



ENVIRONMENTAL PERFORMANCE OF AGRICULTURE IN OECD COUNTRIES SINCE 1990:

European Union Country Section

This country section is an extract from chapter 3 of the OECD publication (2008) *Environmental Performance of Agriculture in OECD countries since 1990*, which is available at the OECD website indicated below.

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A summary version of this report is published as *Environmental Performance of Agriculture: At a Glance*, see the OECD website which also contains the agri-environmental indicator time series database at: <http://www.oecd.org/tad/env/indicators>

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Each of the 30 OECD country reviews (plus a summary for the EU) are structured as follows:

- 1. Agricultural Sector Trends and Policy Context*
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BACKGROUND TO THE COUNTRY SECTIONS

Structure

This chapter provides an analysis of the trends of environmental conditions related to agriculture for each of the 30 OECD member countries since 1990, including an overview of the European Union, and the supporting agri-environmental database can be accessed at www.oecd.org/tad/env/indicators. Valuable input for each country section was provided by member countries, in addition to other sources noted below. The country sections are introduced by a figure showing the national agri-environmental and economic profile over the period 2002-04, followed by the text, structured as follows:

- **Agricultural sector trends and policy context:** The policy description in this section draws on various OECD policy databases, including the *Inventory of Policy Measures Addressing Environmental Issues in Agriculture* (www.oecd.org/tad/env) and the *Producer and Consumer Support Estimates* (www.oecd.org/tad.support/pse).
- **Environmental performance of agriculture:** The review of environmental performance draws on the country responses to the OECD agri-environmental questionnaires (unpublished) provided by countries and the OECD agri-environmental database supporting Chapter 1 (see website above).
- **Overall agri-environmental performance:** This section gives a summary overview and concluding comments.
- **Bibliography:** The OECD Secretariat, with the help of member countries, has made an extensive search of the literature for each country section. While this largely draws on literature available in English and French, in many cases member countries provided translation of relevant literature in other languages.

At the end of each country section a standardised page is provided consisting of three figures. The first figure, which is the same for every country, compares respective national performance against the OECD overall average for the period since 1990. The other two figures focus on specific agri-environmental themes important to each respective country.

Additional information is also provided for each country on the OECD agri-environmental indicator website (see address above) concerning:

- Details of national agri-environmental indicator programmes.
- National databases relevant to agri-environmental indicators.
- Websites relevant to the national agri-environmental indicators (e.g. Ministries of Agriculture)
- A translation of the country section into the respective national language, while all 30 countries are available in English and French.

Coverage, caveats and limitations

A number of issues concerning the coverage, caveats and limitations need to be borne in mind when reading the country sections, especially in relation to making comparisons with other countries:

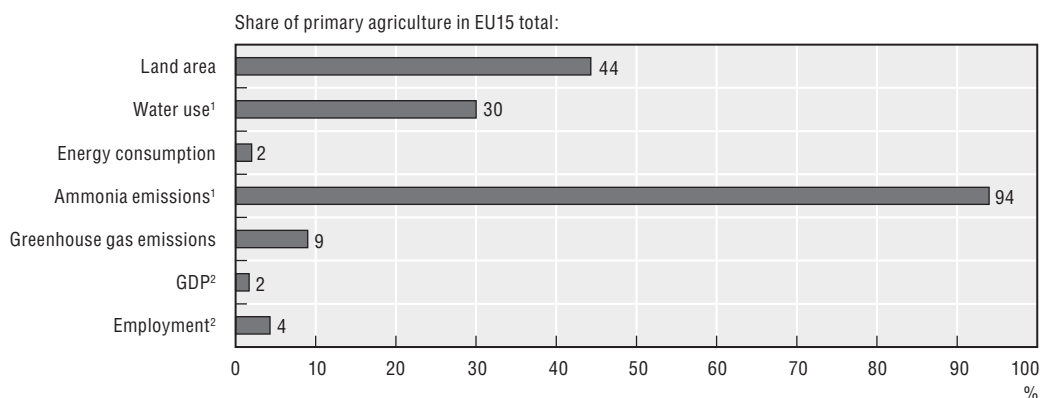
Coverage: The analysis is confined to examination of agri-environmental trends. The influence on these trends of policy and market developments, as well as structural changes in the industry, are outside the scope of these sections. Moreover, the country sections do not examine the impacts of changes in environmental conditions on agriculture (*e.g.* native and non-native wild species, droughts and floods, climate change); the impact of genetically modified organisms on the environment; or human health and welfare consequences of the interaction between agriculture and the environment.


