specific, and should draw on local knowledge. Thus it is important to engender farmer participation in 'bottom-up' processes.

A number of options for achieving an enhanced advisory approach are set out briefly below. These suggestions should not be considered in isolation, rather, they could be reviewed in the context of developing the existing system into a more integrated and synergistic advisory service. Most would require the investment of public funding at least in the establishment period, while some imply a longer-term funding commitment.

- Enhanced provision of conservation advice alongside business advice, through the commercial or voluntary sectors. A clearly recognised accreditation system and training programme would be needed to facilitate the development of expert consultants in the provision of integrated whole-farm advice. Training programmes would educate consultants in the relevant social, environmental and business aspects of farm management. Advice would be delivered through individual farm visits where specialist advice would be designed to mesh with practical knowledge of the area. It might be possible to build such a system upon existing training or accreditation programmes such as those of the RICS, or one of the main providers such as FWAG. However, this would still represent a relatively ambitious agenda.

- There appears scope to explore enhanced provision of locally tailored advice through a range of formal or informal agricultural associations, eg. local NFU bodies, grassland or arable groups or other localised initiatives such as the group farm schemes of FWAG, the 'landcare' projects of the Environment Agency, and others. In these groups, advice and support can be provided through local farmers working together to address environmental issues. There are some parallels with the 'neighbourhood watch' concept, in which groups develop voluntary action plans for their local area and define targets for improvement. The groups would not necessarily comprise only farmers, rather, they could include representatives from different sections of the local community with an interest or with expertise in environmental issues. The group members would support each others' actions and could seek more specialist help from other sources where needed. The farmers involved might have to pay for the provision of specialist advice to these associations, but much might be achieved through voluntary effort alone. This model draws upon the experience of the successful 'Landcare' initiatives in Australia and various developing countries.

- The creation of a new system of comprehensive environmental and business advice for farmers, delivered at a regional or more local level through a single agency, potentially drawing on greater resources than are now available to the more disparate bodies involved. This would reduce the potentially confusing range of different agencies and organisations providing advice and create a 'one stop shop' at local level. Different agencies could agree to co-operate in order to create a single organisation for this purpose or they could bid competitively to take on this function. The biggest obstacles to achieving such a system would include the difficulty of co-ordinating a sufficient breadth of expertise as well as the need to win its support from the farming community. An existing prototype for this kind of

service exists in the Bowland Initiative. Although its area of focus is currently much smaller than a whole region, the Initiative's manager believes that it could develop into a regional 'one stop shop' with continued public support, in future (Dwyer & Baldock, 2000).

- Advice provision via a comprehensive network of demonstration farms to offer hands-on holistic advice and practical demonstrations of new management techniques. This requires improved R&D and improved technology transfer in order to promote environmentally friendly technology, as well as an 'outreach' capability on the farms themselves, to involve local farmers. An example is provided by the BEAM (Better Environment and Agriculture in the Marches) initiative in Herefordshire, where an ADAS research establishment is working in partnership with a local farmer to promote environmental management techniques to the local farm community.

### 6.1.6 Advice: education and training

The England Rural Development Plan (ERDP) states that 'an improved skills base is a key priority which will help ensure greater diversification, improve competitiveness and strengthen the rural economy. It identifies priority areas for training action, including: ICT, business/marketing skills, traditional craft skills, countryside and environmental skills, customer care skills, development of innovation, initiative, leadership and facilitation skills, and the provision of practical experience to underpin more formal courses of education. The total estimated expenditure under the 'Training measure' of the RDP for England is 1.564 million Euro in the year 2000/1 rising to 6.257 million Euro by 2006/7. The provision of training courses will thus increase greatly over the life of the present plan

It is expected that these educational and specific vocational training courses will complement the work of the advisory services, allowing farmers to gain expert knowledge in certain areas and to improve their skills. It will also permit issues of particular environmental concern to be targeted, as a priority, in particular areas such as NVZs, SSSIs etc. However, it is equally important that farmers are made aware of how to make the most of funding opportunities under the Rural Development Plan so that they may put their training into practice. According to the English RDP, studies indicate that high levels of training are associated with greater on-farm innovation and technology transfer.

Whilst it is important that environmental and business skills are promoted in an integrated way, a number of specific topics where this study indicates that more detailed training and information would be advisable are briefly highlighted below.

- *Integrated Crop Management (ICM)*

  This is defined by the Royal Commission on Environmental Pollution as 'a holistic pattern of land use which integrates natural regulation processes into farming practices to achieve maximum replacement of off-farm inputs and to sustain income.' The major consideration in this approach is the stepwise replacement of off-farm inputs by integration of natural regulation processes, on-farm alternatives and management skills in order to maintain species and landscape diversity, minimise pollution and losses, provide safe and wholesome food, and sustain income. This

approach is currently promoted by public-funded research organisations (eg ADAS farms) and voluntary initiatives (eg LEAF). There are also some similarities with commercial initiatives such as Jordan's 'conservation grade' and the various 'green' labels of some of the major supermarkets.

- *Soil quality control*

  The provision of technical advice for soil erosion control is an area of growing concern which has received relatively little attention in the past. It would include advice on various technical measures including the preparation of seed beds, contour ploughing, the use of rotary implements and the setting up of tramlines. To our knowledge there are relatively few current initiatives in this area, although some such advice is available from specialist agencies (eg the Environment Agency, in Nitrate Vulnerable Zones). Recent weather conditions, including summer droughts and winter floods, have increased soil erosion problems in England but little has yet been done to tackle the issue on farm, beyond the *code of good practice*.

- *Pesticide reduction techniques*

  There is scope for provision of advice or training on how to reduce pesticide consumption via methods of farming practice which can lead to reduced need for pesticide use and less environmentally burdensome alternatives. Some of this is already covered by ICM initiatives but it would appear to be a particular area where new advisory systems could be developed. For example, pesticide reduction support training could be offered when farmers complete their compulsory training to become certified spray operators.

- *Water management on farms*

  Some of the major threats to biodiversity on farmland arise from agricultural water management. These range from issues of water abstraction and stream flow to drainage and water level management and include questions of riparian management and the use of buffer strips. Improved training in these topics could be focussed particularly on areas where water management is a concern, such as parts of East Anglia and the Somerset Levels. Some initiatives of this kind have already been established or are being developed by the Environment Agency, sometimes in co-operation with English Nature. These might be expanded in a more strategic fashion in future, given sufficient resources and continued close working between the agencies and local farming interests.

### 6.1.7 Particular tools for the enhancement of standards – plans and audits

In discussion about ways of raising basic environmental standards on farms, many organisations highlight the need to encourage farmers to take a broad, whole farm approach to monitoring their impact upon the environment. In this context, a number of 'tools' are put forward as a means of achieving this. In principle, these kinds of tool could be used in a variety of policy contexts – for example, made a requirement for farmers receiving direct payments under cross-compliance, promoted by advisory services or built into a set of quality assurance schemes. We therefore discuss them in general terms here.

### *a. Farm plans*

Farm plans offer a structured approach to environmental management which is generally aimed at encouraging farmers to approach conservation in the same way as they approach business matters. Farm planning models exist to tackle a variety of key environmental concerns including waste management, nutrient use, the conservation of habitats, species and landscape features, and the use of water on farms. Already, some environmental plans have been strongly promoted through industry-led mechanisms (eg the FWAG farm biodiversity action plans which have been taken on by Sainsburys as a requirement for their suppliers). Other planning approaches are strongly advised in the MAFF codes of practice (eg farm waste management plans, under the Water Code).

In some cases the development of a plan is undertaken by a qualified consultant, for example a FWAG officer, but working in partnership with the farmer. In other cases the plan can be prepared by the farmer (eg farm waste management plans), with supporting expert advice where necessary. Initially, the plan is expected to identify the context of the farm in relation to the environmental issues being addressed. On the basis of this initial baseline audit, management practices are then identified for maintaining and enhancing environmental performance along with constraints and limitations likely to influence the achievement of these objectives. Targets for farm activities may then be set (both long and short term) or a work plan may be devised for achieving these objectives. With plans prepared by outside experts, a written report is usually provided as an accompaniment. Maps are a common feature of most plans.

There are some potential drawbacks to the whole farm plan concept. Quality control is essential and there need to be clear commitments to putting plans into operation. Environmental concerns cannot always be confined to a single farm, since many environmental externalities (both positive and negative) affect a wider local area. Local input and agreement are important elements to the development of any plan. Otherwise there is the potential for overlap and a risk of inconsistency between farm plans and wider area strategies.

On the other hand, the farm plan concept is already widely accepted among the farm sector and the use of environmental farm plans is a feature of standards in several other Member States which appears to have been relatively effective. Because they require the active involvement of farmers themselves in working out what assets or resources they have, and how they can be managed more sensitively, plans can be particularly valuable in raising awareness and stimulating increased commitment to environmental performance.

### *b. Audits –the Linking Environment And Farming (LEAF) audit*

The LEAF farm audit is a widely available scheme which provides a framework for the assessment of farm management practices against Integrated Crop Management criteria. It is distinguishable from a quality market assurance scheme in that it is unconnected to the marketing of produce and assessment is not simply a matter of passing or failing certain criteria, rather, the scheme is geared towards encouraging progression towards sustainable practice.

The audit takes the form of a self assessment questionnaire and is structured into six different areas of farm management, including: crop protection, energy efficiency, landscape and wildlife features, organisation and planning, soil management and crop nutrition and pollution control and waste management. The completed audit provides an indication of current performance and of areas where improvement is needed. Importantly the performance score is a function of how well that farm is performing relative to other aspects of farm performance, rather than a comparison against a theoretical ideal. However, the LEAF audit has been criticised for not taking a more holistic approach to farm assessment and for not giving greater consideration to non environmental criteria.

c. *Comprehensive Project Evaluation (CPE)*

A more recent and perhaps more innovative approach, referred to as CPE, has been provided by Risk and Policy Analysts Ltd for the Royal Institution of Chartered Surveyors and the Environment Agency. The report takes a more proactive approach to current understanding of sustainable farming practice and embraces wider socio-economic and ethical issues beyond the perspective of environmental impact (associated with pesticide and fertiliser use, erosion, abstraction and biodiversity loss etc.).

The audit methodology is structured by impact categories, namely: economy, aesthetics, design, natural resources, infrastructure and public welfare. These are divided into sub-categories for example, aesthetics is divided into amenity, heritage and noise. Under each category and sub-category there are number of associated measures derived to assess performance. Generally they take two forms: measures which describe aspects of the farm and farming practice in a quantitative manner and measures which assess whether certain practices are employed and levels of performance therein. Scores are assigned to each measure and, to ensure results are comparable, totals are normalised to give a score out of a maximum of 100.

### 6.1.8 Agri-environment schemes

Voluntary agri-environment schemes provide a direct incentive for participating farms to meet environmental standards beyond good practice. They are popular with farmers and MAFF has experienced a notable increase in demand for applications for most environmental schemes over the last few years. In response, agri-environment expenditure under the ERDP is planned to increase greatly over the next six years. Funding for the Organic Farming Scheme is planned to double between 2000/1 and 2006/7, it will rise more than threefold for the Countryside Stewardship Scheme and increase slightly for the Environmentally Sensitive Areas programme. Thus, the area of farmland enrolled in schemes will increase significantly over the period, potentially to cover approximately 30 percent of England's agricultural land area.

The largest of the schemes is the CSS which is planned to double in size. This year MAFF hopes to accept around 2,600 new agreements in England which is double the number in previous years. The scheme commonly involves payments for both annual management (eg managing field margins) and capital works (eg hedge restoration). It offers potential for the promotion of certain specific extensive farming practices, including greater winter cover on arable land, more favourable crop rotations and reduced grazing intensity. ESAs can also offer similar benefits, and while the geographical coverage of the ESA programme will

expand only slightly there remains potential for increasing the environmental benefits delivered within existing scheme areas.

The Organic Farming Scheme has great potential for growth if funds are available, providing an opportunity for generating multiple environmental benefits on a range of different farm types. The most popular approach in the UK, the Soil Association Organic Standard, requires nature conservation measures over and above the standards laid down in the relevant EU legislation. Thus the growth in organic farming should contribute to gains in soil health and fertility, water quality, increased biodiversity levels and a more varied landscape through the use of rotational farming. However, it should be remembered that the sector is developing from a very low base (less than one per cent of farmland at present), so even major growth will still have a limited impact.

However, there are significant limitations on the use of voluntary incentive schemes as a means of raising standards in the countryside as a whole. All the schemes in England are limited by the budget available, which has been fixed at European level until 2006. While in practice further funding may become available sooner it is unlikely to be on a sufficient scale to extend the current schemes to cover a majority of the lowland area, as discussed above. On this basis the majority of farmland would remain outside the reach of incentive schemes, particularly in the lowlands, where participation is relatively low in arable farming areas.

By their nature, voluntary schemes do not always appeal to all farmers and those with the least environmental sympathies can be the most difficult to attract. There are also questions about the management of land which has been under a management agreement that has come to an end. It cannot be expected that farmers will always renew agreements even when they are available.

Perhaps the most promising potential way in which payment schemes could help to raise basic standards for all English agriculture would be through the development of a new, so-called 'broad and shallow' scheme.

This would have the express intention of involving a majority of farmers through a simple and streamlined scheme targeting a relatively low level of improved environmental management across the farm. While the costs of such a scheme would be significant, changes in the CAP may create a more favourable climate for this kind of development in future, and the government has the flexibility to use modulation to fund such measures provided that they are compatible with the ERDP. We return to this idea later in this chapter.

### 6.1.9 Industry initiatives

#### *a. Farm Assurance Schemes*

As discussed in Chapter 1, paragraph 1.3, Quality Assurance Schemes vary significantly in terms of their environmental content. Whilst the Assured Combinable Crops scheme and the Assured Produce Scheme cover a number of environmental aspects, other schemes such as the Assured Chicken Production scheme give environmental aspects less consideration.

Expansion of these schemes is an attractive option. The schemes are growing in number and coverage. New initiatives such as the British Farm Standard are based upon quality assurance schemes and this is promoting their credibility. The schemes are self-policed by the bodies which established them and they usually offer a direct incentive for farmers to join, not least because many major retailers now require farmers to be certified in the relevant scheme. Thus, in theory there is great potential for these schemes to widen in scope and embrace a range of substantive environmental issues.

However, much depends on whether their promoters wish to add an environmental dimension and whether an appropriate 'package' can be agreed. Alternatively it might be possible for new 'green standards' to be developed alongside the existing QASs. However, this would add to the existing complex web of environmental standards and it is not clear who would promote new 'green standards' to consumers or retailers particularly if they were seen to be in competition with organic produce. There would need to be a clear consumer demand for these standards in order for the idea to be acceptable.

Another potentially difficult issue in relation to farm assurance schemes is the bureaucracy involved in monitoring and enforcement, particularly since each scheme currently has a separate policing mechanism involving farm inspections and record keeping requirements. It would therefore seem important to seek the incorporation of environmental standards in such schemes in ways which would not multiply and further complicate the number and level of environmental checks on farms. For example, it might be particularly valuable if certifying bodies could use a common source of environmental experts to check their schemes, and if this checking could be 'approved' by regulatory authorities so as to minimise the need for them to make separate inspections.

### b. *National Action Plans*

The recently proposed action plan for pesticide reduction by the agro-chemicals industry is also discussed in Chapter 1, section 1.4.3. In principle plans of this kind, particularly if embodied in a formal agreement with government, offer valuable scope for pursuing new standards. They have been shown in EU Member States such as Denmark to be quite effective when introduced as an explicit public policy for agriculture (see Chapter 2).

Such an approach would be a relatively new step for the UK farm sector but as we have seen in chapter 4, it is already established in other fields.

## 6.2 Evaluation of measures

It is clear from the preceding section that a large number of alternative ways of improving standards are available. Attention has been drawn to some more generic options, such as changes in town and country planning legislation, which could be developed in a range of ways and merit much more detailed evaluation in their own right. The purpose of this section is to consider each broad option in the light of the six criteria presented in chapter five and the priorities for nature conservation, in order to identify some potentially promising options.

