# Annex: Agriculture and Environment in Eight European Countries

## *Farming in the Member States*

The eight Member States include a great variety of farm type and structure. Some have a dominance of particular farm types and outputs, while others are more mixed. In the adjacent Member States of Belgium (particularly Flanders), the Netherlands and Denmark, intensive pig and cattle production are the dominant farm types, along with certain types of crop farming – sugar beet and potatoes in Belgium, horticulture more generally in the Netherlands and cereals in Denmark. In each of these countries there is a marked geographical separation of cattle farming areas and those devoted to cropping. In Denmark crops are concentrated in the east and on the islands while livestock farms are mainly in the west; in the Netherlands there is a divide between arable in the north and dairy and other livestock in the south, and in Belgium the divide is regional, with most indoor livestock and intensive cropping in Flanders and most grass-based livestock production in Wallonia.

In the UK and Germany, different regions also specialize in different types of production. In eastern Britain and northern Germany there are large areas of flat land devoted mainly to crop farms. In the more undulating central regions of both Member States there is a variety of crop and livestock production, including mixed and relatively intensive livestock farms, and in the west of the UK and southern Germany there is a significant proportion of less favored hill and mountain areas, where grass-based livestock production is dominant.

By contrast, in Ireland and Austria over 70% of farmland is classified as *less favored area* (LFA). In Ireland this is dominated by grass-based livestock production, while in Austria the LFA is typified by very small and relatively labor-intensive, mixed farms, as well as specialist dairy producers. But Finland has perhaps the most extreme farming situation: only 8% of its land area is devoted to agriculture and most of this is located in the south and west of the country, while the north is almost entirely lakes and forests. Finnish farms include a mix of crop, dairy and meat producers and again, there is regional specialization so that most crops are grown in the south while livestock farms dominate the center and west.

Average farm sizes in these eight Member States vary from only 14.5 hectares in Austria to over 60 hectares in the United Kingdom. Likewise, variation in the numbers employed in agriculture is also large – from only 2% in the UK to around 10% in Ireland. In all cases, the trend in the past ten to fifteen years has been towards farm enlargement and a reduction in the labor force, although this has been more dramatic in some Member States than others. For example, labor force decline has been particularly dramatic in Denmark and much less marked in Austria, while farm size has increased sharply in Ireland and less so in the UK, over this period.

## *Trends in Farming Practices and Environmental Issues*

Among all EU Member States, the main environmental issues related to agriculture reflect two dominant trends in the direction of change in Europe – intensification and specialization in some areas; and marginalization and abandonment in others. Both these processes involve a move away from traditional forms of low-input, labor-intensive crop and livestock production. These have characterized most of rural Europe for many centuries, and have been critical in shaping landscapes, biodiversity and cultural heritage, as well as influencing the quality of soils, water and air.

**Intensification and specialization:** this involves the development of capital intensive and geographically specialized farming such as large-scale arable or horticultural production on the most fertile or accessible land and intensive livestock and dairy production in other areas, where very large numbers of stock are concentrated on relatively small areas of land or are kept in large buildings for all or most of the year. Intensive systems often involve significant modification of water resources – increased irrigation in arid areas and horticulture, and widespread land drainage in wetter areas – and the application of fertilizers and pesticides to arable, horticultural and fodder crops, including grass. Intensive livestock systems also produce large quantities of manure and other wastes and a range of veterinary products are used. Land which is drained, ploughed and worked by large scale machinery can be prone to soil erosion; compaction and loss of organic content are a concern on some soils. Of the eight Member States considered here, Denmark, Belgium, Netherlands and many lowland regions of Germany and the UK now have predominantly intensive and specialized farm structures. In southern Finland and Ireland some areas have also been affected by this trend.

