# 2.8 AGRICULTURE

Agriculture is a strategic sector within the production system. It has to meet Society's demand for food, ensure its own economic, social and environmental sustainability, and tackle the new challenges it faces. The present economic crisis, climate change, the lack of water resources, and ongoing depopulation of rural areas constitute the main new issues that need to be addressed if the agricultural sector and the rural environment are to develop.

The process of adapting farming in Spain, a consequence of the continual changes to the Common Agricultural Policy (CAP), has had a disparate range of territorial and sectoral impacts. For the Ministry of the Environment and Rural and Marine Affairs, maintaining a robust and up-to-date Common Agricultural Policy that addresses the diversity and needs of Spain's rural environment whilst accompanying the country's agri-food sector in its process of diversification and territorial integration with other sectors is a priority.

Following the *Health Check of the CAP*, and with a stable framework in place until 2013, the Ministry of the Environment and Rural and Marine Affairs has drawn up a work programme on the future of agriculture and the CAP and has invited stakeholders to participate in the CAP Horizon 2020 process. It is

| INDICATOR | GOAL | TREND |
|---|---|---|
| Fertiliser consumption | Reduce fertiliser consumption | In 2008, fertiliser consumption fell steeply |
| Phytosanitary product consumption | Reduce phytosanitary product consumption | In 2008, phytosanitary product consumption decreased slightly |
| Organic farming | Increase the proportion of organic farmland to total farmland | In 2008, the area under organic management increased by 33% on the previous year |
| Organic livestock farming | Increase the number of organic livestock farms | In 2008, the number of organic livestock farms rose by 25% |
| Irrigated area | Introduce more efficient irrigation systems | Localised irrigation systems were employed on 46.5% of irrigated land and sprinklers were used on 21.8% |
| Eco-efficiency of agriculture | Increase the economic value of agricultural production and decrease its pressure on the environment | Fertiliser consumption fell, while that of phytosanitary products and irrigated area rose. GVA remained stable |

also playing a leading role in this regard at Community level to provide a link to the priorities established during Spain‘s presidency of the Council of the European Union.

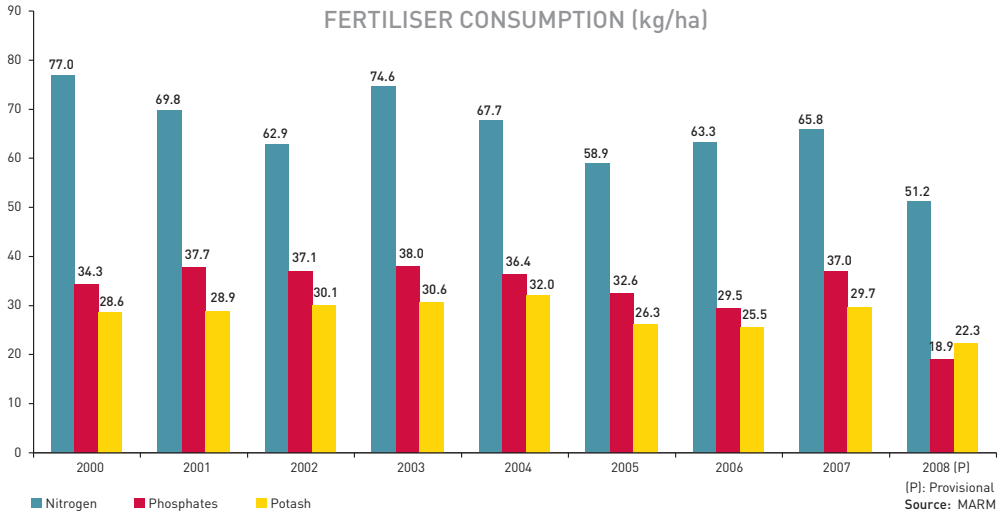
This chapter analyses environmental features and trends through a set of indicators strongly linked to Spain’s agricultural sector and related activities. Consumption of fertilisers and phytosanitary products, which are used to improve crop yields, is one of the most representative indicators. In 2008, though phytosanitary product consumption did increase slightly, it remained similar to the previous three years‘ level. In contrast, fertiliser consumption fell significantly, decreasing by 30.2%.

The area under irrigated agriculture, which plays a key role in the agricultural economy, showed a slight increase, and there was an improvement in water-use efficiency.

With respect to organic agricultural and livestock products, in the context of increased quality requirements and a greater number of environmental and toxicological restrictions on the products employed, the sector in Spain showed very positive development, as not only was there a significant increase in the area devoted to organic farming, but also in the number of people employed in the segment.

# Fertiliser consumption

## In 2008, fertiliser consumption per hectare fell sharply




According to provisional data, in the last year analysed the quantity of fertiliser used per hectare fell by 30.2% from 132.5 kg/ha in 2007 to 92.4 kg/ha in 2008. This decrease, which occurred in all three fertiliser types, was particularly sharp as regards phosphate fertilisers, use of which dropped by 49.6% in comparison with 2007. Consumption of nitrogen and potash fertilisers decreased in the last year under study by 23.3% and 26.0%, respectively.