Importantly, no single measure alone provides a sufficient response to the range of environmental needs and gaps identified in this report. Most of the measures discussed

represent developments of existing policies and initiatives, often of a relatively modest kind. Rather few entail any significant new public expenditure or new primary legislation. In this sense, the list already excludes some of the more radical options. Instead, it looks for measures which would be complimentary to one another and could therefore form part of an effective new 'package'.

Bearing in mind that most measures could take a variety of different forms, it is possible to make an overall evaluation of each broad type against the six criteria given in chapter 5. The results of this evaluation are in Table 2, below.

**Table 2. Evaluation of different policy measures**

| Type of measure | Evaluation |
|---|---|
| *New regulations* | These may impose costs on significant numbers of farmers, depending on the obligations introduced. Inevitably they involve some administrative burden. Regulations which require regular inspection and monitoring can be particularly burdensome, those applying to relatively infrequent events (such as 'development') less so. In relation to pollution control and water, some costs to farmers could be reduced by relaxing the principle of full economic cost recovery applied to the Environment Agency. Regulations have the merit of applying to all farmers in a consistent way and can be targeted as appropriate, but enforcement can be a problem where they are applied to actions which are difficult to monitor independently. New regulations which simplify the regime for farming are likely to be more acceptable than those which add to it. |
| *Cross-compliance* | Like other obligatory measures, this has the advantage of consistency and reach within the agriculture sector but disadvantages of administrative cost and red tape. Actual costs for farmers depend on the measure chosen. The 'verifiable standards' approach in the RDP could offer a readily applicable model for cross-compliance with limited additional administrative costs. |
| *Codes of Good Agricultural Practice* | These apply widely and have a low administrative cost, generating practically no red tape but their current effectiveness is almost wholly dependent upon voluntary action and is a significant concern to environmental agencies. Additional environmental benefits could be significant if the incentive to follow the Codes could be significantly increased, and the current lack of a conservation code rectified. |
| *Taxes and charges* | Administrative costs on input taxes should be low but may be considerable if outputs need to be recorded, measured and inspected. The costs to farmers are potentially substantial: more than £100 million being quoted for the pesticides tax, for example. The extent of environmental benefits is more contentious, potentially greater at the national level than on sensitive sites. |
| *Advisory schemes* | An expanded advisory service reaching more farmers would be compatible with most of the six criteria unless large sums of new public expenditure were involved. Costs to farmers could be minimal if government agencies provided resources, but in some models most costs would fall on farmers. Clearly advice is a much softer measure than prescribed standards and the two are complementary. |
| *Education and training* | This is another complementary measure, rather than a tool to set standards. Under the ERDP, a relatively small budget may limit its overall reach and effectiveness. |

| Type of measure | Evaluation |
|---|---|
| *Tools for enhancing standards – farm plans and audits* | Whole farm plans, audits and assessments do not set standards but seek to embed them in the farm management process. In this sense they are potentially a highly significant means to raise standards. They do not involve heavy costs for farmers and may contribute to improved economic efficiency. |
| *Agri-economic incentives* | These set standards, but only for participating farmers and for the term of the agreement. Costs are relatively high for the public sector but, unlike other measures, they offer a potential form of increased farm income. With the current schemes, administrative costs and red tape are significant, especially when agreements are being established. However, it is possible that a new 'broad and shallow' scheme could seek to minimise these aspects by selecting simpler measures and seeking to agree co-ordinated monitoring with industry bodies. |
| *Farm assurance schemes* | In principle there is an opportunity to make greater use of this voluntary, selective approach to setting standards although the environmental value added of assurance schemes has been low to date. Coverage of farms depends on the success of any scheme. Administrative burdens and costs are transferred to the private sector. Costs for farmers are variable but the intention is that they are outweighed by the benefits of adherence: unlike other options there is a direct link to new opportunities for positive labelling and marketing of produce. |
| *Industry agreements with government* | These are another way of agreeing standards, voluntarily, by direct negotiation between the government and farm sector. Costs of monitoring and implementation depend on the agreement but potentially can be shared between the parties. Costs for the public sector are otherwise low. However, in some cases the extent of compliance and efficacy could be questioned. |

In relation to the six criteria, it is notable that few options except farm assurance appear to generate positive marketing opportunities. However, wherever measures would result in the adoption of an extended set of environmental standards, this could contribute to a more positive environmental image for English agriculture as a whole. In this sense any progress towards greater environmental awareness and improved practice should contribute to long term competitiveness in EU and international markets.

Considering the environmental concerns expressed by English Nature together with this evaluation, a new package should reflect the following overall conclusions.

1. Complementary measures and more comprehensive encouragement are needed to encourage farmers to uphold existing standards and make improvements in areas where there are now 'gaps' from a conservation perspective. This points to enhanced agri-environmental advice and improved application of the Codes of Good Agricultural Practice by farmers.

2. There is significant potential value in promoting new tools for achieving standards, such as whole farm plans and industry-wide agreements, which may be capable of addressing challenging questions, such as the control of diffuse pollution, in a more comprehensive way.

3. There is scope for both reinforcing existing codes of practice and legislation and introducing critical new measures through environmental cross-compliance.

4. The most potentially damaging forms of environmental change from farmland, involving the risk of irreversible or long term erosion of biodiversity, can best be controlled by regulation, as is the case in several other countries in Europe.

5. Voluntary agri-environment schemes are best used to ensure positive management over and above compliance with basic standards, but they could play a role in raising standards over time, particularly in the context of a 'broad and shallow' approach.

6. There is significant potential to harness a wider range of voluntary initiatives and incentives, building on the newly emerging themes of farm product assurance and good farming practice.

These conclusions form the foundation of the proposals below.

## 6.3 Proposals for taking forward standards

The underlying argument for further initiatives to take forward environmental standards for the agriculture sector is that the present set of measures is not sufficient to secure biodiversity or broader environmental objectives in England. The agriculture sector has a strategic role in the management of land and in creating the conditions on which many species depend. As the need to control diffuse sources of water and air pollution rises up the environmental agenda it is inevitable that changes will be needed in farming practice.

It is possible to envisage many combinations of different measures within a package of steps that could be taken in order to strengthen the environmental performance of agriculture. In selecting a group of measures from those which appeared most compatible with the criteria set out in chapter five, judgements must be made about potential synergies and conflicts, the degree of urgency attached to different priorities, the opportunities to build on current initiatives and discussions, and the political acceptability of different alternatives.

The work of other agencies, public bodies, agricultural organisations and NGOs clearly needs to be taken into account. It is worth noting for example that the government is expected to publish a strategy on soils in the near future. In August the Environment Agency published a management strategy on aquatic eutrophication in England and Wales. There is a continuing debate on the potential merits of a pesticide tax and a voluntary action plan to reduce the environmental impact of pesticides. The government's policy in relation to the implementation of the EC 'Common Rules' Regulation and the use of cross-compliance as a policy tool is still unclear.

A potential model for promoting 'a new environmental standard' for English farming is set out below. It is based on an industry agreement with government to raise standards on all farms through a 'six-point plan' including a range of measures to target the key issues identified in this report. The plan includes the following.

1. A commitment by government to *enhance the coverage and environmental effectiveness of on-farm advisory services, farmer-led support groups and demonstration initiatives,* particularly in the most sensitive areas, so that farmers receive more help to greatly increase awareness of key environmental issues and application of mitigating techniques.

2. An undertaking by the sector *to achieve specific targets for the proportion of farms that use key planning tools to reduce their environmental impacts*, over a number of years. These would include farm waste management plans, nutrient budgets, soil conservation plans, pesticide reduction strategies and more holistic farm environmental audits (eg the LEAF model). The use of different types of plan could potentially be targeted by region or issue (eg 100% use of farm waste plans in the most sensitive river catchments, in dairying areas). The targets would need to be agreed following advice from the relevant environmental agencies. The uptake of plans could be reinforced by industry or supply chain promotion (eg Sainsburys' support for FWAG farm biodiversity action plans).

3. *The development by government of a new code of good agricultural practice for biodiversity and landscapes*. This would complete the coverage of key environmental resources on farms, by the suite of codes of practice.

4. *New measures to increase the economic incentive for farmers to understand and apply the codes of good agricultural practice* for water, soils, air, pesticides and upland management, as well as the new code for biodiversity and landscape. These measures might include:

   - the development of a 'broad and shallow' agri-environment scheme designed to attract the majority of farmers, to promote the application of higher standards as discussed in some of the codes;

   as well as the application of:

   - environmental conditions as 'cross-compliance' under the CAP; and/or

   - compliance with the codes of practice as a standard ingredient in all major farm assurance schemes;

   to help ensure adherence to the most basic 'essential' ingredients of the codes.

5. *A more straightforward approach to agriculture under the town and country planning system*, enabling farmers to benefit from rural development and ensuring that their businesses are treated in a comparable way to other rural business. This would need to incorporate the requirement for environmental impact assessment and control of farm change which could lead to the irreversible loss of valued semi-natural habitats (eg ploughing up flower-rich meadows or draining wetlands), and would cover more farm buildings than the present system. However it should also lead to a more sympathetic treatment by planners of proposals for farm diversification and 'change of use' of farm buildings, reflecting the likely future direction of structural change in the industry.

6. A commitment to develop and adhere *to an industry-wide strategy for reduced pesticide use*, which could involve a mix of voluntary, economic (eg tax-based) or regulatory measures but would set specific targets designed to reduce pesticide impacts upon wildlife and basic resources of soils, water and air. Among the measures considered in this report, we would highlight the potential value of applying conditions to the

authorisation and/or permitted use of certain substances, including new technologies, to require mitigating measures, particularly to deal with significant indirect effects upon biodiversity.

The proposals set out above represent a series of steps which could be taken over a period of time in order to raise environmental standards whilst avoiding excessive costs and administrative burdens on the farm sector or government agencies. Together they would raise standards across a wide range of issues. More detailed consideration of the elements in the package are presented below.

*1 and 2: Enhanced agri-environment advice and more use of farm plans*

There is a broad consensus that a more intensive effort to deliver agri-environment advice to the whole farming community in the most convenient and readily absorbed way is a high priority. Farmers already face a growing array of legislative and administrative requirements which could be made more manageable with good advice. Several options for increasing the reach, effectiveness and vigour of the advisory system are available. Three possibilities referred to earlier in this chapter include a more comprehensive single agency delivery system at regional level, a greater reliance on private contractors and an alternative model built on expertise within the farming community itself. In any scenario, a further injection of resources would allow a greater level of farmer contact. A service able to combine environmental and farm business advice would have advantages over a purely environmental supplier. Opportunities should be taken to use planning tools in advisory work, including farm audits. Links should also be established between strengthened advisory services and the training programme to be established under the England Rural Development Plan.

In return for government investment in an enhanced advisory service to farms, the uptake and application of farm environmental plans would provide an industry indicator of the understanding and adoption by farmers of higher environmental standards. Rather than recommending a compulsory application of certain kinds of plan (eg as with nutrient plans in the Netherlands), the variety of environmental concerns in England would suggest that it would be more efficient to pursue different kinds of plan in different locations, depending on the most critical issues in each area. This approach would tie in with the increasingly area-based focus of the main regulatory authorities (EA and EN) and their key interests.

*3 and 4: Completing the set of Codes of Good Agricultural Practice and increasing their effectiveness*

There is increasing recognition of the value of these codes for air, soil and water. Most recently, they have been given an important place in the system for promoting Good Farming Practice set out in the ERDP. This reinforces the need to correct the current imbalance – the absence of a code covering nature conservation or landscape issues. The real challenges involved in drawing up an effective and workable code should not be dismissed. Nonetheless, this remains a priority, filling a gap in the current set of baseline standards applying in England.

Alongside this, the environmental evidence suggests that there is an equally pressing need to increase the effectiveness of the existing codes of practice and find ways to ensure that

they are read, understood and applied on most farms across the country. The six-point plan therefore includes new measures designed to achieve this. We consider that the most effective means to encourage more widespread adoption of the codes will be to link this to an economic incentive – that is, to find a way to make it worth farmers' while, in monetary terms - to know about and apply the codes. The opportunity to be paid for adopting better practice would only be appropriate where it went beyond the notion of 'normal good farming practice' as set out in European legislation. However, cross compliance would represent an economic incentive for adopting measures to reinforce basic standards, and there is also the third option of creating an incentive via farm assurance schemes and producer protocols.

*a. Cross compliance*

The UK was one of the first governments to introduce a system of cross-compliance following the 1992 reforms of the CAP. There are opportunities to refine the existing measures and adopting new ones over the next few years under the terms of the common rules Regulation 1259/1999. From a biodiversity perspective further measures designed to prevent overgrazing, protect field boundaries and farmland habitats and improve the quality of management of watercourses should be considered – all these issues would be covered in the full suite of codes of practice.

As discussed earlier, farmers joining agri-environment schemes or obtaining LFA compensatory allowance payments will in future need to comply with a set of verifiable standards of 'usual good farming practice' as well as current environmental legislation. From an environmental perspective it is equally important that these verifiable standards are complied with on all farms. Therefore, as a starting point for cross-compliance based upon the codes of practice, it is suggested that the system of verifiable standards developed by MAFF could be extended to all farms receiving direct payments, under the common rules Regulation.

*b. A broad and shallow Agri-environment Scheme*

In addition to the current measures within the England RDP, there is scope for a relatively simple scheme designed primarily to encourage all farms to improve their level of environmental management beyond the basic minimum represented by compliance with legislation and adherence to 'usual good farming practice'. Such a scheme could apply to all farmland, offering a relatively low payment per hectare but a relatively simple application and monitoring procedure. A 'broad and shallow' scheme of this kind has been adopted in certain other Member States and would be able to build on existing initiatives such as LEAF. It could recognise the costs which farmers may well incur from adopting a more integrated whole farm approach, as exemplified by the BEAM project in Herefordshire. Clearly there would be substantial budgetary costs for such an initiative. However, it should help to address current criticism of the agri-environment schemes in this country on the basis of their limited coverage and their relatively high degree of bureaucracy.

c. *An environmental protocol for Farm Assurance Schemes*

Farm assurance schemes and private sector standards applied by the major retailers are exerting increasing influence on the way in which farmers manage their land and organise their business. At present, these have a wide range of different formats and requirements and the environmental element in many farm assurance schemes appears small. However, some major retailers are showing increased interest in environmental production standards as a marketing tool, particularly in the area of fresh produce (eg Tesco's 'natures' harvest' label, Sainsburys' recent Jamie Oliver advertisements). There should be scope to develop this interest through agency initiatives including the Countryside Agency's 'eat the view' programme, as well as in relation to particular areas of consumer concern (eg GMOs).

The main codes of practice encourage farmers to adopt a planned approach to resource management, which has parallels with other elements in farm assurance schemes. Discussions with the organisations running assurance schemes could examine the potential to add environmental standards based on codes of practice, over a period of time, so as to constitute an 'environmental protocol' within each major scheme or group of schemes (eg a single protocol for the BFS logo). Some elements in this protocol might be similar to the 'verifiable standards' developed for cross-compliance; however, it would offer a way of introducing the standards into sectors, such as horticulture, which do not receive direct payments under the CAP.

## 5. *Town and Country Planning – reforming agriculture's treatment*

For a limited number of significant changes in land management and land use, an effective way of controlling unacceptable environmental damage would be through the extension of town and country planning legislation to cover a broad range of 'irreversible' development on farmland. Examples include the ploughing up of significant areas of semi natural habitat and sizeable drainage and irrigation schemes. A system of notification and consent could be introduced in these cases, using similar procedures to existing planning arrangements. This would provide a democratically-based, local legislative framework through which to implement the Environmental Impact Assessment Directive 85/337 in the UK with respect to agricultural intensification, rather than requiring MAFF to set up its own, parallel but independent procedure, as is currently anticipated.

However, we are mindful of the wider debate that exists on the future treatment of agriculture within the Town and Country Planning System. Those concerned about the future of the industry have highlighted the need for agricultural diversification to be treated more sympathetically by planners and this is now an explicit objective of government policy. At the same time, the government's Performance and Innovation Unit has pointed out that the current treatment of agriculture, which involves partial exemptions from the planning system plus a number of piecemeal reforms 'is complex, confusing and burdensome to both farmers and planning officials.' (PUI, 1999). It therefore seems appropriate to consider dealing with the particular issue of irreversible land-use change in the wider context of a reform of agriculture's treatment under town and country planning procedures. The ultimate aim should be to ensure that:

- where changes on farms have the potential significantly to affect the public interest or the quality of life of other rural dwellers, they should be brought within the scope of normal planning procedures;

- where farming has previously been treated as 'a special case' in relation to acceptable developments in rural areas, this treatment should cease – allowing more flexibility for farm buildings to change business uses, for example.