**Marginalization and abandonment:** this tends to occur in remote or very dry areas or on less fertile land where traditional extensive agriculture is threatened by its inability to compete effectively with intensive production in other regions. In these areas, farm incomes are often low and there are few incentives for young people to take on farms from the previous generation. As older farmers retire, the traditional forms of management are often discarded and land may be abandoned, leading to the loss of semi-natural habitats and increased risk of disasters such as fires, particularly in arid regions. Alternatively, farmland may be consolidated into larger holdings which are managed with much less labor so features and habitats become degraded – a style of livestock farming which has been termed "ranching". Significant areas of farmland in Finland, Ireland and the mountainous or hilly parts of Germany and the UK suffer from this phenomenon and it is also recognized as an increasing threat to farms in Austria.

Generally speaking, intensive agriculture has increased in Europe over the past few decades at the expense of more traditional systems. Whilst in some northern regions this trend has now slowed as most farms have restructured, it continues in southern Europe where many farms remain small, diverse and heavily dependent upon labor. Austria is unusual in that, despite having many small farms and high labor use, farm sizes and types have remained fairly stable over the past ten to fifteen years. Austria appears to have experienced a lower rate of structural change than most other Member States, perhaps because of the willingness of its consumers and taxpayers to support the maintenance of the country's particular pattern of farming, to a greater extent than is evident elsewhere. For example, the Austrian authorities have operated in the past an individual farm orientated programme for the mountainous and disadvantaged areas and operate now one of the largest agri-environmental programmes of all Member States which covers over 95% of farms, and 8% of Austrian farms are organic.

The spread of intensive methods on crop and livestock farms has led to a loss of biodiversity and increased pollution in many Member States. It has also increased the energy used in the sector and its contribution to major problems such as global warming due to emissions of greenhouse gases, the degradation of river, sea and ground water, soil erosion and contamination, and acid rain. In areas including central Germany, southern England and Wallonia in Belgium, intensification within the last twenty years has also involved a significant loss of permanent pasture land to cropping, which has increased its vulnerability to many of these other problems.

At the same time, the area of marginal land in Europe that is threatened by abandonment and inadequate management has increased, due to continuous technical and social change

accompanied by increased competition within the single European market and in the wider global economy. Abandonment, degradation and economic decline now threaten both the extreme north and parts of southern Europe and especially those areas where harsh natural conditions, poor soils and remote locations increase the costs of agricultural production, while farm populations are falling. These include central and northern Finland, the German Alps, western Ireland and the extreme north of the UK.

The **European Environmental Advisory Councils** would summarize the main environmental issues associated with agriculture in Europe today in five main categories, as follows.

I. Pollution and contamination of water, soil and air quality by high levels of production and use of manures, chemical fertilizers and pesticides on intensive livestock and crop farms. These can lead to the contamination of drinking water and nutrient enrichment of fresh and sea-water ecosystems, pesticide residues in water and soils, acidification and pollution of air by greenhouse gases and ammonia, and a decline in the biodiversity of intensively managed landscapes.

II. Water shortage, soil compaction and soil erosion leading to water contamination, caused by cultivation and drainage of land for intensive grain, vegetable and fodder cropping, and by the irrigation of intensively produced crops from groundwater sources. This has also led to a widespread loss of wetland areas in many Member States.

III. Losses of biodiversity and landscape quality due to the removal of landscape features, loss of permanent grassland and destruction of other semi-natural habitats, including heaths and woodland as farms have restructured, enlarged, intensified and specialized. This is also associated with increasing homogeneity of land-use and crop rotations within regions, and with damage to sensitive upland habitats through overgrazing, in some areas (notably UK and Ireland). Changes in farm practice, such as the conversion from spring sown to autumn sown cereals, have contributed significantly to wildlife losses in much of Europe.

IV. Consequences of farm structural change in relation to marginalization and abandonment. These include the abandonment of species-rich meadows which become colonized by scrub and other invasive vegetation, the loss of proper management of moor land and heath by burning and shepherding, the degeneration of small woodlands and field boundary features, which add diversity of habitats and landscape interest, and the abandonment of water and soil conserving features and practices in many areas. The diminished availability of farm labor and associated loss of skills has reduced the capacity for good environmental management on many farms. The precise impacts vary considerably between countries in Europe and range from pronounced changes at a regional scale in some countries to purely local impacts in others.