FERTILISER CONSUMPTION

| By commercial product (thousand t) | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 |
|---|---|---|---|---|---|
| Simple nitrogen products | 2.450 | 2.440 | 2.387 | 2.368 | 2.023 |
| Simple phosphate products | 214 | 190 | 183 | 251 | 70 |
| Simple potash products | 292 | 222 | 267 | 246 | 90 |
| Complex products | 2,426 | 1,996 | 1,974 | 2,281 | 978 |
| **Total fertilisers** | **5,382** | **4,848** | **4,811** | **5,146** | **3,161** |
| **By fertiliser (thousand t)** | **2004/05** | **2005/06** | **2006/07** | **2007/08** | **2008/09** |
| Total N | 1,014 | 951 | 938 | 977 | 732 |
| Total $P_2O_5$ | 588 | 465 | 461 | 527 | 158 |
| Total $K_2O$ | 465 | 387 | 411 | 432 | 188 |

**Source:** ANFEE

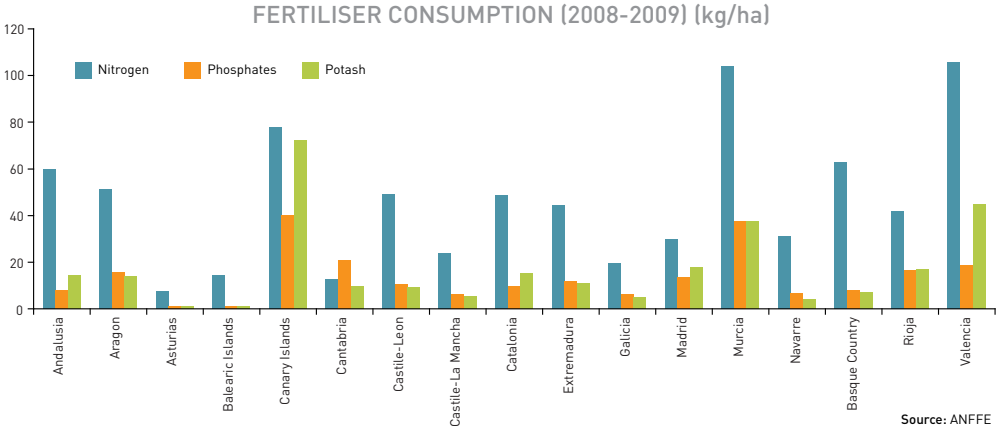
The figures for consumption of mineral fertilisers during the 2008/2009 campaign, which ran from July 2008 to June 2009, show a significant reduction in total consumption. In absolute figures, consumption fell by 38.6% during the

campaign and was well below the previous four campaigns' average of around 5,000,000 tonnes. Breaking consumption down by fertiliser type reveals a notable decrease in consumption of all three fertilisers, with use of nitrogen products dropping by 25.1%, that of phosphate products by 70.0% and potash product consumption falling by 56.5%.

Furthermore, analysis by fertiliser type (as a commercial product) shows a 10.5% reduction in consumption of simple nitrogen fertilisers. Consumption of simple phosphate fertilisers fell by 72.1% during the 2007/2008 campaign to 70,000 tonnes and use of simple potash products dropped by 63.4% to 90,000 tonnes.

The breakdown by autonomous community follows the same pattern as previous years, with higher fertiliser consumption per hectare occurring in regions such as Valencia, Murcia and the Canary Islands, where agriculture is more intensive.

FERTILISER CONSUMPTION (2008-2009) (kg/ha)




**Source:** ANFFE

NOTES

- According to the 2008 agri-food statistical yearbook (Anuario de Estadística Agroalimentaria), fertilisable area is defined as arable land (excluding fallow and other unoccupied land) and natural grasslands.
- Fertilisers are defined as products used in agriculture or gardening that, due to their nutrient content, encourage plant growth, increase yield and improve crop quality, or that, due to their specific action, modify, as desired, soil fertility or its physical, chemical or biological characteristics. This category includes fertilisers, special products and conditioners.
- Inorganic or mineral fertiliser: fertiliser obtained by extraction or by physical or chemical industrial processes whose declared nutrients are present in mineral form.
- Simple fertiliser: nitrogen, phosphate or potash fertiliser with a declared content of a single main nutrient.
- Compound fertiliser: fertiliser obtained chemically or by mixing, or by a combination of both, with a declared content of at least two main nutrients.
- Complex fertiliser: compound fertiliser obtained by chemical reaction, in solution or solid form as granules, with a declared content of at least two main nutrients. In solid form, each granule contains all the nutrients in its declared composition (as per the definitions established by Royal Decree 824/2005 of 8 July, on fertiliser products).
- The period used to measure fertiliser consumption runs from July to June of the following year.