### 6. *A pesticides reduction strategy*

Several different policy measures intended to reduce the adverse environmental impacts of pesticides are under consideration, including a pesticide tax and a voluntary action plan put forward by the Crop Protection Association. Notwithstanding its potential merits, the imposition of a pesticides tax will not, on its own, lead to increased awareness of the environmental consequences of pesticide use, although it could provide the funding for various information and training initiatives. At the same time, the CPA's alternative proposals indicate a willingness to develop and report on environmental performance within the sector, which could potentially be harnessed. Drawing upon the positive experience of other European countries it would seem that a national strategy, established by the government and the industry working together, could be most effective in reducing the impact of pesticides on the environment. A clear timetable and quantified targets for such a strategy could build on a set of appropriate indicators, which could take due account of biodiversity as well as water quality, human health and other factors.

### *Concluding comment*

This suggested six-point plan and the detailed components within it could not be evaluated fully as part of this study: that is a task for further work by the agencies and other stakeholders. Nevertheless, the evidence gathered in this report suggests that such a plan, or a similar commitment to introduce the kinds of measures outlined within it, could make a major step towards establishing a broad 'environmental standard for English agriculture' of which the farming sector could be justly proud.

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# Annexes

# Annex 1: Inventory of standards

## 1. Basic resource protection - water

### Priority 1

*Nutrients*

*1.1 Directive on Nitrates from Agricultural Sources 91/676/EEC (OJ L375 31.12.91)*

Purpose: To reduce or prevent the pollution of water caused by the application and storage of inorganic fertiliser and manure on farmland. To safeguard drinking water supplies and to prevent wider ecological damage in the form of the eutrophication of freshwater and marine waters generally.

The Directive sets a maximum limit of nitrate in surface and ground water of 50mg/l. Where this threshold is exceeded or at risk of being exceeded, Member States are to establish Nitrate Vulnerable Zones. In these, Action Programme Measures needs to be instigated to change agricultural practices to reduce nitrate runoff and leaching. The Action Programme Measures set rules, which must be followed by farmers in these areas. The Measures are based on the Code of Good Agricultural Practice for Water.

Annex III of the Nitrates Directive sets out the minimum mandatory measures that NVZ Action Programmes are to contain, including:

- Periods when the application of certain fertilisers is prohibited.
- Limits on the quantities of fertilisers applied, taking into account certain characteristics of the vulnerable zones.
- A limit on the application of livestock manure per hectare to a level containing no more than 170 kg N, or 210 kg N, during the first four year action programme. These limits may be varied by Member States on the basis of 'objective criteria' so long as the aims of the Directive are not prejudiced, and subject to the approval of an advisory committee established by the Directive.
- Conditions relating to the available storage capacity on farms for livestock manure.
- A code of good agricultural practice, covering measures set out in Annex II. In areas other than vulnerable zones, the code of practice is to be implemented by farmers on a voluntary basis, and a training and information programme is to be made available to them.

Existing UK primary legislation contains the provisions necessary to implement the Directive.

- Section 111 of the 1989 Water Act (consolidated with other legislation into the Water Resources Act 1991) made provisions for the designation of water protection zones where any potentially polluting activity might be prohibited or restricted.

Section 112 in addition made specific provision for the designation by MAFF of nitrate sensitive areas (NSAs), within which specified activities could be required, as well as prohibited or restricted, with or without compensation. Sections 93-97 deal with water protection zones and nitrate-sensitive areas. Section 116 made provisions for orders to approve codes of practice relating to reducing water pollution caused by agricultural activities.

- The Water (Prevention of Pollution) (Code of Practice) Order 1991 (SI 1991 No 2285) approved a Code of Good Agricultural Practice for the Protection of Water.

- The Protection of Water Against Agricultural Nitrate Pollution Regulations 1996 (SI 1996 No 888) set out the boundaries of the UK NVZs.

- Under the Farm Waste Grant (Nitrate Vulnerable Zones) Scheme 1996 (SI 1996 No 908), which was introduced under Regulation 2328/91 on environmentally sensitive farming, farmers are offered 25% grants towards expenditure on facilities for the handling, storage and disposal of certain farm waste. Such grants are payable on eligible expenditure up to a maximum of £85,000.

- The Action Programme for Nitrate Vulnerable Zones Regulations 1998 (SI 1998 No 1202) sets out rules relating to the Action Programmes required under the Directive.

*1.2. The Action Programme for Nitrate Vulnerable Zones (England and Wales) Regulations 1998 (SI 1998 No 1202)*

On-farm constraints and considerations:

- take account of local environmental factors such as soil conditions, type and slope; climatic conditions, rainfall and irrigation; land use and agricultural practice when applying nitrogen fertiliser to land;

- no application of nitrogen fertiliser to any land in excess of the crop requirement;

- no application of chemical fertilisers to land between 15 September and 1 February in the case of grassland and between 1 September and 1 February in the case of other land. An exception applies where, taking into account the characteristics of the crop and soil, the requirement of the crop between the specified dates can only be met by applying fertiliser between those dates;

- application of nitrogen fertilisers to land in as accurate and uniform a manner as is practicably possible;

- no application of nitrogen fertiliser to steeply sloping fields;

- no application of nitrogen fertiliser to any land if the soil is waterlogged; the land is flooded; the soil has been frozen for 12 hours or longer in the preceding 24 hours; or the land is covered by snow;

- no application of chemical fertiliser to any land in a location or manner which makes it likely that the chemical fertiliser will directly enter surface water;

- no application of organic manure to land where the application would result in the total nitrogen in kg contained in organic manure applied in each year to land on the farm exceeding the specified amount calculated as follows: the number of hectares of grassland multiplied by 250 kg; and the number of hectares of agricultural land other than grassland multiplied by 210 kg up to 2002; up to 170 kg thereafter;

- no application of organic manure to any field were the application would result in the total nitrogen in kg contained in organic manure applied in any 12 month period to any field exceeding a rate of 250 kg per hectare;

- no application of organic manure to any land less than 10 metres from surface water;

- no application of organic manure in the form of slurry, poultry manure or liquid digested sewage sludge to any land which has a sandy or shallow soil between 1 September and 1 November in any year where the land is in grass or is to be sown with an autumn sown crop (a cover crop sown before 1 October and not removed before 1 December and a crop, not being a cover crop, sown between 1 August and 1 November) and between 1 August and 1 November in any year in any other case;

- the capacity of storage vessels for livestock manure should exceed the capacity required to store livestock manure produced throughout the longest period during which land application of livestock manure is prohibited except where it can be demonstrated that any livestock manure in excess of the storage capacity will be disposed of in a manner which will not cause harm to the environment;

- prepare records sufficient to enable any person inspecting them readily to ascertain the area of the farm; for each field on the farm the quantity of any chemical fertiliser applied to the field, the nitrogen content of the chemical fertiliser and the date of application; the quantity of any organic manure applied (other than by the animals themselves) to the field and the date of application; whether any organic manure applied to the field (other than by the animals themselves) was farm yard manure, poultry manure, slurry, sewage sludge or other organic manure; the type of any crop grown and the date the crop was sown; the number of livestock kept on the farm, their species and type, and the length of time for which they were kept on the farm; the quantity of each type of livestock manure (whether farmyard manure, slurry, poultry manure or other livestock manure) moved off the farm, the date of that movement and the name and address of the consignee;

- retain records made for the above purposes for a period of 5 years after the latest event recorded therein;

- ensure implementation of the action programme;

- permit the enforcement authority (the Environment Agency) to enter upon the land, take samples, install and maintain equipment or examine all records kept in implementation of the action programme at all reasonable times, where necessary in order to monitor implementation of the action programme or assess its effectiveness in reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution;

- render all reasonable assistance and produce for inspection such documents or records as may be reasonably required and at request, accompany the inspecting person in making the inspection of the land.

*1.3 Directive on the protection of groundwater against pollution caused by certain dangerous substances 80/68/EEC (OJ L20 26.1.80)*

Purpose: To prohibit or regulate both direct and indirect discharges of dangerous substances into groundwater in order to protect exploitable groundwater resources.

Lists I and II of families and groups of dangerous substances are given in an Annex, those on List I being generally more dangerous than those on List II. Member States are to prevent the introduction into groundwater of List I substances (e.g. organophosphorus compounds) and to limit the introduction of List II substances so as to avoid pollution. Pollution is defined by reference to the effect of a substance rather than by its presence.

*The Directive has been implemented in the UK by the Groundwater Regulations 1998 (SI 1998 No 2746).*

These Regulations aim to prevent entry of List I substances into groundwater and prevent 'pollution' from List II substances. Exclusions exist for discharges which are 'so small as to obviate any present or future danger of deterioration in the quality of receiving groundwater'. Another major exclusion is for all activities requiring a waste licence. The Environment Agency is responsible for regulating activities under these Regulations.

On-farm constraints and considerations:

- obtain authorisation for the disposal or tipping of List I and II substances; notices are served on other activities which might lead to an indirect discharge of substances to groundwater. In the farming sector, this applies particularly to the disposal of sheep dips. Charges for registering to dispose of these substances apply.

*1.4 Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (76/464/EEC)*

Purpose: To set a framework for the elimination or reduction of pollution of inland, coastal and territorial waters by particularly dangerous substances.

This Directive is based upon the same List I and List II of families and groups of substances as identified in 1.1.3. Seven daughter Directives, all approved by the end of 1990, contain reference to heavy metals and a large number of substances used in agricultural herbicides

and pesticides. These Directives require that 'quality objectives' are given to various bodies of water, including inland surface waters, estuaries, coastal and territorial waters. Emission standards are then set by Member States so that the appropriate quality objectives are complied with in the areas subject to pollution from List I & II substances.

In the UK, Directive 76/464/EEC is transposed through the 1989 Water Act, together with powers for the Secretary of State to set emission standards and make binding plans for achieving improvements. The water 'quality objectives' are met through the UK River Quality Objectives (RQOs), which authorities began to lay down as early as 1978.

*1.5 The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (SI 1991 No 324) as amended by the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil (Amendment) Regulations 1997 (SI 1997 No 2019)*

Purpose: To prevent pollution by silage effluent, slurry, dirty water, and fuel oil by setting legal minimum of design and construction for silage, slurry and agricultural fuel oil installations. They relate to Section 92 of the Water Resources Act 1991.

All facilities which have been newly erected, substantially enlarged or substantially reconstructed since 1 September 1991 must meet the full standards set out in the SSAFO Regulations. Facilities in place before 1 September 1991 are usually exempt from these rules, but the EA can request improvements if it considers that there is a significant risk of causing pollution. The local office of the Environment Agency must be told in writing at least 14 days before the facilities are first used.

Dirty water and liquid waste from manure stored on yards or other hardstandings is defined as slurry in the SSAFO Regulations.

The Regulations, in three schedules, provide detailed requirements for silos, slurry storage systems and fuel storage areas. Apart from details about construction and outlay of these facilities, rules for storage capacities and siting are included.

**Requirements for silos, slurry storage systems and fuel storage areas**

*Schedule 1 – Requirements for Silos*

Silos have to comply with the following provisions of this Schedule or be designed and constructed in accordance with the standard on cylindrical forage tower silos published by the British Standards Institution and numbered BS 5061: 1974.

- The base of the silo shall extend beyond any walls of the silo and shall be provided at its perimeter with channels designed and constructed so as to collect any silage effluent which may escape from the silo and adequate provision shall be made for the drainage of that effluent from those channels to an effluent tank through a channel or pipe.

- The capacity of the effluent tank - in the case of a silo with a capacity of less than 1,500 cubic metres, shall not be less than 20 litres for each cubic metre of silo capacity; and in the case of a silo with a capacity of 1,500 cubic metres or more, shall not be less than 30 cubic metres plus 6.7 litres for each cubic metre of silo capacity in excess of 1,500 cubic metres.

- The base of the silo, the base and the wall of its effluent tank and channels and the walls of any pipes shall be impermeable.

- The base and any walls of the silo, its effluent tank and channels and the walls of any pipes shall, so far as reasonably practicable, be resistant to attack by silage effluent.

- No part of the silo, its effluent tank or channels or any pipes shall be situated within 10 metres of any inland (freshwaters) or coastal waters which silage effluent could enter if it were to escape.

- If the silo has retaining walls – the retaining walls shall be capable of withstanding minimum wall loadings calculated on the assumptions and in the manner indicated by paragraphs 13.9.1 to 13.9.9 of the code of practice on buildings and structures for agriculture published by the British Standards Institution and numbered BS 5502: part 22:1987; the silo shall at no time be loaded to a depth exceeding the maximum depth consistent with the design assumption made in respect of the loadings of the retaining walls; and notices shall be displayed on the retaining walls in accordance with paragraph 13.9.9 of that code of practice.

- Subject to paragraph 9 below, the silo, its effluent tank and channels and any pipes shall be designed and constructed so that with proper maintenance they are likely to satisfy the requirements of paragraphs 2 to 5 and, if applicable, 7(a) above for the period of at least 20 years.

- Where any part of an effluent tank is installed below ground level, the tank shall be designed and constructed so that without maintenance it is likely to satisfy the requirements of paragraphs 4 and 5 above for a period of at least 20 years.

*Schedule 2 – Requirements for Slurry Storage Systems*

The requirements which have to be satisfied in relation to slurry storage systems are as follows:

- The base of the slurry storage tank, the base and walls of any effluent tank, channels and reception pit and the walls of any pipes shall be impermeable.

- The base and walls of the slurry storage tank, channels and reception pit and the walls of any pipes shall be protected against corrosion in accordance with paragraph 7.2 of the code of practice on buildings and structures for agriculture published by the British Standards Institution and numbered BS 5502:Part50:1989.

- The base and walls of the slurry storage tank and of any reception pit shall be capable of withstanding characteristic loads calculated on the assumptions and in the manner indicated by paragraph 5 of the code of practice.

- Any facilities used for the temporary storage of slurry before it is transferred to a slurry storage tank shall have adequate capacity to store the maximum quantity of slurry which (disregarding any slurry which will be transferred directly into a slurry storage tank) is likely to be produced on the premises in any two day period (or such smaller capacity as the agency may agree in writing is adequate to avoid significant risk of pollution of controlled waters).

- Where slurry flows into a channel before discharging into a reception pit and the flow of slurry out of the channel is controlled by means of a sluice, the capacity of the reception pit shall be adequate to store the maximum quantity of slurry which can be released by opening the sluice.

- Subject to sub-paragraph (2) below, the slurry storage tank shall have adequate storage capacity for the likely quantities of slurry produced from time to time on the premises in question having regard to – the proposed method of disposal of the slurry (including the likely rates and times of disposal); the matters mentioned in sub-paragraph (3) below.

- Where it is proposed to dispose of the slurry on the premises by spreading it on the land nothing in sub-paragraph (1) above shall require the tank to have a greater storage capacity than is adequate, having regard to the matters mentioned in sub-paragraph (3) below, to store the maximum quantity of slurry which is likely to be produced in any continuous four month period.

- The matters to which regard is to be had under sub-paragraphs (1) and (2) above are – the storage capacity of any other slurry storage tank on the premises in question; the likely quantities of rainfall (including any fall of snow, hail or sleet) which may fall or drain into the slurry storage tank during the likely maximum period; the need to make provision for not less than 750 millimetres of freeboard in the case of a tank with walls made of earth and 300 millimetres of freeboard in all other cases.

- No part of the slurry storage tank or any effluent tank, channels or reception pit shall be situated within 10 metres of any inland (freshwaters) or coastal waters which slurry could enter if it were to escape (unless such precautions are taken as the agency may agree in writing are adequate to avoid any significant risk of pollution of controlled waters).

- The slurry storage tanks and any effluent tank channels, pipes and reception pit shall be designed and constructed so that with proper maintenance they are likely to satisfy the requirements of paragraphs 2 to 4 above for a period of at least 20 years.