V. Positive impacts of extensive grassland and low-input or organic arable farming, in maintaining certain types of habitat for rare or declining species, such as alpine and riverside meadow flora, birds of open-field areas and arable weed flora, and in maintaining landscape diversity in some regions.

These issues can be classified in relation to their relative importance for each Member State, as shown in Table 1 below.

**Table 1:**
**Significance of Main Environmental Issues in the Member States as Described by Councils**

| | I | II | III | IV | V |
|---|---|---|---|---|---|
| **Austria** | * | H | * | *** | *** |
| **Belgium** | *** | ** | ** | * | * |
| **Denmark** | *** | H *** | ** | * | |
| **Finland** | ** | * | H *** | *** | *** |
| **Germany** | ** | H * | *** | * | * |
| **Ireland** | ** | H ** | *** | * | ** |
| **Netherlands** | *** | ** | H *** | | * |
| **UK** | ** | H * | H *** | ** | ** |

* an important impact in some areas
** a significant impact, nationally
*** one of the most important impacts, nationally
H this was a significant impact in the past

### *Recent Trends in Relation to These Issues*

The Councils note that in relation to several of these issues, some Member States have seen improvements in recent years while in others, negative environmental impacts are increasing. One overall trend is the decline in the use of pesticides, as measured by weight of active ingredients applied. The environmental significance of this development is difficult to assess because the efficacy and often the toxicity of newer products is greater than earlier ones, weight for weight, but their ultimate environmental impact may be greater. Levels of certain herbicides have risen significantly for example. Furthermore, the total area sprayed has changed little, if at all.

In Finland, partly due to the widespread enrollment of over 90% of farmland into the country's agri-environment programme since 1995 and lower price levels, the application of fertilizers, manures and pesticides has decreased and animal stocking densities have declined, since 1990. However, the threat to meadows from the abandonment of farming in the north has increased. Likewise, in Austria the "ecologizing" of farming through organic conversion and agri-environmental programmes has contributed to a 50% reduction in the input of mineral fertilizers since the 1970s, and an 18% reduction in pesticide use since 1993. However, there is a continued decline in alpine meadow management as farmers switch to feeding grain to their livestock, since grain is now cheaper than hay.

In Germany, the amount of nutrients applied to fields has stabilized at national level, although water quality problems persist particularly in livestock farming areas. Sales of pesticides are increasing, particularly in the east, but it is thought that these now tend to be more biodegradable than in the past. Soil erosion is increasing, although at a relatively slow overall rate. These rather weak trends are mirrored in Belgium, where pesticide use increased from 1979–92 but has now stabilized, and cattle numbers are declining but pig and poultry numbers are increasing so manure problems persist. However, while Germany has made some important gains through agri-environmental management of many remaining valuable semi-natural areas under EC Regulation 2078/92, these schemes have been particularly unpopular and therefore wholly unsuccessful in Belgium.

In Denmark and the Netherlands, by contrast, nutrient application rates have been somewhat declining over the past 10 years or so, although from a high base, especially in the Netherlands. This is partly as a result of increasing regulation of manure use and stock densities in the livestock sector and action to reduce pesticide applications in arable areas. Also in Denmark, increased planting of new hedgerows in the west is reducing wind erosion and increasing biodiversity, although the landscape impact may sometimes be less positive. In the Netherlands, a small but significant area of farmland – several thousand hectares – has been targeted for habitat restoration through a combination of nature conservation and agri-environmental measures.

In the UK, there have been modest reductions in application rates for fertilizers and pesticides since 1992, and livestock numbers have stabilized in most sectors. However, while dairy cow numbers are declining, the intensity of production on dairy farms remains high and related problems of manure and fertilizers causing high nutrient loading in soils and watercourses persist. This is equally the case in Ireland. Both these countries have also seen a continuing increase in overgrazing by sheep in certain upland regions during the past decade, even though sheep numbers on the hills have stabilized since 1992. Another continuing problem in the UK has been the loss of permanent pasture in sensitive areas to grow maize and crops which are not covered by the main arable regimes of the Common Agricultural Policy, including potatoes and fiber flax.