SOURCES

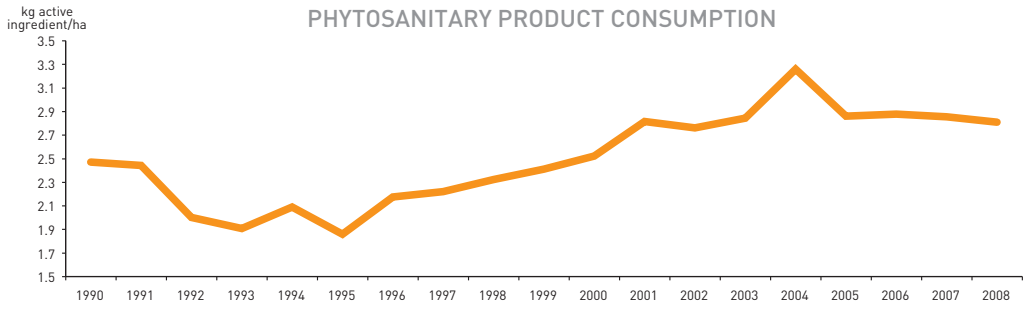
- ANFFE.
- Anuario de Estadística Agroalimentaria, 2008. MARM.
- Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), 2008. MARM.

FURTHER INFORMATION

- **http://www.mapa.es**
- **http://www.anffe.com**

# Phytosanitary product consumption

## Phytosanitary product consumption fell slightly in 2008




**Source:** AEPLA, MARM

The irregular spatial and temporal distribution of rainfall in 2008, which was marked by a significant lack of rain in the first three months of the year followed by abundant precipitation in spring and autumn, determined farmers' crop production prospects to a certain extent and, therefore, conditioned application of phytosanitary products.

In 2004, there was a significant increase in phytosanitary product consumption (active ingredients) per hectare because of the favourable climatic conditions. Since then, consumption has remained fairly stable, with a slight decrease of 1.6% occurring in 2008 in comparison with 2007.

According to provisional data, the phytosanitary products most used in 2008 were herbicides (35%) and fungicides (25%), followed by insecticides, final consumption of which rose by 7% in 2008 to account for 24% of the total.

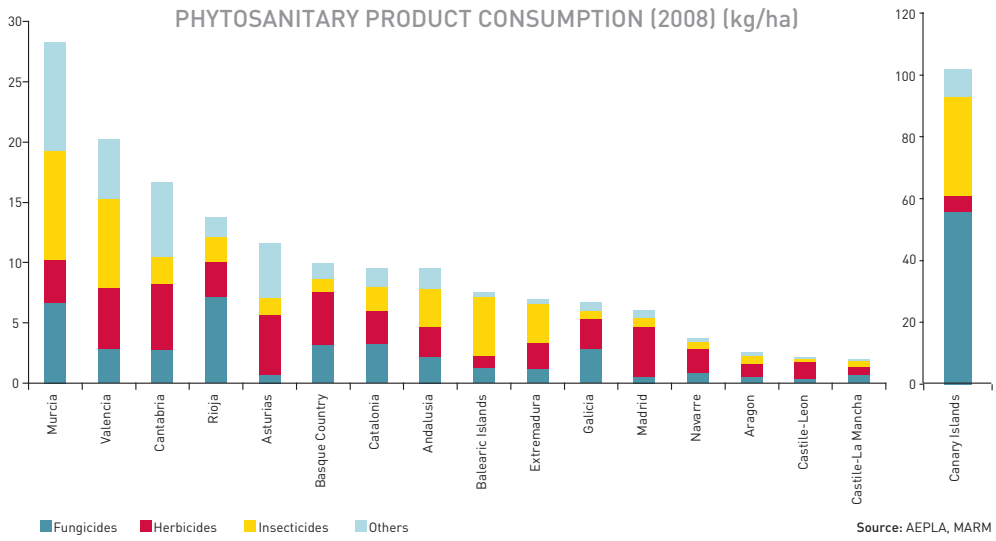
In September 2009, Regulation (EC) 1107/2009 of the European Parliament and of the Council of 21 October 2009, concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC, was adopted. The new Regulation establishes a positive list of active substances (chemicals) for use in the manufacture of phytosanitary products within the European Union. New pesticides will be approved by national authorities on the basis of this list of substances. Thus, governments will approve phytosanitary products at national level or through mutual recognition, which will be compulsory within the same zone, as, in accordance with the new Regulation,

the EU will be divided into three zones (north, central and south) according to countries' agricultural, climatological and environmental characteristics. Spain is included in the south zone.

Furthermore, the Regulation prohibits manufacture of phytosanitary products that use substances that may be carcinogenic or that may affect reproductive health, and, in addition, provides strong safety requirements for neurotoxic and immunotoxic components.

One of the Regulation's new features, and one that aims to curb abusive use of pesticides and minimise their impact, is that each country has to develop its own National Action Plan, which should also include alternative methods of pest control.