- Where the walls of the slurry storage tank are not permeable, the base of the tank shall extend beyond its walls and shall be provided with channels designed and constructed so as to collect any slurry which may escape from the tank and adequate provision shall be made for the drainage of the slurry from those channels to an effluent tank through a channel or pipe.

- Subject to paragraph (2) below, where the slurry storage tank, any effluent tank or reception pit is fitted with a drainage pipe there shall be two valves in series on the pipe and each valve shall be capable of shutting off the flow of slurry through the pipe and shall be kept shut and locked in that position when not in use.

- (2) Sub-paragraph (1) does not apply in relation to a slurry storage tank which drains through the pipe into another slurry storage tank of equal or greater capacity or where the tops of the tanks are at the same level

- In the case of a slurry storage tank with walls which are made of earth the tank shall not be filled to a level which allows less than 750 millimetres of freeboard.

*Schedule 3 – Requirements for Fuel Oil Storage Areas*

The requirements which have to be satisfied in relation to a fuel oil storage area are as follows:

- The fuel storage area shall be surrounded by a bund capable of retaining within the area – in a case where there is only one fuel storage tank within the fuel storage area and fuel oil is not otherwise stored there, a volume of fuel oil not less than 110 per cent of the capacity of the tank; in a case where there is only one fuel storage tank within the fuel storage area and fuel oil is not otherwise stored there, a volume of fuel not less than whichever is the greater of – 110 per cent of the capacity of the largest tank within the storage area; and 25 per cent of the total volume of such oil which could be stored in the tanks within the area; in a case where there is no fuel storage tank within the fuel storage area, a volume of fuel not less than 25 per cent of the total of such oil at any time stored within the area; in any other case, a volume of fuel not less than any of the following – 110 per cent of the capacity of the fuel storage tank or, as the case may be, of the largest tank within the fuel storage area; where there is more than one fuel storage tank within the fuel storage area, 25 per cent of the total volume of such oil which could be stored in the tanks within the area; 25 per cent of the total volume of such oil at any time stored within the area.

- The bund and the base of the storage area shall be impermeable and shall be designed and constructed so that with proper maintenance they are likely to remain so for a period of at least 20 years.

- Every part of the fuel storage tank shall be within the bund.

- Any tap or valve permanently fixed to the tank through which fuel oil can be discharged to the open shall also be within the bund, shall be so arranged as to discharge vertically downwards and shall be shut and locked in that position when not in use.

- Where fuel from the tank is delivered through a flexible pipe which is permanently attached to the tank – it shall be fitted with a tap or valve at its end which closes automatically when not in use; and it shall be locked in a way which ensures that it is kept within the bund when not in use.

- No part of the fuel storage area or the bund enclosing it shall be situated within 10 metres of any inland (freshwaters) or coastal waters which fuel oil could enter if it were to escape.

***Codes of Practice***

*1.6 The Code of Good Agricultural Practice for the Protection of Water*

The Water Code is a guide intended to help farmers avoid causing water pollution. It is a Statutory Code under Section 97 of the Water Resources Act 1991. This means that not keeping to the Code will not be an offence, but it could be taken into account in any legal action. Following the Code is not a defence against a charge of causing pollution.

For the purposes of the Water Code, good agricultural practice means a practice which minimises the risk of polluting water while allowing economic agriculture to continue.

The Code outlines the laws regulating water issues in the UK and gives additional guidance on how to avoid or minimise the risk of pollution. The issues outlined below are covered in the Code. Where reference is made to Regulations, detailed information about standards can be found under the relevant headings.

*Farm Waste Management Planning*

The Code gives advice on farm waste management planning to

- help decide when and where to spread slurry, manure, dirty water, silage effluent and other organic wastes to minimise the risk of pollution;

- work out the amount and type of storage needed on farm to avoid the risk of pollution;

- decide whether the four month's storage capacity specified in the SSAFO Regulations is needed and sufficient.

The advice is structured into five stages, giving detailed guidance on how to

- pick out any land on the farm where waste should not be spread at any time;

- work out how much land is needed to take the total nitrogen in all the waste that has to be spread on the farm;
- pick out land where waste should not be spread at certain times or where the spreading rate should be limited, according to certain risk categories;
- work out the largest amount of waste that will have to be stored before it is spread;
- if more storage is needed, choose and design a suitable storage system to meet the needs of the farm.

*Handling of wastes and other dangerous substances*

The Code gives guidance on good practice to minimise the risk of causing water pollution from slurries and dirty water. This includes guidance for the storage of slurry, which refers to the SSAFO Regulations; the treatment of slurry and ways of applying slurry to the land. Dirty water is included in the definition of slurry in the SSAFO Regulations.

The guidance given refers to the minimising of quantities of dirty water, appropriate systems to store, handle and dispose of the amounts coming from the farm, low rate irrigation and the management of irrigation systems.

Guidance is also given on the storage and land application of manure. Reference is made to the SSAFO Regulations, since liquid waste from manure stored on yards or other hardstandings is included in the definition of slurry in these.

Other main organic wastes that are applied to agricultural land are covered in this section. It refers to a range of Acts, Regulations and Codes, including the Environmental Protection Act 1990, the Waste Management Licensing Regulations 1994, the Sludge (Use in Agriculture) Regulations 1989 (as amended), the Code of Practice for Agricultural Use of Sewage Sludge, the Code of Good Agricultural Practice for the Protection of Soil, the Code of Practice for the Safe Disposal of Agricultural and Horticultural Waste, and the Diseases of Animal (Waste Food) Order 1973 (as amended).

The Code also contains guidance

- on good practice to minimise water pollution caused by silage effluent. Reference is made to the SSAFO Regulations and the Code of Good Agricultural Practice for the Protection of Air;
- on inorganic and manmade fertilisers stored or used on the farm. Reference is made to the Code of Practice for the Prevention of Environmental Pollution from the Manufacture, Storage or Handling of Solid Fertilisers and the Code of Practice for the Prevention of Water Pollution from the Storage and Handling of Fluid Fertilisers;
- on the storage of agricultural fuel oil. In this section reference is again made to the SSAFO Regulations;

- on the installation and design of dipping facilities and on the handling and disposing of dip concentrates;
- on the storage, handling and disposal of pesticides on farms. Reference is made to the existing Regulations dealing with pesticides and details can be found in the corresponding section;
- on the disposal of animal carcases to minimise the risk of causing water pollution and avoiding air pollution. On the latter, reference is made to the Air Code.

A further section of the Code covers the nitrogen lost as nitrate from farmland. It refers to the Nitrates Directive, the Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates and the NVZ Action Programme. The final section of the Code covers pollution risks associated with specialised horticultural crop production.

*1.7 The Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates*

Purpose: To prevent the pollution of groundwaters and surface waters by nitrates from agricultural sources.

The Code has been prepared to fulfil obligations arising under the Nitrates Directive 91/676. It is a voluntary Code designed to promote sustainable farm practices while maintaining high water quality standards.

The Code contains advice and recommendations on farm practices in relation to:

- storage of organic fertilisers;
- standards and specifications for construction of storage facilities;
- when to apply organic and chemical fertilisers to land;
- the appropriate rates of application; and
- precautions to be taken to avoid causing water pollution.

***The Water Resources Act 1991 – abstraction licensing***

This Regulation applies to all businesses who wish to take water from ground or surface sources for commercial use, including agriculture. There is a requirement to apply for an abstraction license which will commonly specify the applicant's right to take water from a given source.

On-farm constraints

Any farmer wishing to abstract water must apply to the Environment Agency giving details of the volumes required, timing of abstraction, type of crops to be irrigated, crop area, etc. After consideration the EA may issue a licence providing resources are not already fully committed. This may specify the times of the year, volumes, and specified daily abstraction rates for which abstraction is permitted. There is an obligation to record abstractions and records may be subject to inspections by the EA.

Until 1999, abstraction licences had frequently not been time-limited. However, last year the Government announced that in future, all licences would be time limited, generally to around 15 years.

*Local Environmental Risk Assessments for Pesticides (LERAPs) – see entry under 3.2.*

**Priority 2**

*Water quality and quantity*

The following two standards do not have any direct impact upon farmers but they influence other standards which apply to them (e.g. nitrates Directive measures).

*1.8 The Water Framework Directive –establishing a framework for Community action in the field of water policy 2000/60/EC (L327 22.12.2000)*

This will provide an overall administrative framework for surface and groundwaters and set ecological, chemical and quantitative objectives for these waters to be met, irrespective to the anthropogenic influences on the water bodies. The Directive will provide the basis for future 'daughter' directives in the area of both water quality and quantity.

The overall environmental objective of the Directive is to achieve 'good water status' throughout the EU by 2010 and for it to be maintained thereafter. It will establish the river basin as the primary administrative unit for the purposes of water management. For each of these river basins a programme of measures will need to be established to ensure that the objective of 'good water status' is met. This will be achieved through a management plan, which is to be based upon an assessment of each river basin. The 'combined approach' to pollution control will be put forward with a programme of measures for each river basin which includes limit values to control emissions from point sources and environmental quality standards to address the cumulative impact of emissions. In addition, all abstraction would require authorisation and a register of abstractors would be developed. The Directive also states that the price of water should reflect the true economic cost and that there are no cross-subsidies. In a number of respects the Directive would act as a forum for the co-ordination of a number of existing legislative measures including those relating to bathing water and urban waste water. A further six Directives (quality of surface water, exchange of information and measurement methods, fish water quality, shellfish water quality, dangerous substances and the protection of groundwater) will be repealed at the end of 2007.

The Directive will have widespread and significant impacts. It brings together much of the existing water legislation into an overall framework establishing broad ecological objectives

for water. It provides an administrative framework to achieve these. Also for the first time it establishes requirements to deal with the problems of excessive water use. Many anthropogenic impacts which impede the maintenance or achievement of 'good water status' can be tackled under the Directive, including agriculture.

*1.9 Directive concerning the quality required for surface water intended for the abstraction of drinking water in the Member States 75/440/EEC (OJ L194 25.7.75)*

Purpose: To ensure that surface water abstracted for use as drinking water reaches certain standards and is given adequate treatment before being put into public supply; and thereby to improve rivers or other surface waters used as sources of drinking water.

The Directive was initially implemented in the UK by administrative action within the framework of the Water Acts 1945 and 1973, and the Control of Pollution Act 1974. The Water Act 1989 provided the opportunity to bring the provisions of the Directive formally into new law. Part III of the Act introduced *inter alia* a new statutory system of controls over pollution in inland, coastal and other waters. It was not until 1996 that the Directives were formally transposed into UK law by means of new Regulations and Directives issued to the EA. These were the Surface Waters (Abstraction for Drinking Water) (Classification) Regulations (SI 1996 No 3001).

**Priority 3**

*1.10 Directive on the quality of water intended for human consumption (the Drinking Water Directive) 80/778/EEC (OJ L229 30.8.80), to be replaced by Directive 98/83/EC (OJ L330 5.12.98) on 25 December 2003*

Purpose: To lay down standards for the quality of water intended for drinking or for use in food and drink manufacture in order to protect human health. An additional effect is the protection of the environment, as drinking water sources must be sufficiently free from contamination to allow inexpensive water treatment.

Standards:

- A maximum of 50mg/l nitrate in drinking water.
- Time-limited derogations granted if the concentration of nitrate ion in supply does not exceed a three-monthly average of 80mg/l and a maximum of 100mg/l, except in exceptional and transitory circumstances.
- A maximum of 0.1 ì g/l for any pesticide in drinking water and cumulative standards for all pesticides.

The Directive was implemented in the UK by the 1989 Water Act (now consolidated into the 1991 Water Resources Act) and the 1991 Water Industry Act. The Water Act for the first time provided for detailed statutory standards concerning the quality of drinking water. The Water Supply (Water Quality) Regulations (SI 1989 No 1147 as amended by SI 1989 No 1384) gave legal effect to standards at least as stringent as EC levels, together with the monitoring and publicity requirements laid down in the Directive.

*1.11 Directive concerning the quality of bathing water 76/160/EEC (OJ L31 5.2.76)*

The Directive was implemented in the UK by the Bathing Water Regulations and the Surface Waters Regulations 1992 (and Direction 97). The term 'bathing water' may be applicable to either fresh or sea water. The Directive requires that Member States set values which bathing water must meet to protect public health and also for reasons of amenity. In the past, agricultural diffuse pollution has contributed to non compliance with values laid down by Member States and therefore non compliance with the Directive.

*1.12 Directive on the quality required for shellfish waters 79/923/EEC (OJ L281 10.11.79)*

The Directive seeks to ensure a suitable environment for shellfish growth. It was implemented in the UK by the 1997 Fishlife Regulations. The Directive also requires Member States to set values in order to meet a standard of water quality. These values were to be met within six years of designation via pollution reduction programmes.

The regulation carries implications for agricultural diffuse pollution should it exceed the values laid down by Member States.

## 2. Basic resource protection – soil, air and integrated pollution control

**Priority 1**

***Sewage Sludge***

*2.1 Directive on the protection of the environment and in particular of the soil, when sewage sludge is used in agriculture 86/278/EEC (OJ L181 4.7.86)*

Purpose: To ensure that human beings, animals, plants and the environment are fully safeguarded against the possibility of harmful effects from the uncontrolled spreading of sewage sludge on agricultural land; and to promote the correct use of sewage sludge on such land.

Standards:

- Bans the use of sewage sludge on land whenever the concentration of one or more metals in the soil already exceeds the limits laid down at national level in compliance with the Directive.
- Bans the use of sewage sludge on soil in which fruit and vegetable crops (except fruit trees) are grown, as well as for ten months preceding harvesting of those fruit and vegetables which are normally in direct contact with the soil and eaten raw.
- Regulates the use of sludge to ensure that heavy metal accumulation in the soil does not exceed these limits.
- Requires farms to use only treated sludge (Member States may authorise under their own conditions the use of untreated sludge if it is injected or worked into the soil).

- Sets a minimum period of not less than three weeks after sludge has been spread before any grazing or harvesting can take place.

- Ensures that sludge is used in such a way that account is taken of the nutrient needs of the plants and that the quality of the soil and of the surface and ground water is not impaired.

- Requires users to take account of the increased mobility and availability of metals and if necessary to observe tighter application limits than laid down elsewhere, where the pH of soil is below 6.

- Requires users to keep comprehensive records of quantities of sludge produced and used in agriculture, its composition, how it is treated and where it is used.

Member States can choose to regulate by either of two methods:

- set upper limits on the maximum quantity of sewage sludge which may be applied per unit area per year while observing the limits for metal concentrations in sludge selected from the ranges laid down in the Directive; or

- apply the limits on metal addition per unit area per year as laid down in the Directive.

Limit values for concentrations of heavy metals to be observed are set out in three Annexes covering soil, sludge for use in agriculture, and amounts which may be added annually to agricultural land, based on a ten-year average.

*Standards in England are established by the Sludge (Use in Agriculture) Regulations 1989 (SI 1989 No 1263) as amended by the Sludge (Use in Agriculture) Regulations 1990 (SI 1990 No 880)*

On-farm constraints and considerations:

Sludge shall only be used on agricultural land if the following requirements are fulfilled.

- Unless the land is a dedicated site (an area of agricultural land which on 17th June 1986 was dedicated to the disposal of sludge but on which commercial food crops were being grown exclusively for animal consumption) the average annual rate of addition to the land by means of the sludge of any of the following elements shall not exceed the limit (in kilograms per hectare per year) specified (see Table 1).

Table 1. Concentration limits in kilograms per hectare per year

| Element | Kg per hectare per year | Limit of detection (mg/kg of dry matter |
|---|---|---|
| Zinc | 15 | 50 |
| Copper | 7.5 | 25 |
| Nickel | 3 | 10 |
| Cadmium | 0.15 | 1 |
| Lead | 15 | 25 |
| Mercury | 0.1 | 0.1 |

- The concentration in the soil of any of the following elements shall not exceed the limit specified (see Table 2).