Definitions and methodologies for calculating indicators are standardised in most cases but not all, in particular those for biodiversity and farm management. For some indicators, such as greenhouse gas emissions (GHGs), the OECD and the UNFCCC are working toward further improvement, such as by incorporating agricultural carbon sequestration into a net GHG balance.

- **Data availability, quality and comparability** are as far as possible complete, consistent and harmonised across the various indicators and countries. But deficiencies remain such as the absence of data series (*e.g.* biodiversity), variability in coverage (*e.g.* pesticide use), and differences related to data collection methods (*e.g.* the use of surveys, census and models).
- **Spatial aggregation** of indicators is given at the national level, but for some indicators (*e.g.* water quality) this can mask significant variations at the regional level, although where available the text provides information on regionally disaggregated data.
- **Trends and ranges in indicators**, rather than absolute levels, enable comparisons to be made across countries in many cases, especially as local site specific conditions can vary considerably. But absolute levels are of significance where: limits are defined by governments (*e.g.* nitrates in water); targets agreed under national and international agreements (*e.g.* ammonia emissions); or where the contribution to global pollution is important (*e.g.* greenhouse gases).
- **Agriculture's contribution to specific environmental impacts** is sometimes difficult to isolate, especially for areas such as soil and water quality, where the impact of other economic activities is important (*e.g.* forestry) or the "natural" state of the environment itself contributes to pollutant loadings (*e.g.* water may contain high levels of naturally occurring salts), or invasive species that may have upset the "natural" state of biodiversity.
- **Environmental improvement or deterioration** is in most individual indicator cases clearly revealed by the direction of change in the indicators but is more difficult when considering a set of indicators. For example, the greater uptake of conservation tillage can lower soil erosion rates and energy consumption (from less ploughing), but at the same time may result in an increase in the use of herbicides to combat weeds.
- **Baselines, threshold levels or targets for indicators** are generally not appropriate to assess indicator trends as these may vary between countries and regions due to difference in environmental and climatic conditions, as well as national regulations. But for some indicators threshold levels are used to assess indicator change (*e.g.* drinking water standards) or internationally agreed targets compared against indicators trends (*e.g.* ammonia emissions and methyl bromide use).

3.31. EUROPEAN UNION

Figure 3.31.1. **National agri-environmental and economic profile, 2002-04: European Union (15)**



StatLink  <http://dx.doi.org/10.1787/301357140147>

1. Data refer to the period 2001-03.

2. Data refer to the year 2004.

Source: OECD Secretariat. For full details of these indicators, see Chapter 1 of the *Main Report*.

3.31.1. Agricultural sector trends and policy context

Overall agricultural production in the EU15 has changed little over the past decade. Over the period 1990-92 to 2002-04 the volume of production rose by 2%, although the value of production increased by almost 30%, despite a nearly 5% reduction in the area farmed (Figures 3.31.2, 3.31.3 and 3.31.4). Agriculture accounted for around 2% of GDP and over 4% of total employment in the EU15 in 2003, but these averages mask great variation across EU member countries (Figure 3.31.1). There is also great diversity of production and farm structures in the EU agricultural sector, and that diversity has increased with the addition of 10 new member states in 2004 [1].

European agri-environmental trends highlight continuing challenges. The main source of agricultural production growth over the next 20 years is expected to arise from crop yield increases and improvements in livestock productivity, rather than any expansion in the area under cultivation or livestock numbers. Projections of EU15 wheat and coarse grains from 2007 to 2016, for example, suggest yields rising at around 1% per annum while the area cultivated is likely to be stable or slightly reduced [2]. Similarly for milk production, while cow numbers are projected to fall by nearly 1% per annum up to 2016, milk yields are expected to rise by over 0.5% annually [2].