At the same time, production of annual regulatory reports on the results of the Phytosanitary Product Sales and Use Monitoring Programmes implemented by Spain's regional governments will continue and will be widely disseminated nationally and internationally.




By autonomous community, greatest use of phytosanitary products per hectare occurs in the Canary Islands (101.7 kg/ha), Murcia (28.3 kg/ha), Valencia (20.2 kg/ha), Cantabria (16.6 kg/ha) and Asturias (13.8 kg/ha).

**NOTES**

In calculating the indicator, "area treated with phytosanitary products" is taken as the total area of arable land, excluding fallow and other unoccupied land (i.e. the area devoted solely to herbaceous and ligneous crops).

**SOURCES**

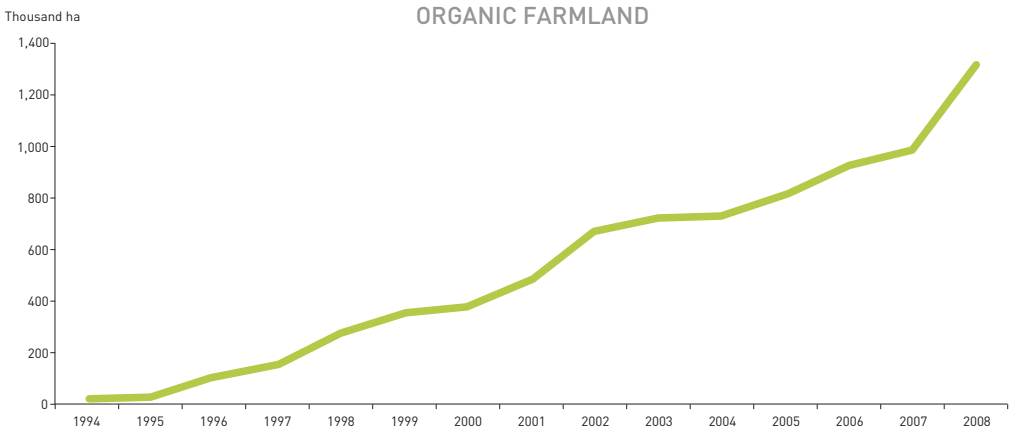
- Phytosanitary products: AEPLA.
- Treated area:
  - Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), 2008. MARM.
  - Anuario de Estadística Agroalimentaria, 2008. MARM.
- La agricultura, la pesca y la alimentación en España, 2008. MARM.

**FURTHER INFORMATION**

- **http://www.mapa.es**
- **http://www.aepla.es**

# Organic farming

## Organic farmland, particularly pasture, meadows and forage, greatly increased in area in 2008



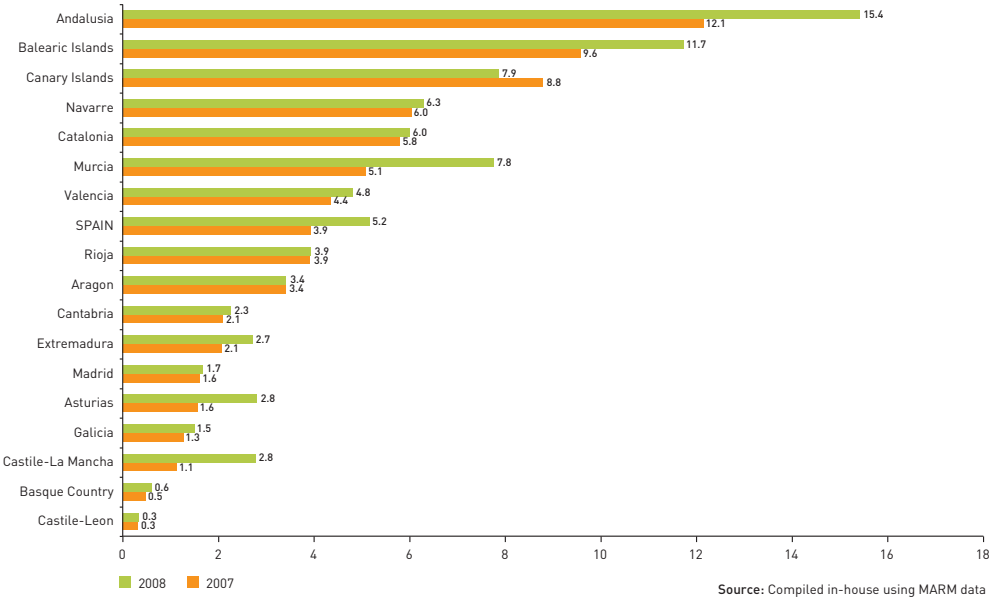

**Source:** MARM

Organic farming is a system of agricultural production that provides consumers with high-quality food while respecting natural systems' life cycles. This is achieved by implementing agricultural production techniques that exclude use of synthetic chemicals, such as fertilisers, pesticides, antibiotics, etc., with the aim of preserving the environment and maintaining or increasing soil fertility.