Table 2. Concentration limits

| Element | Limit according to pH of soil | | | |
|---|---|---|---|---|
| PH | 5.0 < 5.5 | 5.5 < 6.0 | 6.0-7.0 | > 7.0 |
| Zinc | 200 | 250 | 300 | 450 |
| Copper | 80 | 100 | 135 | 200 |
| Nickel | 50 | 60 | 75 | 110 |
| | For pH 5.0 and above | | | |
| Lead | 300 | | | |
| Cadmium | 3 | | | |
| Mercury | 1 | | | |

- The pH of the soil shall not be less than 5.
- No fruit or vegetable crops, other than fruit trees, shall be growing or being harvested in the soil at the time of use.
- The sludge shall be used in such a way that account is taken of the nutrient needs of the plants and that the quality of the soil and of the surface and ground water is not impaired.
- No grazing of animals or harvesting of forage crops unless three weeks have expired since the use of any sludge or septic tank sludge on agricultural land.
- No harvesting of fruit and vegetable crops which are grown in direct contact with the soil and normally eaten raw unless ten months have expired since the use of any sludge or septic tank sludge on agricultural land.
- Ensure sludge is worked into the soil of the land affected as soon as reasonably practicable where any untreated sludge has been used on agricultural land without being injected into the soil.

- Where sludge has been used on agricultural land other than by or on behalf of the sludge producer, the occupier of that land shall provide information to the sludge producer about where and when the sludge was used, how much has been used and, where the occupier has used sludge not supplied by the sludge producer, the name and address of the person who supplied the sludge and the quantity of sludge so used which was supplied by that person.

- Where the actual concentration of the substances listed in Table 2 exceeds, or if sludge were used, would exceed, the permitted concentration, do not sell or offer for sale any crop grown on the agricultural unit affected except in accordance with advice in writing from the Minister of Agriculture, Fisheries and Food and do not grow any commercial food crops on that unit other than crops intended for animal consumption.

The *Code of Practice for Agricultural Use of Sewage Sludge*, first published by the DETR in 1989 and revised in 1996, complements the Regulations.

*2.2 The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (SI 1991 No 324) as amended by the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil (Amendment) Regulations 1997 (SI 1997 No 547)*

Please refer to section 1.4 for details.

***Code of Practice for Soil***

*2.3 The Code of Good Agricultural Practice for the Protection of Soil*

The Soil Code gives advice to farmers to avoid causing long-term damage to soils and provides guidance on practices which will maintain and increase the ability of the soil to support plant growth. It is not a statutory code and refers to the various laws on contamination and degradation of soils, which, as far as they set environmental standards for agriculture, are covered elsewhere in this section.

The Code gives advice and guidance on the following issues:

- soil fertility – chemical and biological processes affecting fertility, including the acidification of soils, maintaining and improving the soil's nutrient reserves and its organic matter content;

- physical degradation of soils – how it can be reduced or avoided by appropriate techniques;

- contamination – risks associated with the chemical contamination of soils and measures avoiding it from happening; and

- restoration of disturbed soils – advice on measures to reduce the effect of soil disturbance by extraction of minerals, landfill, laying pipelines and other civil engineering works.

MAFF has also commissioned ADAS, in 1999, to prepare a technical manual for use by consultants and farmers on soil erosion by water and erosion control techniques. Soil erosion occurs on a relatively small scale in the UK and problems tend to be localised. It can, however, be significant in high-risk areas. Erosion events are becoming more frequent as a result of landuse changes and changes in agricultural practices.

The manual, *Controlling soil erosion: a manual for the assessment and management of agricultural land at risk of water erosion in lowland England* encourages farmers or their advisors to prepare an erosion-risk map for their farm. Each field should be assessed against a five-class system. This includes assessing the soil texture, the slope, and whether rainfall is above or below 800mm. The manual stresses that users should modify the assessment according to local conditions or experience of past run-off and erosion on the site.

In addition, factors such as low organic matter or poor soil structure, valley features that tend to concentrate runoff, and long unbroken slopes are highlighted as factors that could increase the risk of erosion. The manual describes practical measures to reduce erosion such as alterations to the farm layout, adjustments to rotations and cropping/land uses, and adoption of good management practices for erosion control.

In addition, it provides detailed recommendations for the main 'at risk' crops and farming systems (except grazing livestock). It has been piloted on 20 farms. MAFF will also be holding local demonstrations of techniques to reduce the risk of erosion in areas of England with soils at very high risk of erosion. Technical training seminars for agricultural advisers and consultants are also planned on risk assessment methodology and soil erosion control techniques.

***Air Pollution Standards***

*2.4 The Crop Residues (Burning) Regulations 1993 (SI 1993 No1366)*

The purpose of the Regulations was to eliminate public nuisance from smoke and ash drifting into people's homes and causing damage to furnishings and decorations, or drifting across roads and causing accidents. Potential improvements to soil were a secondary consideration.

On-farm constraints and considerations:

- There is a total ban on the burning of cereal straw and stubbles, and the residues of oilseed rape, field beans and peas. Exceptions are allowed for plant health control reasons.

***Code of Practice for Air***

*2.5 The Code of Good Agricultural Practice for the Protection of Air*

The Air Code gives advice to farmers to avoid causing air pollution from odours, ammonia and smoke, or from greenhouse gases which cause global warming. It is not a statutory code

and refers to legislation covering issues such as air pollution, planning and waste management.

The Code covers the following issues:

Odours

- minimising odours from landspreading of livestock wastes, housed livestock systems and stored slurry and manure;
- treating livestock wastes to reduce odour;
- producing compost for mushrooms;
- siting of livestock buildings, manure and slurry stores.

Ammonia

- ammonia emission;
- reducing ammonia loss from manures and slurries – animal diets, housing, stores, application of manure and slurries to land, slurries, solid manures.

Smoke pollution

- reducing the volumes of waste materials for disposal;
- plastic materials;
- tyres and rubber;
- waste oils;
- animal carcasses;
- fuels produced on the farm;
- other waste materials;
- burning in the open.

Greenhouse gases

- reducing emissions.

Priority 2

*Other waste*

2.6 *Waste Framework Directive 75/442/EEC (OJ L194 25.5.75) as amended by Directive 91/156/EEC (OJ L78 26.3.91)*

Purpose: To set out a coherent set of measures for waste disposal applicable in all Member States. The Directive is a framework Directive, so more detailed measures are provided by other Directives.

The Directive places duties on Member States to:

- encourage the prevention or reduction of waste production and its harmfulness, particularly through the development of clean technologies, techniques for the final disposal of dangerous substances in waste destined for recovery, and the development and marketing of products designed to have minimal environmental impact by nature of their manufacture, use or final disposal (Article 3.1);

- encourage the recovery of waste, including recycling, reuse or reclamation, and the use of waste as a source of energy (Article 3.1);

- ensure that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment, and in particular without risk to air, soil and plants and animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest. The abandonment, dumping or uncontrolled disposal of waste must be prohibited (Article 4);

- establish an integrated and adequate network of disposal installations, taking account of the best available technology not involving excessive costs. The network is to enable the Community to be self sufficient in waste disposal (Article 5).

Waste water and some forms of agricultural waste are, amongst others, excluded from the scope of the Directive, where they are covered by other legislation.

The Directive is implemented in the UK by the *Waste Management Licensing Regulations 1994 (SI 1994 No 1056)*.

Industrial, household and commercial wastes are defined in these Regulations as 'controlled wastes' and are subject to a number of provisions, including waste management licensing controls and a broad duty of care obligation. These provisions apply to the recovery or disposal of non-agricultural waste and include activities taking place on farms such as landspreading of industrial wastes, e.g. food and drink waste.

Agricultural waste was not classified as 'controlled waste' at the time of the UK's implementation of the Directive, and so was not made subject to waste management licensing. At present, all wastes from premises used for agriculture are excluded from the definition of controlled waste. This means that they are not subject to the usual statutory controls on the management of waste, such as waste management licensing, the duty of care

and registration of waste carriers. However, certain agricultural wastes will be brought within the waste management licensing system in future regulations. The existing Waste Management Regulations control the disposal of non-agricultural waste to land.

On-farm constraints and considerations:

Waste from non-agricultural sources can be spread without licensing if:

- Maximum application rate is 250t/ha (5,000 t/ha for dredgings) in any 12 months.
- Spreading results in "benefit to agriculture or ecological improvement". EA may require evidence of "benefit to agriculture".
- The intention to apply such wastes must be notified to EA, which requires details of when, where and how the waste will be spread, together with information on the type, quantity, chemical composition and pollution risks of the waste.

The following wastes can be spread once the conditions for exemptions from licensing have been met:

- Waste soil or compost.
- Waste wood, bark or other plant matter.
- Waste food, drink or materials used in or resulting from the preparation of food or drink.
- Blood and gut contents from abattoirs.
- Waste lime.
- Lime sludge from cement manufacture or gas processing.
- Waste gypsum.
- Paper waste sludge, waste paper and de-inked paper pulp.
- Dredgings from any inland waters.
- Textile waste.
- Septic tank sludge.
- Sludge from biological treatment plants.
- Waste hair and effluent treatment sludge from a tannery.

Use of other non-agricultural wastes must be licensed by the EA before they can be applied to agricultural land.

*2.7 Directive on hazardous waste 91/689/EEC (OJ L377 31.12.91) as amended by Directive 94/31/EC (OJ L168 2.7.94)*

Purpose: To introduce stricter requirements for operations involving hazardous waste within the framework provided by the Waste Framework Directive 75/442 (see Section 2.6).

The Directive is implemented in the UK by the Special Waste Regulations 1996 (SI 1996 No 972, amended by SI 1996 No 2019)

Schedule 2 of these Regulations provides a list of hazardous waste, reproducing the list of hazardous waste annexed to Council Decision 94/904/EC. Waste code 02 concerns waste from agricultural, horticultural, hunting, fishing, and aquaculture primary production, food preparation and processing. It is subdivided into code 0201 for primary production waste and code 020105 for agrochemical wastes.

Since special waste is defined as any controlled waste to which a six-digit code is assigned in Schedule 2 and which displays any of the properties specified in Part II of Schedule 2, only agrochemical waste falls under the Regulations in the agriculture sector. This might include oily sludges, pesticides, waste oils or wood preservatives. Wastes are not special if the hazardous properties set out in the Regulations are absent for any reason.

The Regulations need to be followed if a farmer has to dispose of, carry or receive special wastes. This includes special wastes going to storage, treatment, recycling or disposal.

On-farm constraints and considerations:

- inform the Regulator (EA) before special waste is removed (pre-notification) by filling in a consignment note;
- send off the form at least three clear working days but not more than one month before the waste is going to be removed;
- follow the 'Duty of Care' (take all reasonable steps to keep waste safe) when packaging and handling the waste;
- a fee must be paid in relation to most consignments;
- keep a register of consignment note copies for three years.

***Integrated Pollution Prevention and Control***

*2.8 Directive on Integrated Pollution Prevention and Control 96/61/EC (OJ L257 10.10.96)*

Purpose: The Directive authorises certain industrial activities (listed in Annex I) in order to attain 'a high level of protection for the environment taken as a whole'. This is to be achieved by preventing or, where this is not practicable, reducing emissions to air, water and land, including measures concerning waste. The Directive is intended to replace the previous EC approach towards pollution control which has operated on medium-specific lines. It may be thought of as a 'framework' measure, since it provides for common EC

emission limits to be adopted at a later date, and creates a new structure within which certain existing quantitative EC standards are to be applied.

The Directive is of relevance for agriculture in so far, as the intensive rearing of poultry and pigs falls under its scope. Installations for the intensive rearing of poultry and pigs with more than:

- 40,000 places for poultry;
- 2,000 places for production pigs (over 30kg); or
- 750 places for sows

- are covered by the Directive.

Each facility covered by the Directive must be made subject to authorisation through permitting. A permit is defined as that part of the whole of a written decision (or several such decisions) granting authorisation to operate all or part of an installation, subject to certain conditions which guarantee that the installation complies with the requirements of the Directive. The basic technology requirement to be reflected in IPCC permits is 'Best Available Techniques' (BAT), 'available' being specified as meaning economically and technically viable, taking into consideration costs and advantages. In determining BAT, special consideration must be given to certain factors listed in an Annex, including the use of low-waste technology, the use of less hazardous substances, the furthering of recovery and recycling, the consumption of raw materials and water, and energy efficiency.

On-farm constraints and considerations:

- an operation permit needs to be obtained for new installations;
- competent authorities need to be advised of any changes in operations;
- a permit needs to be obtained for any substantial modifications;
- all appropriate preventive measures against pollution need to be taken, in particular through application of the best available techniques;
- it needs to be ensured that no significant pollution is caused;
- waste production needs to be avoided;
- where waste is produced, it needs to be recovered or safely disposed of while avoiding or reducing any impact on the environment;
- energy needs to be used efficiently;
- the necessary measures need to be taken to prevent accidents and to limit their consequences;

- the site needs to be protected and cleaned up upon cessation of the industrial activity;

- all necessary assistance needs to be afforded to the representatives of the competent authority to enable them to carry out any inspections within the installation, to take samples and to gather any information necessary for the performance of their duties for the purposes of the Directive.

*Implementation in the UK*

According to the Directive, Member States were to adopt the laws, regulations and administrative provisions necessary to comply with the Directive no later than 3 years after its entry into force, by October 1999. This process has however been delayed in the UK and the Directive has not yet been implemented.

While most of the activities listed in Annex I of the Directive are already covered by the system of Integrated Pollution Control (IPC) introduced in the UK under the Environmental Protection Act 1990, this is not true for intensive agriculture. New rules will have to be introduced and the discussion about their design is ongoing in the Environment Agency and the DETR. While the EA was initially in favour of an individualised process tailored to each farm affected, the DETR considered this to be too expensive and a decision has been taken to adopt general rules. There are no plans to enforce stronger rules than those required by the Directive.

Unclear points at the moment include the question of whether outdoor pig units will be included in the rules. There is also uncertainty about how to control activities related to 'installations' for intensive agriculture, such as slurry spreading. At present there are considerations to put controls on pig feed rather than on the spreading of slurry, since the regulations applying to slurry spreading are not felt to be sufficient.

**Priority 3**

***Proposed EU ban on methyl bromide***

*2.9 Commission proposal to amend Regulation on substances that deplete the ozone layer*

This Regulation proposes a gradual reduction in Member State production of methyl bromide up until 2004 and a complete ban on all production thereafter.

In some Member States methyl bromide is used as a soil fumigant in horticulture, prior to cropping. In the UK, the majority of producers have already stopped using this method for soil preparation so it is not considered to represent a significant future constraint upon the industry.

## 3. Pesticides

### Priority 1

*3.1 Directive 79/117/EEC (OJ L33 8.2.79) prohibiting the placing on the market and use of plant protection products containing certain active substances*

Purpose: To ban or restrict the use of pesticides containing certain active ingredients and to ensure that those that are marketed are appropriately classified, packaged and labelled.

Standards:

- Do not use plant protection products (including products intended to destroy undesired plants) containing the substances (listed in an Annex);
- do not use the products (listed in other Annexes) unless the specified quality standards for these are met.

*Directive 79/117 is implemented in the UK by the Control of Pesticides Regulations 1986 (SI 1986 No 1510) as amended by the Control of Pesticides (Amendment) Regulations 1997 (COP(A)R) (SI 1997 No 188). Both Regulations are made under Part III of the 1985 Food and Environment Protection Act (s. 16(2)).*

The Food and Environment Protection Act (1985) (FEPA) is the legislation governing the approval of pesticides and the conditions which apply to their use. Agricultural pesticides are registered with MAFF. FEPA requires that everyone who uses pesticides on a farm or holding must be trained to use them safely and efficiently. They should know what emergency action to take if there is a spillage and may need to have recognised certificates of competence.