The purchase of agricultural inputs, such as mineral fertilisers, pesticides, energy and water, are expected to increase considerably in certain new member states. This could lead to increased risks for water pollution and biodiversity, although the intensity of input use in the new member states is likely to remain lower than in most EU15 countries. Environmental

pressure is also likely to increase on water resources, especially as there has been a 7% increase in the EU15 area irrigated over the period from 1990-92 to 2001-03, compared to the OECD average of 8% over this period. Also demand for water is rising from other users in some EU regions, including the need to maintain water flows for the conservation of aquatic ecosystems (e.g. rivers, lakes and wetlands) [3]. Overall total water use across the EU15, however, decreased by 9% between 1990-92 to 2001-03.

Farming is mainly supported under the Common Agricultural Policy (CAP), together with additional national expenditure within the CAP framework. Support to EU15 agriculture has declined from 39% of farm receipts in the mid-1980s to 34% in 2002-04 (as measured by the OECD Producer Support Estimate) compared to the OECD average of 30%. Nearly 70% of EU15 farm support was output and input linked up to 2004, falling from over 98% in the mid-1980s [1]. Support to farmers includes agri-environmental measures (AEMs), for undertaking activities deemed as environmentally beneficial, with EUR 13.5 billion of EU15 co-financed payments for the period 2000-06 allocated for AEMs [4]

Agricultural support payments are increasingly subject to environmental cross-compliance requirements. Voluntary (for EU member states) cross compliance was introduced under the *Agenda 2000 CAP Reform* and became mandatory with the 2003 CAP Reform. As of January 2005, for farmers to receive the *Single Farm Payment*, they must comply with 19 *Statutory Management Requirements (SMRs)* – five of which are environmental – and with a number of standards to ensure the “good agricultural and environmental condition” (GAEC) of agricultural land (as set out in EC Regulation 1782/2003) [5, 6]. The SMRs are based on pre-existing EU directives and regulations, while GAEC is a new requirement and consists of eleven standards relating to soil erosion, soil organic matter, soil structure and a minimum level of maintenance of the land.

Agri-environmental payments largely focus on farm management practices to enhance environmental benefits. Support for agricultural management practices compatible with protection of environment was established under EU Council Regulation (EEC) No. 2078/92, which covered the period 1993-99, and was extended over the period 2000-06 under Regulation 1257/1999. Under these measures farmers are required to meet certain agri-environmental commitments for at least five years. These commitments go beyond the application of usual “good farming practice” (defined as the standard of farming which a “reasonable” farmer would follow in the region concerned), and must at least entail compliance with general environmental objectives (Regulation 445/2002). Support is granted annually and is calculated on the basis of: income forgone; additional costs resulting from the commitments; and the need to provide an incentive to alter practices. The maximum annual payments per hectare are: EUR 600 for crops; EUR 900 for specialised perennial crops; and EUR 450 for all other land uses. Payment rates vary between different measures and member states, but the average agri-environmental payment in 2001 was EUR 89 per hectare. Between 1993 and 2001 the total EU15 spending under these two agri-environmental regulations amounted to EUR 2.3 billion [4, 5].

Some agri-environmental payments are specific to organic farming. In 2001, a total of EUR 275 million was spent on organic farming, within the framework of agri-environmental measures, covering more than 18 000 holdings farming nearly 3 million hectares or about 4% of total EU15 agricultural land area (2002-04), compared to the OECD average of under 2%. The average annual payment rate for organic farming conversion is EUR 183 per hectare, which is higher than for the average of other agri-environmental

measures in all countries, except Portugal and the United Kingdom. Council Regulation (EEC) N° 2092/91 defines a conversion period of a minimum of two years before sowing annual crops and three years in the case of perennials. It also defines a method for organic production for crops and livestock, regulates the labeling, processing, inspection and marketing of organic products within the EU, and the import of organic products from non-EU countries [5, 7].