In 2007, Spain had the second-largest area devoted to organic production in the entire European Union. In 2008, this increased by 33.3% on the year before. Since entry into force of Regulation (EEC) 2092/91, Spain's organic farmland has grown from 4,235 ha in 1994 to 1,317,750 ha in 2008.

Similarly, the number of workers employed in organic farming has increased, rising from 20,171 in 2007 to 23,473 in 2008, representing growth of 16.4%. This data is important for assessing organic farming's social return and its role in sustainable rural development.

ORGANIC FARMLAND AS A PROPORTION OF UTILISED AGRICULTURAL AREA (%)




**Source:** Compiled in-house using MARM data

In the breakdown by autonomous community, it is worth highlighting the year-on-year increases in the area devoted to organic farming in relation to total utilised agricultural area in Andalusia, Murcia and the Balearic Islands, which also have the greatest areas of organic farmland in relation to utilised area. In Andalusia, the area increased from 12.1% in 2007 to 15.4% in 2008; in Murcia it rose from 5.1% in 2007 to 7.8% in 2008; and in the Balearic Islands it grew from 9.6% to 11.7%. Castile-La Mancha and Asturias also recorded considerable year-on-year increases.

With regard to the breakdown by crop type, the main form of land cover remains, as in previous years, pasture, meadows and forage, which reached 666,032 ha in 2008, 55.2% more than in 2007. The next most widely farmed crops in terms of area were forests and forest harvesting (187,908 ha), cereals and legumes (131,180 ha) and olives (101,268 ha). It is worth highlighting the substantial decrease in the area devoted to aromatic and medicinal plants, which shrank by 73.3%, dropping from 12,910.2 ha in 2007 to 3,448.4 ha in 2008.

NOTES

- Utilised Agricultural Area (UAA): Sum total of arable land, grassland and permanent pasture. The figures are taken from the Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE). MARM.
- The legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (EEC) 2092/91 [Official Journal of the EU 20.07.2007].

SOURCES

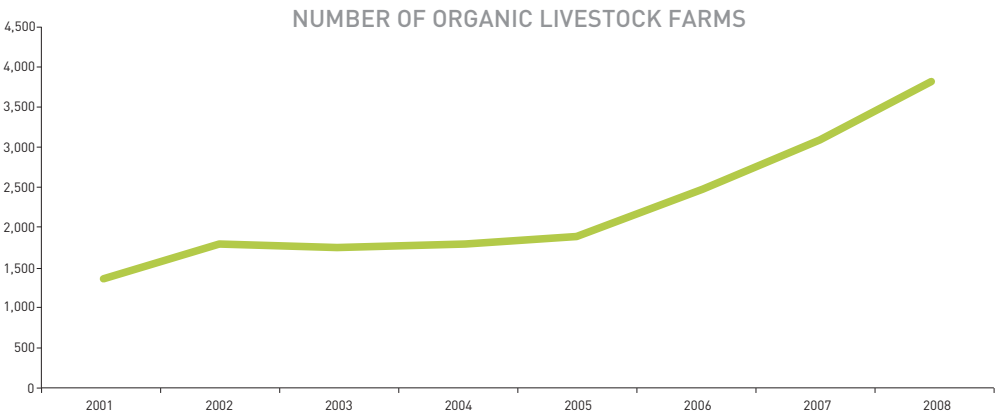
- Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), various years. MARM.
- 2008 statistics. Organic farming. Spain. MARM.