On-farm constraints and considerations:

- Only store or use a pesticide if it has gained approval;
- only use the pesticide according to the specific conditions of approval and for the approved purpose and, with certain exceptions, only in accordance with specific label instructions. The Statutory conditions of use will specify the crops on which the product can be used, the maximum number of treatments per season and the maximum individual dose. Some products have a 'no spray zone' restriction attached, where users must leave margins next to watercourses unsprayed;
- take all reasonable precautions, particularly with regard to storage and transport, to protect the health of human beings, creatures and plants, safeguard the environment and, in particular, avoid the pollution of water (any surface water and any groundwater);
- anyone using a pesticide in the course of a business or employment must have received adequate instructions and training in the safe, efficient and humane use

of pesticides, and is competent for their duties involving pesticides. It is the duty of all employers to ensure this;

- confine the application of the pesticide to the land, crop, structure, material or other area intended to be treated;

- do not use a pesticide in conjunction with an adjuvant in any manner, unless the adjuvant has been specified, upon application by any person to the Ministers, in a list of adjuvants published by the Ministers from time to time and the use of that pesticide with that adjuvant in that manner is in accordance with the conditions of approval given in relation to that pesticide and any requirements to which the use of that adjuvant with that pesticide is subject;

- do not combine or mix for use two or more pesticides which are anticholinesterase compounds unless such a mixture is expressly permitted by the conditions of the approval given in relation to at least one of those pesticides or by the labelling of the container in which at least one of those pesticides has been sold, supplied or otherwise marketed to that person;

- do not combine or mix for use two or more pesticides unless all of the conditions of approval given in relation to each of those pesticides, and the labelling of the container in which each of those pesticides has been sold, supplied or otherwise marketed to that person can be complied with;

- do not, in the course of a commercial service, use a pesticide approved for agricultural use unless you have obtained a certificate of competence recognised by the Ministers or use that pesticide under the direct and personal supervision of a person who holds such a certificate or use it in accordance with an approval, if any, for one or more of the following uses (home garden, animal husbandry, food storage practice, vertebrate control, domestic use, wood preservation, as a surface biocide, public hygiene or prevention of public nuisance, other industrial biocides, as an anti-fouling product, other as defined by the Ministers);

- do not use a pesticide approved for agricultural use if you are born later than 31 December 1964 unless you have obtained a certificate of competence recognised by the Ministers or use that pesticide under the direct and personal supervision of a person who holds such a certificate or uses it in accordance with an approval, if any, for one of the uses specified above. This will shortly be extended to all users.

### 3.2 *Guide for Local Environmental Risk Assessment for Pesticides (LERAPs)*

In March 1999 the Government announced new procedures to be used by farmers who spray pesticides which pose particular risks to the aquatic environment. These apply to some 400 products based on around 40 active substances for which a standard six metre 'no spray' zone alongside watercourses previously applied to ground crop sprayers.

On-farm constraints and considerations:

- A five metre 'no spray' zone applying to so-called 'Category A' organophosphate and synthetic pyrethroid insecticides;

- for pesticides which do not contain organophosphate or synthetic pyrethroid insecticides and have a requirement for a five metre buffer zone requirement because they are applied via a ground crop sprayer, carry out and record the results of a 'Local Environmental Risk Assessments for Pesticides' (LERAPs). By carrying out and complying with that LERAP, users may be able to reduce the size of buffer zone required to an underpinning two metre distance (or one metre from the top of the bank). Three factors can be taken into account, including the size of the watercourse, reductions in the dose applied below the recommended level and use of recognised low drift spray equipment;

- where the buffer zone is being reduced as a result of using LERAP-low drift spray equipment, that equipment should be used at least for the whole of the first swath, i.e. a minimum of 12 metres from the top of the bank of the watercourse;

- if, following a LERAP, the buffer zone is reduced by using a reduced dose rate, no further repeat application may take place within 48 hours;

- keep a written record of every LERAP that is carried out which can be made available for inspection by enforcement authorities. Records must be available for inspection for a period of three years following the spray operation. The record should include information on the date that the final assessment was carried out, the type of sprayer used, the product being applied, the dose at which that product is to be applied, the size of the watercourse or watercourses adjacent to the field/spray area, the date of the spray operation, the result of the LERAP and the identity of the person carrying out the LERAP;

- if the option to simply comply with the existing buffer zone is chosen, record that decision;

- a standard buffer zone of one metre for dry ditches from the top of the ditch's bank;

- a standard buffer zone of five metres for ground crop sprayers measured from the top of the bank of the watercourse;

- a standard buffer zone of one metre for hand-held sprayers measured from the top of the bank of the watercourse.

### 3.3 *The Green Code (Code of Practice for the Safe Use of Pesticides on Farms and Holdings)*

The Code contains two statutory elements: an Approved Code made under the Health and Safety at Work etc. Act 1974 and a Code made under the Food and Environment Protection Act 1985 as well as other guidance and general information.

The Code refers in particular to

- the Control of Pesticides Regulations 1986 (SI 1986 No 1510);
- the Plant Protection Products Regulation 1995 (SI 1995 No 887); and
- the Control of Substances Hazardous to Health Regulations 1994 (SI 1994 No 3246).

Standards – the code contains the following advice in relation to the environment:

- consider carefully if it is necessary to use a pesticide – the use of pesticides should be limited to that which is necessary for the effective control of pests, compatible with the protection of human health and the environment;
- use those pesticides that involve least risk to human health and the environment while being effective;
- read and understand the product label providing information on the safe and proper use of the product before the pesticide is used. Never use a pesticide that has not been approved or does not have a label;
- safe working practices – users of pesticides need to be aware of, and, where necessary, trained in the recommended way of storing, handling and mixing pesticides, and of disposing of empty containers, other contaminated materials and surplus pesticides as well as of the procedures for preparing application equipment for work and for its operation without risk to the user, other people, animals, beneficial insects, and plants or the environment;
- conduct an assessment of the environmental effects of a planned pesticide use to establish which precautions should be taken to safeguard wildlife and the environment. In particular:
- if spraying near to an SSSI, Local Nature Reserve, Marine Nature Reserve or National Nature Reserve 'if in doubt' you should always consult English Nature before spraying. It is illegal to spray closer than 1500 metres to any part of such sites without permission;
- avoid contamination with pesticides, either by direct application of from drift, of important habitats for wildlife which exist around field margins, especially where there are hedges or ditches; a permanent grass margin will prevent the movement of weeds into the crop while providing a habitat for wildlife, including beneficial insects, and will protect hedgerows and other creatures from pesticides;
- consider to establish a conservation headland on the edges of cereal crops, which encourages the growth of broad-leaved weed species and the insects that live on them. Where conservation headlands have been established, follow agreed management principles to avoid any risk to non-target plants and animals;

- protect any land that is designated as a special area from any possible adverse effects resulting from the use of pesticides. If in doubt, consult the appropriate nature conservation agency before spraying. It may be illegal to spray without permission;

- make sure all label precautions are followed to protect birds and mammals; pay special attention to ensuring that granules and pellets are incorporated thoroughly and do not leave any spills of treated seed, granules or pellets lying around;

- during those times of the year when bees are at risk or when intending to use a pesticide which is labelled as 'high risk' to bees, inform the beekeepers identified in the environmental assessment or the local spray liaison officer 48 hours in advance of the intention to spray so that the necessary precautions can be taken. Also advise any change of plan;

- further measures for the protection of bees include checking for bees foraging or visiting plants, following closely the environmental protection instructions on the label, spraying in the evening, if spraying has to be carried out during the day, choosing a cool cloudy one or the early morning, no spraying unless absolutely necessary, no use of pesticides labelled 'harmful', 'dangerous' or 'high risk' to bees if crops or weeds are in open flower or part bloom unless this is allowed by the product label, avoid pesticide drift into bee hives;

- take into account the effect of the pesticide use on other beneficial insects, e.g. ladybirds and lacewings, as well;

- make sure label instructions for the protection of livestock are followed;

- consult the appropriate Environment Agency before using pesticides near any water; in certain circumstances their agreement to apply pesticides must be obtained before the operation takes place;

- if a spillage occurs, be sure to contain it to reduce the contamination. Do not allow pesticides to get into any yard or field drain, ditch or other watercourse;

- spraying operations near a watercourse with a significant flow should take place in the opposite direction to the direction of water flow;

- follow the legal requirements that must be complied with before, during and after a spray treatment from the air; notify and consult with specific organisations when using aerial spraying.

Priority 2

*3.4 Directive 91/414 (OJ L230 19.8.91) concerning the placing of plant protection products on the market*

Purpose: To introduce a Community system for the authorisation and placing on the market of plant protection products, i.e. pesticides', to protect human health and the environment. The system will replace rules and procedures used in Member States.

The Directive introduces a 'positive' Community list of active ingredients, authorised under a new procedure. Active ingredients can be included in the list only if they meet certain conditions, particularly concerning the likely effects of residues on human health and the environment. Only products containing active ingredients on the EC positive list can be authorised, initially for a maximum period of ten years. There are special arrangements for products already authorised and in circulation.

The Directive applies primarily to synthetic pesticides. However, at a late stage in negotiations, its scope was extended to cover authorisations of the marketing of pesticides containing or composed of GMOs.

Standards for Member States:

- Authorise only those products containing active ingredients on the EC positive list.

- Member States are to prescribe that pesticides '...must be used properly'. Proper use will include compliance with any conditions attached to the product and specified on the label and the application of 'the principles of good plant protection practice, as well as, whenever possible, the principles of integrated control'.

*A new set of regulations, the Plant Protection Product Regulations 1995 (SI 1995 No 887) came into force in 1995 to take account of Directive 91/414 and amendments to 1995. In 1997, new Plant Protection Products (Basic Conditions) Regulations (SI 1997 No 189) were passed under the 1985 Food and Environment Protection Act, Sections 16 (2) and 24 (3), which set out controls and enforcement procedures as required by the 1991 Directive.*

They supplement the Plant Protection Products Regulations, providing additional controls in relation to pesticides and plant protection products and the advertisement and storage of these products.

On-farm constraints and considerations:

- Do not use any plant protection product unless it has been approved, is used in accordance with the specified requirements and conditions and is used in accordance with the principles of good plant protection practice and, whenever possible, is used in accordance with the principles of integrated control (the rational application of a combination of biological, biotechnological, chemical, cultural or plant-breeding measures whereby the use of chemical plant protection products is limited to the minimum strictly necessary to maintain harmful organisms below levels above which economically unacceptable damage or loss would occur).

## 4. Land Use and Landscape Feature Standards

### Priority 1

*4.1 Planning policies (Development Control)*

Guidance, which must be taken into account by local planning authorities in the preparation of development plans and in decisions on individual planning applications is given in

- Planning Policy Guidance Notes, which detail national land use and development policy;
- Mineral Policy Guidance Notes, which detail national policy with regard to minerals and land use; and
- Circulars, which detail procedural matters.

Since the early 1990s the planning system is increasingly viewed as a means of achieving sustainable development, which is now an official objective of the planning system, as outlined in "PPG 1: General Policy and Principles".

A framework for the control of land use is provided by the Town and Country Planning System, which regulates the development and use of land in the public interest. The Town and Country Planning Act 1947 established a system of land use that was designed to protect the countryside and agricultural land from urban encroachment. This explains why only minimal controls were imposed on agricultural and forestry enterprises. The use of land and buildings for agriculture is excluded from the definition of development contained in the 1947 Act, and all successive Acts; hence there is no need to obtain planning permission for agriculture or forestry operations. Also, most building or engineering operations carried out for agriculture or forestry purposes are classified as permitted development under the General Development Order (GDO) Schedule 2. Rather than extend planning controls to agriculture and forestry, the Government has developed a range of pseudo planning controls that restrict certain land uses and activities but do not question the right to develop. These pseudo planning controls vary in effectiveness and add complexity to environmental planning.

A pseudo planning control is defined as one that:

- is introduced under planning legislation but does not question the principle of development (e.g. prior notification systems); and/or,

- contains land use regulations introduced under non-planning legislation (e.g. limestone pavement orders).

Sections 4.2 and 4.3 below describe specific environmental standards for agriculture within this broader planning context.

*4.2 Directive on the assessment of the effects of certain public and private projects on the environment (EIA Directive) 85/337 (OJ L175 5.7.85), amended by Directive 97/11 (OJ L73 14.3.97)*

Purpose: The Directive can be thought of as an embodiment of the preventative approach to environmental protection. Before consent is given for projects likely to have significant effects on the environment by virtue *inter alia* of their nature, size or location, an assessment must be made of the effects they may have on the environment so that the competent authority that grants consent is aware of the consequences. The projects listed in Annex I must be made subject to an assessment, while other projects, listed in Annex II, are to be made subject to an assessment only if they are likely to have a significant effect on the environment.

Relevance for agriculture:

Annex I lists as projects that *must* be made subject to an assessment, installations for the intensive rearing of poultry or pigs with more than:

- 85,000 places for broilers, 60,000 places for hens;

- 3,000 places for production pigs (over 30kg); or

- 900 places for sows.

So for these kinds of farm development, which already require planning permission under the UK's development control procedures, the Directive imposes a further requirement on the planning application process - that the farmer must prepare and submit an EIA for the project, along with their application.

Annex II lists the following agricultural activities as projects that are to be made subject to an assessment *if they are likely to have a significant effect on the environment:*

- projects for the restructuring of rural land holdings;

- projects for the use of uncultivated land or semi-natural areas for intensive agricultural purposes (see also item 1.4.10);

- water management projects for agriculture, including irrigation and land drainage projects;

- initial afforestation and deforestation for the purpose of conversion to another type of land use;
- intensive livestock installations (projects not included in Annex I);
- intensive fish farming;
- reclamation of land from the sea.

This list includes a range of activities which are already subject to planning permission or similar procedures, in UK law, so the impact of the Directive will be similar to that for the Annex 1 projects. The EIA requirement in relation to Forestry has necessitated amendments to the Forestry Authority's procedures for approving large scale afforestation plans, but again, these were already subject to FC controls. However, the need to apply the Directive in the area of projects for uncultivated land or semi-natural areas is not so straightforward since the UK does not already scrutinise or approve such projects through any formal public system. Although the Directive itself only requires the preparation of an impact assessment, the assumption is made that this will occur within the context of a broader public consent procedure and this therefore puts an onus on the UK to set up such a procedure for this purpose – hence effectively, to bring this kind of change within a pseudo planning process.

In drawing up an EIA, effects on the following four factors are to be identified, described and assessed, as appropriate:

- human beings, fauna and flora;
- soil, water, air, climate and the landscape;
- material assets and the cultural heritage;
- the interaction between all these factors.

On-farm constraints and considerations:

- if you wish to undertake any of the above listed developments on your farm, you will have to carry out a prior EIA of the proposed development and submit it as part of your application to the relevant authorities for permission to proceed with the development. Its findings may influence the decision about whether or not you may proceed with the development, and any attached conditions.

The Directive was implemented in England and Wales by a series of Regulations and has introduced into the UK the practice of environmental assessment for certain categories of projects as well as extending the types of development requiring planning consent.

Projects requiring planning permission are governed by *the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999 No 293)*, which follow the Directive in providing for two categories of development, broadly reflecting Annex I and some of the Annex 2 items in the Directive. However, those kinds

of projects in Annex 2 which are not yet covered by town and country planning or forestry approval processes are not yet implemented in the UK.

4.3 *Directive 79/409/EEC (OJ L103 25.4.79) on the conservation of wild birds and Directive 92/43/EEC (OJ L206 22.7.92) on the conservation of natural habitats and of wild fauna and flora – Development Control Aspects*

The Birds and Habitats Directives (see section on biodiversity) also have a direct impact on town and country planning since they require the designation of protected areas, habitat management and the assessment of projects and plans which may affect protected areas.

The text of PPG 9 makes numerous references to the Habitats and Birds Directives and to the EIA Directive. These references are very specific in terms of the Habitats and Birds Directives with the actual articles of the Directives cited and the words of the directives often used within the PPG (e.g. paragraph 23 and Annex C).

The land use planning implications of the Birds Directive are covered in Circular 27/87 which for the first time drew together and defined local authority responsibilities in respect of Britain's international obligations for nature conservation. It emphasised that the development control system was an essential part of the Government's provisions for meeting its obligations under the Birds Directive and explained that if local planning authorities failed to use the legislation available to achieve the objectives of the Directive, the UK could be challenged in the European Court of Justice.

The requirements of the Habitats Directive have been transposed into UK law through the *Conservation (Natural Habitats etc.) Regulations 1994 (SI 1994 No 2716)*.

These Regulations look to the planning system and other controls to protect sites and to the courts (and a licensing system) to protect species, although the presence of a protected species may well constitute a material consideration in planning decisions.