Agriculture is also affected by EU-wide environmental policies. In many cases these environmental policies are implemented in conjunction with the cross-compliance requirements mentioned above. The **Nitrates Directive** requires member states to designate as *Nitrate Vulnerable Zones* all areas of land where the corresponding surface water or groundwater contain more than 50mg nitrates per litre or where the corresponding freshwater bodies, estuaries, coastal and marine waters are found to be or risk being eutrophic. Member states must establish and implement mandatory measures for farmers located in these zones. The **Directive on Integrated Pollution Prevention and Control** requires member states to impose their own emission limits and other appropriate conditions in environmental permits, which are mandatory for potentially polluting plants of a given scale, including large-scale intensive poultry and pig operations.

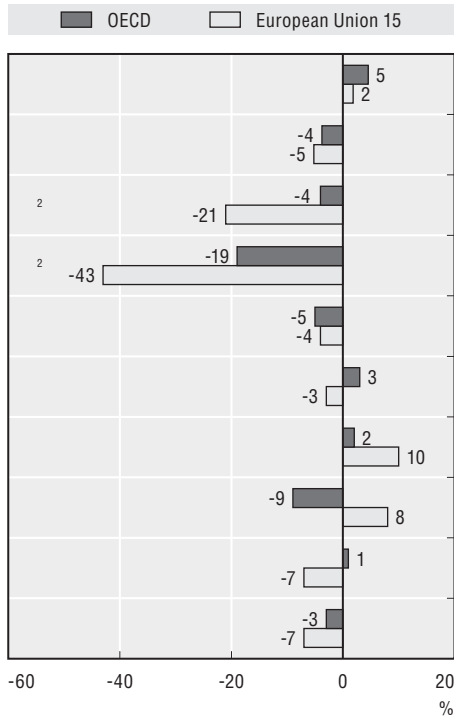
With regard to water quality, the Drinking Water Directive specifies limits for levels of nitrates, active ingredients of pesticides and residues from plant protection products, which member states are required to meet. The **Groundwater Directive** requires member states to take steps to prevent (limit) the introduction into groundwater of substances presenting a high risk of toxicity (low risk of toxicity, but potential harmful effect). The *Nitrates, Groundwater and Drinking Water Directives* are now part of the broader **Water Framework Directive** which requires member states to: develop by 2009 a Management Plan and a Programme of Measures for each river basin to protect, enhance and restore bodies of surface and groundwater; and ensure by 2010 that water pricing policies provide adequate incentives for users to use water resources efficiently [5].

Concerning biodiversity and soils, the Birds and Habitat Directives requires member states to take steps to protect all rare, threatened or vulnerable plant and animal species of community interest, and all wild bird species. In the case of soil as part of the EU's 6th *Environment Action Programme* [8], the EU has decided to adopt a **Thematic Strategy on Soil Protection** as part of its aim of protection and preservation of soils, including agricultural soils, which was adopted in 2006.

EU agriculture is also affected by a number of international environmental agreements. In most cases member countries sign and ratify these agreements and implement the necessary actions to comply with the agreements, unlike trade agreements, such as under the *World Trade Organisation*, where the EU signs and ratifies these agreements as a group and not through individual member states. Some international environmental agreements that affect agriculture are regional, such as the: North-east Atlantic (*OSPAR Convention*) and the Baltic Sea (*HELCOM Convention*) in relation to marine pollution from agricultural nutrients and pesticides; the *Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)*; and the *European Landscape Convention*. In other cases agreements are global, for example, the *Convention on Long-Range Transboundary Air Pollution (Gothenburg Protocol)*; the *Montreal Protocol on Substances that Deplete the Ozone Layers*; the *Convention on Biological Biodiversity*; the *United Nations Convention to Combat Desertification*; and the *Kyoto Protocol to the United Nations Framework Convention on Climate Change* [9].