FURTHER INFORMATION

- **http://www.mapa.es/es/alimentacion/pags/ecologica/introduccion.htm**

# Organic livestock farming

## The number of organic livestock farms increased by 25% in 2008



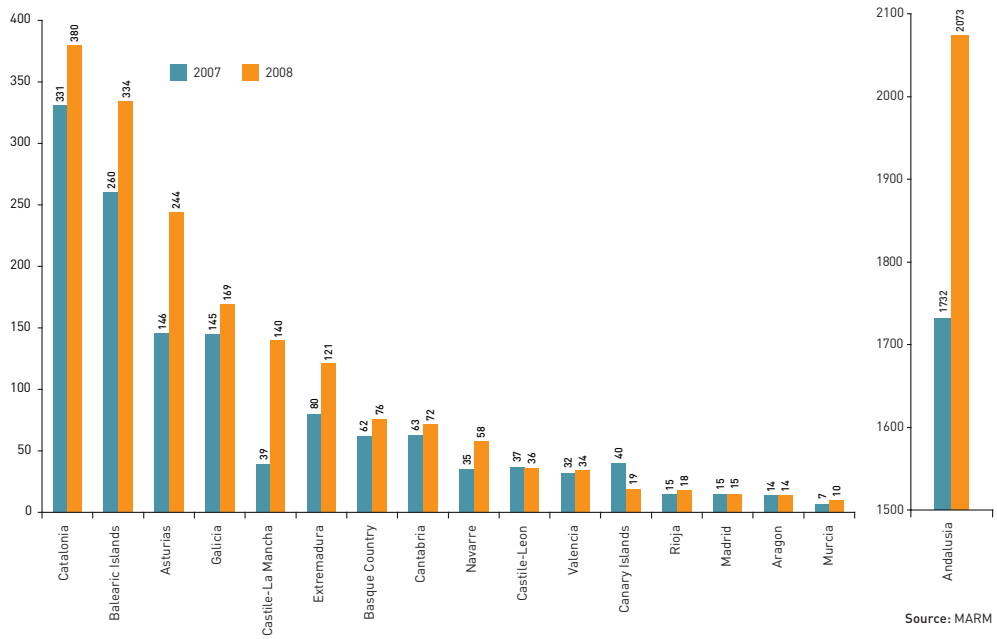

**Source:** MARM

Organic livestock farming defines a system of production free of synthetic chemicals and genetically modified organisms. The livestock is fed on organic fodder and feed produced mainly on the farm and the approach emphasises concern for animal welfare, provision of adequate shelter, access to pasture, and respect for animals' natural cycles.

Although organic livestock farming in Spain initially showed slow annual growth with significant fluctuations and differing trends within and between autonomous communities, since 2006 the number of organic livestock farms has increased by approximately 25% per year. In 2008, Spain had 3,813 organic livestock farms compared with 3,053 in 2007.

By autonomous community, Andalusia recorded the highest annual increase in the number of farms, and, in addition, it had over half of the total, accounting for 2,073 of the 3,813 holdings in operation in 2008. It was followed by Catalonia with 380 livestock farms, the Balearic Islands (334 farms) and Asturias (244 farms). In addition, other autonomous communities, such as Castile-La Mancha, also recorded substantial increases in the number of such farms.

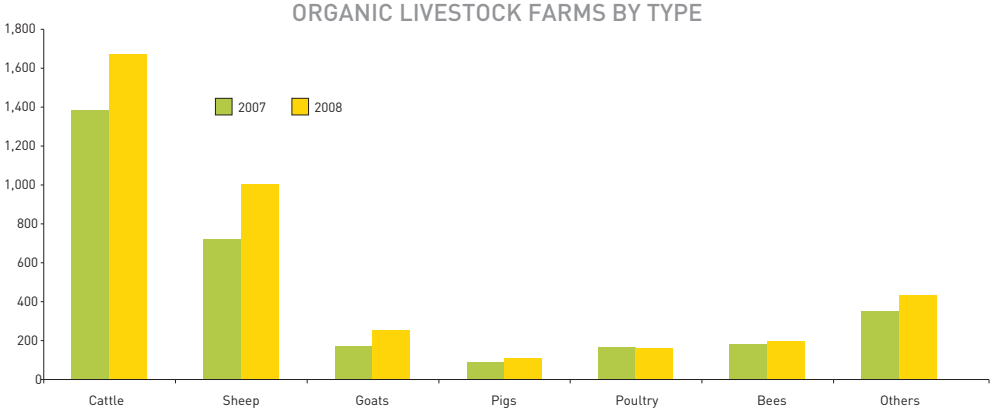
NUMBER OF ORGANIC LIVESTOCK FARMS BY AUTONOMOUS COMMUNITY




Source: MARM

While the number of organic livestock farms increased in a great many autonomous communities, in a few, such as Aragon, Castile-Leon, Madrid and Valencia, the number stagnated or even declined slightly. In the Canary Islands, the number of farms fell dramatically from 40 to 19.

ORGANIC LIVESTOCK FARMS BY TYPE




Source: MARM

By farm type, in 2008 cattle farming was once again the leading form of organic livestock farming. Cattle farms, of which there were 1,671 in operation, accounted for 43.8% of the total. They were followed in order of volume by sheep and goat farms (with 1,000 and 253 holdings, respectively), which comprised 32.9% of the total.

In 2008, the highest annual increases were in goat farming, which rose by 49.7% to 253 farms, sheep farming, which climbed by 38.9%, cattle farming (20.7%) and pig farming (20.0%). Poultry farming was the only form to decrease, falling by 3.6% in comparison with the year before.

NOTES

- The legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (EEC) 2092/91 [Official Journal of the EU 20.07.2007].