The Habitats Directive (through the Conservation (Natural Habitats etc.) Regulations 1994 and provisions of PPG 9) has had a very profound impact on land use planning through the introduction of novel procedural measures and additional protections as a matter of policy. The new procedural measures introduced through the requirements of the Habitats Directive and detailed in PPG 9 include

- charging the Secretary of State with responsibility for securing any necessary compensatory measures to ensure the overall coherence of Natura 2000 under Regulation 53 of the Habitats Regulations;

- the development of planning guidance which prohibits the grant of planning permission in relation to a European site unless a very specific set of circumstances apply in a given sequence. This is reflected in PPG 9 Annex C as a flow diagram. The Directive significantly reduces the level of discretion traditionally associated with the UK planning system;

- the requirement of ministers to confer with the Commission before agreeing to harmful developments affecting European sites on grounds of imperative reasons of overriding public interest, where such sites host a priority habitat or species;

- regulations 50, 51, 55 and 56 of the Habitats Regulations 1994 require local planning authorities to review extant planning permissions, where their implementation would be likely to have a significant effect on a site, either individually or in combination with other development, and to take any appropriate action. Paragraph C3 to PPG 9 states that local planning authorities should review permissions as soon as is reasonably practicable;

- the introduction of land management considerations into the planning process (reflected in Regulation 37, relating to the management of Article 10 landscape features). Paragraph 23 of PPG 9 clearly states that "Structure plans, local plans and unitary development plans must include policies in respect of the conservation of the natural beauty and amenity of the land...such policies shall include policies encouraging the management of features of the landscape which are of major importance for wild flora and fauna". The guidance goes on to state that "Suitable planning conditions and obligations may serve to promote such management".

On farm constraints:

These policies mean that farmers who wish to undertake built development on their land, of a type for which planning permission is normally required, will have to supply additional information on the environmental impact of such development. They may have such development refused, or approved only with specific conditions, on the grounds of the specific importance of the site(s) concerned for nature conservation.

***Pseudo Planning Controls***

*4.4 Limestone Pavement Orders*

Section 34 of the Wildlife and Countryside Act 1981 makes provision for the protection of limestone pavements. The Secretary of State or county planning authorities can make a Limestone Pavement Order when it appears that the character and appearance of a limestone pavement is likely to be adversely affected by the removal of limestone.

On-farm constraints and considerations:

- It is a criminal offence to destroy or otherwise significantly damage any part of a designated limestone pavement, whether that action be by the owner of the land or by a third party.

*4.5 Farm notification/determination procedures*

This notification procedure was first introduced in 1950 in areas of special landscape significance (i.e. national parks) and provided local planning authorities with a discretionary control over the siting, design and external appearance of farm and forestry developments. The system was extended in 1986 and 1989 to cover all national parks in England and Wales and the Broads Authority and in 1992 it was extended to all farm and forestry developments in England and Wales.

On-farm constraints and considerations:

- Under the amended GDO, permitted development cannot be exercised unless the farmer/developer has applied to the local planning authority for a determination as to whether their prior approval will be required for certain details such as siting, design and external appearance of farm and forestry buildings, roads, waste disposal facilities exceeding 0.5 ha, and fish tanks.

In some National Parks, the Park Authorities have produced design guides for farm buildings (e.g. Exmoor) to encourage farmers to submit appropriate plans which are likely to be approved.

*4.6 Hedgerows Regulations 1997 (SI 1997 No 1160)*

Section 97 of the Environment Act 1995, and Hedgerows Regulations 1997.

Purpose: to protect from deliberate removal, in whole or in part, of hedgerows deemed to be 'important' by virtue of their wildlife, landscape, historic or amenity value. Removal includes any acts that result in the destruction of the hedgerow. Importance is defined by reference to specific criteria as listed in the Regulations themselves, which are prescribed by Ministers.

On-farm constraints and considerations:

- Anyone wishing to remove a hedgerow from farm land must seek prior approval from their local authority through a time-limited notification system (the LA has 28 days in which to respond);

- farmers and other landholders may be prohibited by the LA from removing hedgerows which are defined as nationally important under the legislation.

Any person wishing to remove a hedgerow from farmland must notify their local authority in advance, by completing a notification form. The local authority must then determine, within 28 days, whether the hedgerow concerned is 'important' in accordance with the precise criteria specified in the Regulations (see below). If a hedgerow qualifies as important by reference to these predetermined national criteria, the local authority may prohibit the removal of the hedgerow. No compensation is payable in these circumstances. There is some discretion for the local authority, in that they must issue a hedgerow retention notice prohibiting removal of an 'important' hedgerow *unless they are satisfied, having regard in particular to the reasons given, that there are circumstances which justify the hedgerow's removal* (DETR, 1998).

Removal of a hedgerow in contravention of the Regulations is a criminal offence punishable in some cases by a Magistrate's Court fine of up to £5,000. For anyone convicted on indictment in a Crown Court the fine is unlimited. The local planning authority may require replacement of a hedgerow removed in contravention of the Regulations, although an appeal can be made against this.

***Important hedgerows*** are defined as hedgerows which are at least 30 years old and which meet one of the following criteria:

- Marks a pre-1850 parish or township boundary;
- incorporates an archaeological feature;
- is part of, or associated with, an archaeological site;
- marks the boundary of, or is associated with, a pre-1600 estate or manor;
- forms an integral part of a pre-1845 field system;
- contains certain categories of species of flora or fauna listed in the 1981 Wildlife and Countryside Act or JNCC publications;
- includes either

  a. at least 7 woody species on average in a 30m length;

  b. at least 6 woody species on average in a 30m length and has at least 3 associated features;

  c. at least 6 woody species on average in a 30m length including a black poplar, large or small leaved lime or wild service tree (ancient woodland indicators);

  d. at least 5 woody species on average in a 30m length and has at least 4 associated features.

  The number of species in this list is reduced by one in northern counties. Woody species are listed (56 in total) and exclude most climbers except wild rose;

- runs alongside a bridleway, footpath, road used as a public path or byway open to all traffic and includes at least 4 woody species on average in a 30m length and has at least 2 associated features.

The associated features are:

i. A bank or wall supporting the hedgerow;

ii. less than 10 per cent gaps;

iii. on average, at least one tree per 50 metres;

iv. at least three species from a list of 57 woodland plants;

v. a ditch;

vi. a number of connections with other hedgerows, ponds or woodland;

vii a parallel hedge within 15 metres.

***Historic Monument Standards***

*4.7 Controls on Scheduled Ancient Monuments*

Scheduled Ancient Monuments (SAMs) are nationally important archaeological sites and monuments which are legally protected by being placed on a 'schedule'. Scheduling is the only legal protection specifically for archaeological sites. English Heritage takes the lead in identifying sites in England which should be placed on the schedule by the Secretary of State for National Heritage. The preservation of SAMs is given priority over other land uses. The *Ancient Monuments and Archaeological Areas Act 1979* supports a formal system of Scheduled Monument Consent for any work to a designated monument.

Only deliberately created structures, features and remains can be scheduled and the schedule now has about 17,000 entries (30,000 sites).

On-farm constraints and considerations:

A monument which has been scheduled is protected against disturbance or unlicensed metal detecting and is subject to particular controls, as follows:

- do not damage a scheduled monument by carrying out works without consent;
- do not cause reckless or deliberate damage;
- do not use a metal detector or remove any object found without a licence from English Heritage;
- inform the Secretary of State about any work which might affect a monument above or below ground. English Heritage gives advice to the Government on each application. The Secretary of State will not normally consent to work which might damage a protected site;
- obtain written consent before any work can begin; some development may also need planning permission.

Some types of work, generally related to agriculture and gardening, where these activities are already being carried out, are allowed to go ahead without consent. However, there are standard prescriptions relating to certain kinds of agricultural activity, including prohibitions on ploughing SAMs currently under permanent vegetation and a requirement not to increase the frequency or depth of cultivations on SAMs on arable land.

English Heritage makes grants to help with major repairs and other assistance may be available under agri-environmental schemes.

4.8 *Environmental Impact Assessment for projects involving agricultural intensification on semi-natural and uncultivated land*

See item 4.2 for details of the Directive.

This is a requirement which the UK has to implement under the EU Directive on Environmental Impact Assessment. It has not yet done so, hence no details of the specific measure, or its relevance to on-farm constraints, can yet be provided. In theory, it could constitute a significant constraint upon certain kinds of agricultural intensification, particularly in relation to irreversible land use changes or major modifications (e.g. drainage).

4.9 *Forestry: felling licences*

These are described in the main body of the report, Chapter 4, section 4.1. However, they have a direct effect upon farms, so this has been included in the inventory.

The 1967 Forestry Act empowers the Forestry Commission (now Forestry Authority) to issue felling licences, which are required for the felling of almost any trees (exceptions being parks and gardens, individual trees or groups of small trees, and trees that need to be felled for developments that have already been granted planning permission). Licences must be obtained from the Forestry Authority before logging commences, providing the total volume of wood to be felled exceeds 2m cubed per calendar quarter (if the wood is to sold) or 5m cubed per calendar quarter if the wood is for personal use. All cases of suspected illegal felling are investigated, and prosecution may ensue. It is the policy of the Forestry Authority that areas felled will be replanted or naturally regenerated except where felling is allowed for environmental improvement or to enable development authorised under planning regulations.

On-farm constraints and considerations:

Felling licences are usually required for the felling of growing trees. They are issued only on condition that the felled area is replanted, and replanted with broadleaves where broadleaves are felled.

In any calendar quarter up to 5 cubic metres may be felled by an occupier without a licence provided not more than 2 cubic metres are sold.

Certain types of felling are exempt. The most important of these are as follows:

- the felling is in accordance with an approved plan of operations under one of the Forestry Commission's grant schemes;
- the trees are in a garden, orchard, churchyard or public open space;
- the trees are below 8 centimetres in diameter, measures 1.3 metres from the ground; or in the case of thinnings, below 10 centimetres in diameter; or in the case of coppice or underwood, below 15 centimetres in diameter;

- the trees are interfering with permitted development or statutory works by public bodies;
- the trees are dead, dangerous, causing a nuisance or a badly affected by Dutch elm disease;
- the felling is in compliance with an Act of Parliament.

Where an area is designated as a Conservation Area or as a SSSI or the trees are covered by a Tree Preservation Order, special permission may be required from another body for any proposed felling.

***Codes of practice, guidance, etc***

*4.10 The Code of Good Upland Management*

This code exists to promote the agricultural management of moorland and other upland habitats and landscapes in ways that will not damage their broader environmental interest.

The Code includes management advice to protect and conserve moorland by avoiding ploughing, fertilising and the application of pesticides except to control invasive weeds. It advises avoiding damage to vegetation by overgrazing and by supplementary feeding practices, as well as ensuring controlled burning of moorland vegetation.

The Code also includes a range of advice on the retention and appropriate management of traditional field boundaries and other landscape features in upland areas, including stone walls, hedges, traditional farm buildings and archaeological features, water features and woodlands.

*4.11 UK Forestry Standard*

Farm woodland operations (felling which requires a licence or planting which is undertaken with grant aid) are also covered by the UK Forestry Standard, guidance which is described in more detail in Chapter 4 of the main report.

***Priority 2***

*4.12 Environmental Impact Assessment (EIA) for projects involving agricultural intensification on semi-natural and uncultivated land, as part of EIA Directive 85/337*

The UK has yet to fully implement this requirement of the EIA Directive 85/337. When implemented, however, it will be priority 1 measure. Further details are provided under paragraph 1.4.2.

### 4.13 *Other relevant plan-related documents*

*Countryside/Rural Strategies*

Some local authorities have prepared non-statutory rural or countryside strategies, which take many forms. Some are comprehensive while others cover only certain rural/countryside issues such as recreation or landscape; some are based on county boundaries others are district based. They are often seen as a necessary addition to statutory development plans with a focus on management policies. In other instances they have been produced to influence, or as part of the process of preparing, a statutory development plan. The preparation of such strategies is often prompted by advice from the respective country conservation agencies. Although these documents do not represent standards as such, they can provide guidance on how certain other, discretionary standards (e.g. development control) are likely to be interpreted in particular areas.

*Forestry Strategies*

Forestry strategies or indicative forest strategies are non-statutory, but 'should be taken into account' by planning authorities when formulating development plan policies. Official Government guidance on indicative forestry strategies in England is provided by Circular 29/92. It is however estimated that only three local authorities in England have prepared indicative forestry strategies. In more recent years, work has started on 'national strategies for forestry. "A New Focus for England's Woodland: Strategic Priorities and Programmes" produced by the Forestry Authority, describes how the Government will deliver its forestry policies for England and sets out the Government's priorities and programmes for forestry over the next five to ten years. The strategy is not prescriptive, it sets out a framework for action.

*Landscape Features of Wildlife Value*

The Conservation (natural Habitats etc.) Regulations 1994 (SI 1994 No 2716) require local planning authorities to develop policies in respect of the management of landscape features which are of major importance for wild fauna (Regulation 37).

## 5. *Biodiversity Standards*

### 5.1 *The 1981 Wildlife and Countryside Act - Sites of Special Scientific Interest (SSSIs), Nature conservation orders, species protection measures*

*SSSIs*

SSSIs are notified under the Wildlife and Countryside Act 1981 (as amended). They are the best identified examples of sites of the national heritage of wildlife habitats, geological features and landforms. While some are managed by nature conservation bodies, the protection and management of most sites depends on landowners and occupiers.

For each SSSI a list of Operations Likely to Damage (OLD) the special interest of the site is drawn up. The OLDs do, however, only relate to land within the SSSI boundary, while aquatic sites can be affected by any land area within their catchment.

On-farm constraints and considerations:

- give four months notice in writing if you intend to carry out, or cause or permit to be carried out, any Operation listed in the notification as Likely to Damage the special interest of the site. Specify the nature of the operation and the land on which it is to be carried out. If the operation causes unavoidable damage, a management agreement which will protect the special interest might be offered.

If the four month period is considered too short by English Nature, it can request a Nature Conservation Order under Section 29 of the Wildlife and Countryside Act 1981 from the Secretary of State to extend consultation whilst protecting the SSSI against specific works. The Order will specify operations which may not be carried out on the site. In this case:

- give English Nature three months' written notice of your intention to carry out an operation or permit it to be carried out.

The grant of planning permission for development on a SSSI by a local planning authority takes away the need to consult English Nature about carrying out the authorised development. There are, however, procedures to ensure that the special interest of a site is taken into account before planning permission is given.

Under the government's proposed new Countryside Bill, the current protection of SSSIs is likely to be strengthened in a number of ways which give English Nature more scope to prevent damage and to encourage positive management of these sites.

*Nature Conservation Orders*

Section 29 of the Wildlife and Countryside Act 1981 provides the Secretary of State with the power to make a Nature Conservation Order for the following purposes:

- to ensure the survival in Great Britain of any kind of animal or plant; or
- to comply with an international obligation; or
- where the land is of national importance, to ensure the conservation of any of its flora, fauna, geological or physiographical features.

These orders can incorporate a variety of standards tailored to the needs of individual situations.

*Species protection measures*

Under the 1981 Act, it is an offence to knowingly damage or destroy the breeding sites of a range of protected flora and fauna, as listed in the 'Red Data Books' for the UK. The lists cover mainly those species that are rare and/or have suffered from significant declines in recent years. Failure to observe these measures under the Act can lead to prosecution.

The EU birds and habitats Directives provide an over-arching framework for a number of more direct policy mechanisms which impose standards upon agriculture, through controls on the use and management of protected sites. However, the implementation of these Directives in the UK is incomplete and it is not yet possible to say how the Directives themselves will ultimately affect farming, on a day-to-day basis.

*5.2 Birds Directive - Directive 79/409/EEC (OJ L103 25.4.79) on the conservation of wild birds*

Purpose: To provide for a general system of protection for all species of wild birds found in Europe, including the control of hunting and killing of wild birds, the protection of their eggs and nests, and restrictions on sale.

The Directive places a general duty on Member States to maintain the population of all 'species of naturally occurring birds in the wild state' in the European territory 'at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements'. To achieve this Member States are to preserve, maintain or re-establish a sufficient diversity and area of habitats for birds. This is to be done primarily by creating Special Protection Areas (SPAs), managing habitats both inside and outside protected areas, re-establishing destroyed biotopes and creating new ones.

The protection measures to be taken by Member States specifically in respect of the special protection areas have been replaced and extended by the obligations provided under the Habitats Directive 92/43 (see Section 5.3). Under the provisions of the habitats Directive, SPAs can be damaged or destroyed if it can be shown that a project must be carried out for 'imperative reasons of overriding public interest, including those of a social or economic nature'.