Figure 3.31.2. **EU15 agri-environmental performance compared to the OECD average**

Percentage change 1990-92 to 2002-04¹



Absolute and economy-wide change/level

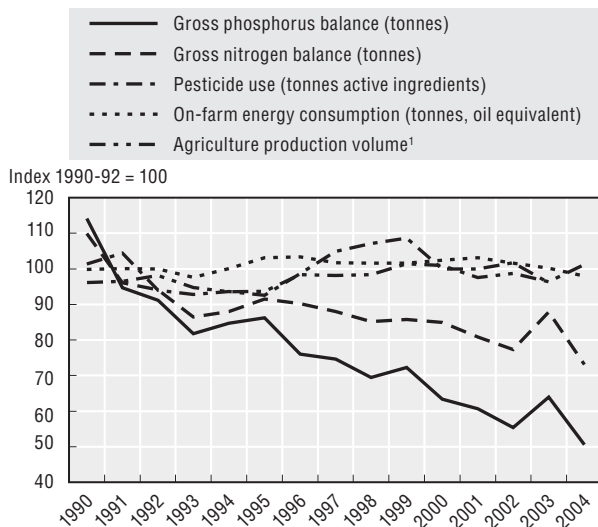
Variable	Unit	European Union 15	OECD
Agricultural production volume	Index (1999-01 = 100) 1990-92 to 2002-04	102	105
Agricultural land area	000 hectares 1990-92 to 2002-04	-7 662	-48 901
Agricultural nitrogen (N) balance	Kg N/hectare 2002-04	83	74
Agricultural phosphorus (P) balance	Kg P/hectare 2002-04	10	10
Agricultural pesticide use	Tonnes 1990-92 to 2001-03	-12 144	-46 762
Direct on-farm energy consumption	000 tonnes of oil equivalent 1990-92 to 2002-04	-640	+1 997
Agricultural water use	Million m ³ 1990-92 to 2001-03	+3 916	+8 102
Irrigation water application rates	Megalitres/ha of irrigated land 2001-03	6.1	8.4
Agricultural ammonia emissions	000 tonnes 1990-92 to 2001-03	-249	+115
Agricultural greenhouse gas emissions	000 tonnes CO ₂ equivalent 1990-92 to 2002-04	-30 611	-30 462

n.a.: Data not available. Zero equals value between -0.5% to < +0.5%.

1. For agricultural water use, pesticide use, irrigation water application rates, and agricultural ammonia emissions the % change is over the period 1990-92 to 2001-03.
2. Percentage change in nitrogen and phosphorus balances in tonnes.

Source: OECD Secretariat. For full details of these indicators, see Chapter 1 of the Main Report.

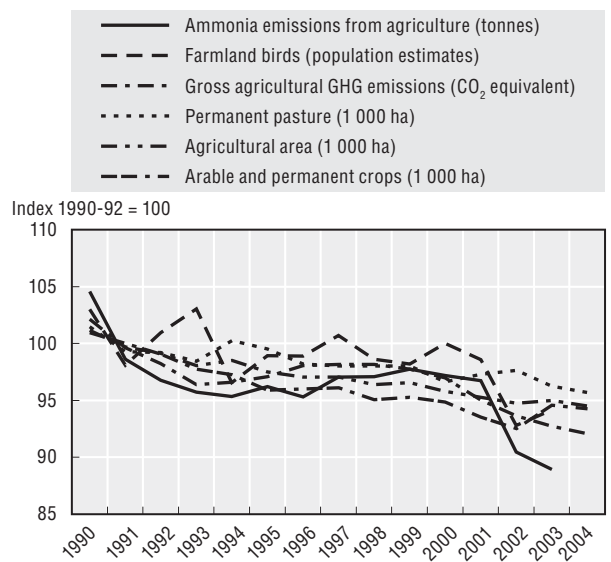
Figure 3.31.3. **Agri-environmental trends, EU15**



1. Index 1999-2001 = 100.

Source: OECD Secretariat.

Figure 3.31.4. **Agri-environmental trends, EU15**



Source: OECD Secretariat.

StatLink <http://dx.doi.org/10.1787/301361278285>

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