SOURCES

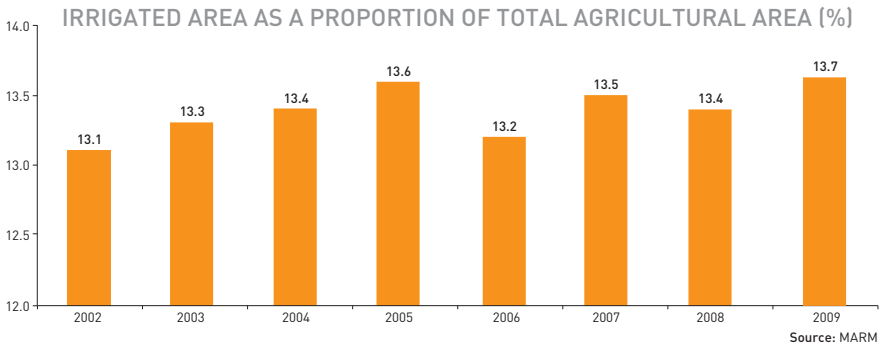
- Anuario de Estadística Agroalimentaria, 2008. MARM.
- 2008 statistics. Organic farming. Spain. MARM.

FURTHER INFORMATION

- http://www.mapa.es
- http://www.mapa.es/alimentacion/pags/ecologica/pdf/2008.pdf

# Irrigated area

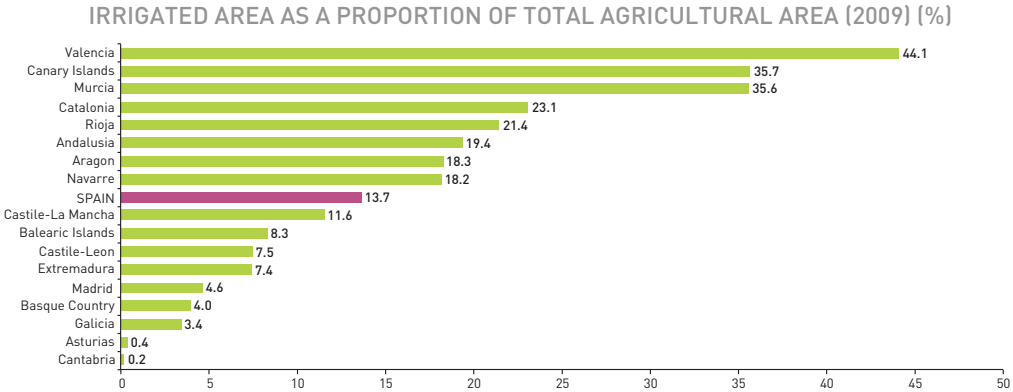
## The number of localised irrigation systems increased by 28.6% in the last five years under study




**Source:** MARM

Irrigated area in proportion to total agricultural area increased by 0.3 percentage points over 2008–2009 to stand at 13.7%. This figure is slightly above the average proportion of irrigated area to total agricultural area for the last five years under study (13.5%).

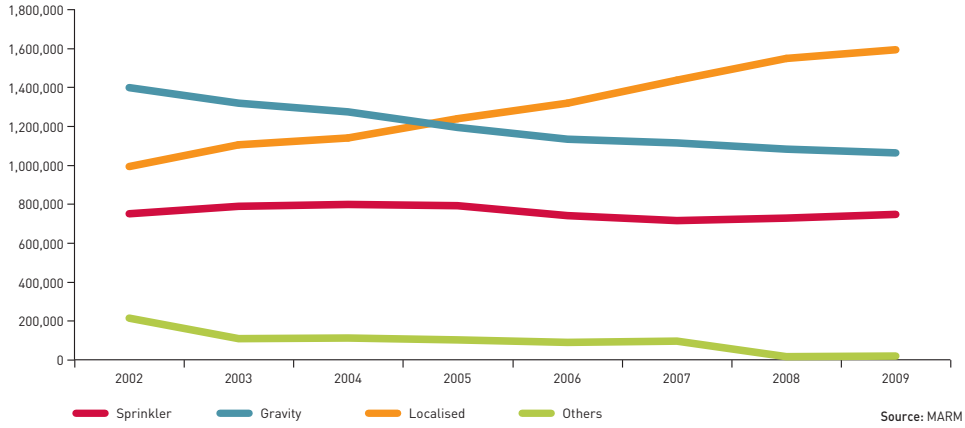
Irrigation has played and is playing a multifunctional role in the process of modernising Spain's agriculture and defining relationships within the country's rural society. Current planning embraces a series of principles and guidelines that incorporate institutional, economic and social changes, as well as new trends and conceptual approaches and criteria that directly or indirectly affect development of irrigation and constitute one of the cornerstones of the sustainable agriculture model set out in Agenda 2000.




**Source:** MARM

By autonomous community, Valencia (44.1%), the Canary Islands (35.7%) and Murcia (35.6%) have the highest proportions of irrigated area to total agricultural area, while Cantabria (0.2%) and Asturias (0.4%) have the lowest proportions.

IRRIGATED AREA BY IRRIGATION SYSTEM (hectares)




Source: MARM

With respect to irrigation techniques, there has been a gradual reduction in the area under gravity irrigation, a method that is less efficient than other systems, such as localised (drip) and sprinkler irrigation. In the last five years analysed, the area served by gravity irrigation decreased by 10.8%, while the area served by localised irrigation increased by 28.6%.