National measures introduced to fulfil the requirements of the Directive have the potential to create new obligations for farmers.

*Implementation in UK*

The Directive is implemented in the UK through the Wildlife and Countryside Act 1981. Section 29 of the Act specifically refers to compliance with international obligations as a reason for the making of nature conservation orders.

A list of sites to be designated as Special Protection Areas, suggested by the Joint Nature Conservation Committee, was published in July 1991. This list is kept under review to take account of changing conditions. The government intends to classify more in the near future and has made it clear that potential SPAs should be protected in the same way as those which have been formally designated. The selection criteria for SPAs are under review, which may result in changes in the number and boundaries of sites.

The British legislation to implement the obligations under the Directive relies upon the goodwill of the landowning and farming community, their willingness to enter into management agreements with the three nature conservation agencies and the amount of money made available to the Councils.

*5.3 Habitats Directive - Directive 92/43/EEC (OJ L206 22.7.92) on the conservation of natural habitats and of wild fauna and flora*

Purpose: To contribute towards the maintenance of biodiversity within the European territory of the Member States through two sets of measures, the conservation of natural habitats and the protection of species of wild fauna and flora. Measures under the Directive are to be designed to maintain or restore a 'favourable conservation status' for habitat types and species selected as being of Community interest, but are also to take account of economic, social and cultural requirements and 'regional and local characteristics. The Directive extends many of the protection mechanisms established for birds in Directive 79/409 to other species and habitat types.

A series of measures is to be taken which will result in the establishment of a `coherent-European ecological network' of sites of Community importance to be known as Natura 2000. Three categories of site will be included: those hosting the habitat types of Community importance listed in Annex I; those sites comprising habitats of species of Community importance listed in Annex II; and Special Protection Areas for birds classified under the birds Directive. The purpose of the network is to enable the maintenance or restoration of a favourable conservation status in their natural range for the habitats concerned.

Member States are required to contribute to the network in proportion to the representation within their territories of the Annex I habitat types and habitats of Annex II species. To this end, they must designate sites in each category as `special areas of conservation' (SACs). Member States must also protect all sites on the Commission's list of those of Community importance, irrespective of whether they have been designated as SACs.

All plans or projects which individually or in combination with others are likely to have a significant effect on sites, but are not directly connected to their management are to be subject to an `appropriate assessment' of the implications for the conservation value of the site. Given the results of this assessment and the considerations set out in (3) below the competent national authorities shall permit the plan or project only if they have established that it will not adversely affect the integrity of the site and, if appropriate, having consulted the general public.

Where an assessment indicates that a plan or project will damage the conservation interest of a site and there are no alternative solutions but it must be carried out for 'imperative reasons of overriding public interest', including those of a `social or economic nature', the Member State must take all compensating measures necessary to protect the overall coherence of Natura 2000.

*Implementation in the UK*

The Conservation (Natural Habitats etc) Regulations 1994 (SI 1994 No 2716) came into force on 30 October 1994 and implement the Habitats Directive, thereby applying the specific provisions of the Habitats Directive which relate to existing and future SPAs. They build on a considerable body of existing measures, but there are new general duties on the Secretary of State, the Ministry of Agriculture and the nature conservation bodies (English

Nature, the Countryside Council for Wales and Scottish Natural Heritage) to use their powers so as to secure compliance with the Directive.

The sections of the Regulations concerned with habitat protection reflect the government's assumption that the terrestrial sites within the Natura 2000 network in the UK, i.e. both SACs and SPAs designated under the Birds Directive, will already be notified as SSSIs because they will be recognized as being of national as well as European importance. Consequently, the existing system of protecting SSSIs is recapitulated with some modifications.

Ministers have a duty to designate sites which should be SACs, both on land and within the limits of the territorial sea. The Secretary of State is obliged to compile and maintain a register of European sites in Great Britain. Powers to manage these sites, control damaging operations and issue special nature conservation orders are laid down. There are some extensions to existing powers. For example, nature conservation authorities are enabled to reissue notifications listing operations likely to damage sites made under Section 28 of the Wildlife and Countryside Act and to review management agreements if this is required to meet the obligations of the Directive. The nature conservation bodies acquire powers to purchase an SAC or SPA compulsorily if they are unable to negotiate an agreement on reasonable terms or an existing agreement has been breached, preventing the satisfactory management of the site. They also are empowered to make bylaws to control certain activities in SACs and SPAs.

European sites are to be protected from `plans or projects' likely to have a significant effect on them by an obligation on those authorities responsible for making the relevant consent or permission to `make an appropriate assessment of the implications for the site in view of that site's conservation objectives' (Regulation 48). Plans or projects which adversely affect the integrity of a site should not be agreed unless required for `imperative reasons of overriding public interest'.

In the land use planning system there are effectively new restrictions on the granting of consent for developments likely significantly to affect SACs or SPAs. The Regulations require the review of existing planning consents which have not been fully implemented and which may affect European sites. Such consents might include Interim Development Orders, a form of dormant planning consent for mineral extraction. More generally, the Regulations prevent the General Development Order from granting permitted development rights adversely affecting the integrity of a European site. PPG 9 on Nature Conservation was issued shortly before the Regulations came into force, spelling out some of their implications for local authorities and developers.

On 20 June 1995 the Government sent a first list of 136 candidate terrestrial SACs to the European Commission. Further sites have been submitted, giving a total of 333 sites covering 1,686,213 hectares by the end of May 1999.

Despite the Commission's efforts to enforce the obligations of the Directive, the deadline of June 1998 for the establishment of a draft list of sites of Community importance has passed. It is unlikely that the Commission will be in a position to complete the list for some time as Member States are still failing to provide the required information about candidate SACs.

*Codes and guidance documents*

## 5.4 *MAFF Draft Code of Good Agricultural Practice for Conservation*

MAFF, in 1999, has announced the development of a Code of Good Agricultural Practice for Conservation. The Draft discussed so far includes advice to farmers on the following issues.

*General Principles*

- awareness of and compliance with legislation concerned with the protection of the countryside;
- a sensitive approach to the day-to-day management of the countryside;
- wherever possible the retention and maintenance of features that are valuable for landscape and wildlife, the retention of traditional management practices and the use of native species of local origin;
- awareness of all important landscape, wildlife, historical and archaeological features on the land;
- the protection of water, soil, and air and the minimisation of the impact of pesticides, fertilisers and organic manures on the environment;
- the scheduling of work to minimise damage or disturbance to wildlife;
- avoiding to be unduly 'tidy' when managing wildlife habitats;
- avoiding damage to features such as walls and hedges and archaeological and historical features;
- keeping public rights of way free of obstructions.

On-farm constraints

*Management Practices to be followed for areas and features most likely to be affected by agricultural operations:*

- arable and improved grassland – avoid damage to wildlife in mechanical operations and pesticide and fertiliser use;
- semi-natural habitats – apply selective methods of weed control, minimising fertiliser use, appropriate stocking levels, minimise supplementary feeding;
- field boundaries and watercourses – avoid cultivation close to them, no application of pesticides, fertilisers or organic manure to them, adopt reduced and timed hedgerow trimming and cutting, maintain the stock of mature hedgerow trees, avoid cutting or disturbing both banks of a watercourse in the same year;

- historical and archaeological features – avoid ploughing arable sites of known archaeological value more deeply than has been the practice in recent years; avoid damage to archaeological features;

- rights of way – be aware of the rights of way on your land, keep them open and keep those stiles and gates used for public access in good condition.

The draft code has been produced by the Ministry in response to a number of recent policy developments, including Parliamentary Committee Inquiries. However, its content remains confidential to public agencies and a small number of other consultees, and there is no apparent fixed timetable yet agreed for its adoption as a fully fledged Code of Practice.

### 5.5 *Biodiversity and Wildlife Planning Instruments*

A variety of national and local strategies and plans has emerged in the field of biodiversity planning since the late 1980s. As far as we are aware, none of these directly sets standards for agriculture. However, some contain targets which relate to farming, and all aim, amongst other things, to promote increased public awareness and involvement in issues concerning the conservation of biodiversity and thus may guide good practice on farms.

*Nature Conservation Strategies* were prepared by local authorities, often working in partnership with other agencies and organisations, in the late 1980s. Some were drafted by the former Nature Conservancy Council (now English Nature) in partnership with constituent local authorities. They are non-statutory documents that address a wider range of conservation issues than do development plans.

The strategies broke the traditional approach to nature conservation which was characterised by top-down decision-making and the protection of certain sites. They have emphasised that wildlife conservation is a process (e.g. recognition of wildlife corridors to link important sites) and sought to involve local communities in the identification and management of their wildlife resource as much for its recreation value as for its ecological value.

A great number of plans were developed as a result of Article 6A of the *Convention on Biological Diversity (CBD)*, which requires the contracting parties to "develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity". The main document for the UK is *Biodiversity: The UK Action Plan*. It is a joint initiative involving all government departments and sets out a broad strategy for conserving and enhancing wild species and wildlife habitats in the UK for the next 20 years. The overall goal is "to conserve and enhance biological diversity within the UK and contribute to the conservation of global biodiversity through all appropriate mechanisms".

Following on from this, *national, local and regional biodiversity action plans (BAPs)* are being developed for priority species and habitats. The national plans have been drawn up in working groups chaired by 'lead agencies' (usually one of the nature conservation agencies but also including DETR and MAFF), and the final suite of these plans was published at the end of 1999. They contain information on the state of the species or habitats concerned, priorities for action and targets designed to increase the protection and restoration of valuable habitats and to reverse declines in threatened species. The relevance of the

national plans as standards for farming practice may increase in the event that they are given a statutory basis, as has been recommended by many environmental NGOs.

Also, FWAG and Sainsburys Supermarkets Ltd. have been pioneering the preparation and use of *Farm Biodiversity Action Plans*. These are whole-farm plans that help deliver the objectives of National Biodiversity Action Plans at the farm level. Although a voluntary initiative by Sainsburys, the plans have now been made a basic requirement for many of their suppliers.

*Natural Area profiles and targets* have been prepared by English Nature to set out goals for improving the nature conservation value of land throughout England, including farmland. Again, these documents are advisory in nature, however they will guide English Nature's response to consultations (e.g. on planning applications or agri-environment targeting), and therefore may have an indirect effect upon farming practices and land use change.

*Protected Areas Plans (e.g. National Nature Reserves, Special Areas of Conservation)*

In protected areas, the designating/notifying authority normally produces plans concerned with the management of the areas. These plans tend to be a requirement of designation and prescriptive, containing details of management activities necessary for the continued coherence of the site. Management plans normally have two parts; a descriptive part covering survey, objectives, legal and managerial constraints and anticipated trends; and a prescriptive component, setting out projects and priorities. Plans for landscape protected areas normally cover a larger area and tend to be less prescriptive. They are promotional rather than controlling in character, often acting as a framework/strategy for co-ordinating management, detailing key partners and the activities required of them.

### 5.6 *Genetically Modified Organisms Standards*

This is an area of biodiversity policy which has not yet been fully developed, but where environmental standards are expected to emerge from the current trials on GMOs grown in the UK.

The EU first passed legislation back in 1990 – Directive 90/220 - which sets conditions on the deliberate release of GMOs and GM products within the Community. However, this only deals with procedures to ensure new materials and their products have been properly tested for safety to human health and to the environment, prior to release. Since 1990, ongoing concerns in Europe have prevented the widespread adoption of GMOs in agriculture in all the Member States. There is currently a voluntary moratorium on commercial plantings in most countries and a temporary prohibition in others. The EU Directive is due for amendment this year, to clarify the position in the light of new evidence about the impact of these organisms on the environment, and growing consumer concerns about potential impacts on human health.

In the UK, the EU Directive is implemented through Part VI of the Environmental Protection Act 1990 and the subsequent Genetically Modified Organisms (Deliberate Release) Regulations 1992, which has since been subject to several minor amendments. These are supported by guidance from the Department of the Environment, which like the Regulations, is focused upon advice to biotechnology businesses, rather than farmers and growers.

Over the past two years the Government has supported field trials of GM crops which are designed to examine their potential impacts on the environment, including biodiversity. The trials have been designed to address some of the concerns raised in 1998 by English Nature about possible negative impacts, and as such, they have agency support. It is from these trials that new farm standards may emerge, designed to ensure that once the crops are grown more widely for commercial purposes (assuming that this is permitted), it will be done in ways which minimise potential environmental damage.

# Annex 2: Identifying Baseline Standards in Agriculture – Phase B

Questionnaire to English Nature Regional Officers

*The research*

IEEP has been asked to carry out a short study on baseline standards for agriculture in England. The aim is to help English Nature to develop and recommend a specific set of basic standards for all farms, covering most aspects of sustainable agriculture of relevance to English Nature's core interests.

The research has been initiated at a time of growing interest in basic environmental standards for agriculture. There is continued concern about environmental pressure from agricultural practice, adverse trends in the populations of farmland species, continuing degradation of habitats and features of geological interest on farms and a broader trend towards the establishment of explicit environmental standards for different economic activities. The Agenda 2000 reform of the CAP has given new impetus to the debate on standards by requiring Member States to develop definitions of 'good farming practice' that are compatible with environmental protection and sustainability. Furthermore, the government is thinking about better regulation and this issue may well be considered in the forthcoming Rural White Paper for England.

*Your role*

As officers dealing with the day-to-day impacts of agriculture in your Region upon English Nature's interests – both in relation to SSSIs/SACs and in the wider countryside – you are well-placed to pinpoint the key areas of farming practice that are currently causing environmental problems. We can then consider whether these could be reduced or changed through the establishment of new standards. We are therefore asking for a few minutes of your time to help us in generating a list of key issues for standards to address, at either national or regional level, using concrete examples of where current practices are causing particular problems around the country.

*Time constraints*

**This questionnaire should only take you 20 minutes or so to complete. We are working on a tight schedule and therefore we need your response by X.**

We will use the results in a draft report to English Nature by mid-February, and we will hold a workshop for officers in April to discuss our emerging proposals and recommendations.

## Basic standards questionnaire

Please return to X by Y. Name and Region:

Please consider all aspects affecting English Nature's interests.[1]

1a. Briefly, what are the major nature conservation and wider environmental concerns, relating to agriculture in your area? Try to think of specific examples, eg overstocking on heather moorland, ploughing along sensitive riverbanks, or the use of pesticides in inappropriate places (a maximum of six issues please).

1b. Please give some indication if these activities are widespread or localised, and your view of their severity (very serious, secondary concern). Did they also occur in the past or are they a fairly new phenomenon?

| | No. 1a) Issues | 1b) Comments |
|---|---|---|
| | Widespread/localised Severity | Past/new |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |

[1] In answering the following questions you might like to consider the following categories or terms:

- Existing standards for water; wastes; pesticides; biodiversity; landuse/landscape.
- Potential gaps in existing standards, eg biodiversity standards within agriculture for special areas or the wider countryside; aquatic standards – freshwaters and estuaries, nutrient and sediment issues; geological conservation standards – any gaps in protection; any new broad landscape, historic or amenity standards which could also deliver biodiversity goals, eg pattern-related aspects (eg field boundary protection, field size constraints); sustainability standards, eg to discourage the use of non-renewables or better husbandry of renewables in farming

Please refer to these numbers in answering the following questions.

2. Do any of these activities relate to priority objectives for your natural areas?

3. Do the problems arise from particular kinds of farming or production (eg dairy, maize cultivation, oilseeds, etc)?

4. Are any of these activities controlled by Regulations?

a. Do you think the problems occurring arise out of (please tick)

- inadequate Regulations
- ignorance of Regulations
- willful disregard/abuse of Regulations

Other comments?

6. What key actions would farmers need to take to prevent the problems from arising? Please give examples, eg eliminate pesticides within x metres of watercourses.

7. Could the problems be addressed by new or amended standards in the form of

- a new Regulation
- a new process standard (eg education/awareness campaign, supermarket protocol, improved enforcement of existing standards, other ideas)
- a requirement for education and/or training
- anything else (please explain)

8. Have you produced any formal or informal documents analysing or addressing these issues? If yes, please send us a copy with this response, or email direct to seinschuetz@ieeplondon.org.uk. Mark "confidential" if appropriate.

THANK YOU FOR YOUR TIME AND TROUBLE.