Overall, localised irrigation is used on 46.5% of Spain's irrigated area (1,591,616 ha) and sprinkler irrigation is used on 21.8% (745,594 ha). Combined, they account for 68.3% of the total. Therefore, despite the downward trend in the use of less efficient techniques, gravity irrigation is still employed on 31.1% of the country's irrigated area (1,064,248 ha).

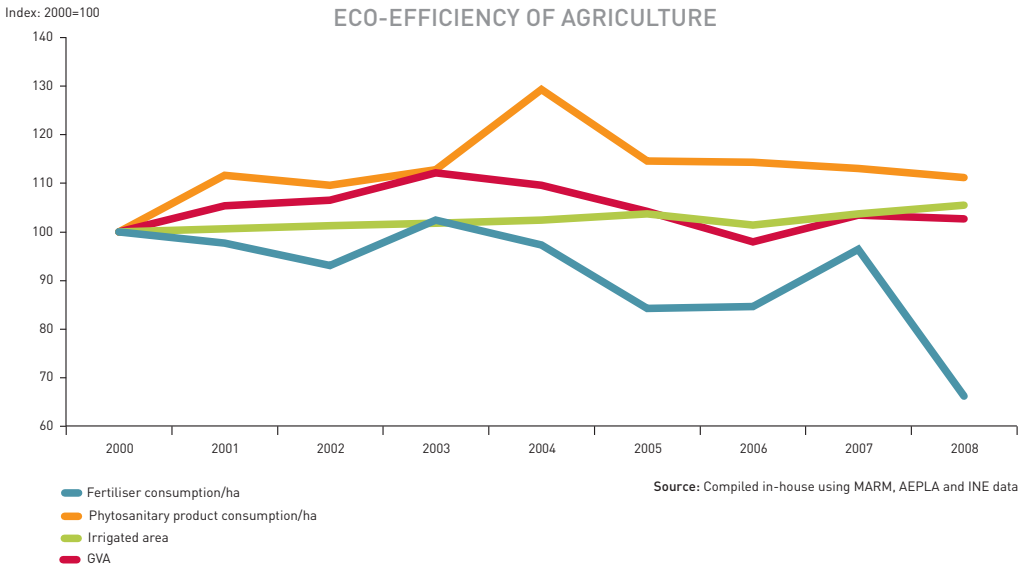
NOTES
- Irrigated area refers to the area devoted to crop production or pasture improvement that is supplied with water, irrespective of the number of times irrigation is performed per year.
- Total agricultural area refers to arable and fallow land, greenhouses and family smallholdings.

SOURCES
- Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), various years. MARM.

FURTHER INFORMATION
- **http://www.mapa.es**
- **http://www.mapa.es/es/desarrollo/pags/observatorio/observatorio.htm#**

# Eco-efficiency of agriculture

## In 2008, the sector's economic return remained stable, while fertiliser consumption decreased dramatically




**Source:** Compiled in-house using MARM, AEPLA and INE data

Eco-efficiency in the sector, analysed by comparing the trend in economic growth and the main pressures it generates, was uneven over the period under study. Although in 2008 agriculture's Gross Value Added (GVA) fell slightly in comparison with 2007, over 2000–2008 it rose by 2.8% overall.

Ideal eco-efficiency would be reflected by the existence of clear decoupling between the sector's economic growth and its use of resources. However, the performance of the three variables analysed differs somewhat from this pattern.

Fertiliser consumption per hectare, which since 2002 had followed a similar trend to GVA, broke with this tendency in 2008 and recorded a significant decrease. This 33.8% fall in comparison with the beginning of the period analysed was strongly linked to the economic crisis and the rise in the price of fertilisers.

Meanwhile, irrigated area remained stable and, with the exception of 2006, increased slightly with each passing year. Over 2000–2008, irrigated area grew by 5.4%, a rise above that of GVA over the same period.

Phytosanitary product consumption was less favourable in environmental terms and, as was the case in previous years, growth was well above the rise in GVA. Nevertheless, between 2006 and 2008 there was a slight drop in consumption.

NOTES
- Gross Value Added in the sector refers to agriculture, fishing, hunting and forestry.
- For the purpose of calculating the indicator, eco-efficiency is considered positive when the trend in the sector's economic growth is decoupled (contrary and divergent) from that of the pressures it exerts on the environment.

SOURCES
- INE. Spanish National Accounts. Base 2000. Accounting series 1995–2008. GDP at market prices (GVA for agriculture).
- Fertiliser consumption: Anuario de Estadística Agroalimentaria, 2008. MARM.
- Phytosanitary product consumption:
  – AEPLA.
  – Anuario de Estadística Agroalimentaria, various years. MARM.
- Irrigated area: Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), various years. MARM.

FURTHER INFORMATION
- **http://www.marm.es**
- **http://www.anffe.com**
- **http://www.aepla.es**
- **http://www.ine.es**