Performance of the agricultural sector

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"The EU's agricultural industry created an estimated gross value added of EUR 222.3 billion in 2022."

"Agriculture contributed 1.4% to the EU's GDP in 2022."

"Agricultural income per annual work unit (as defined by Indicator A) is estimated to have risen for the EU in 2022 (+12.5%) to a level that is 44.3% higher than the index level in 2015."

This article gives an overview of the economic and resource performance of agriculture in the European Union (EU). It uses indicators on agricultural output, agricultural income and agricultural prices in the EU for economic performance and indicators on agricultural output and intermediate consumption for resource performance. The data are extracted from Eurostat collections of agricultural statistics: economic accounts for agriculture (EAA), agricultural price indices (API) and agri-environmental indicators (AEIs).

Editorial note: The acronym 'EU' refers to the 27 Member States of the European Union as of 1 February 2020.

Value of agricultural output

Agriculture is an activity that falls within the primary sector of the economy, which is concerned with the extraction or harvesting of products from the earth. In an accounting context, an industry is a branch of economic activity. The term 'agricultural industry' is used to describe the branch of agricultural production but it should not be understood as inferring that agriculture is industrialised or that it is about the processing of raw materials.

In this article, the term ‘agricultural industry’ is used only where precise accounting terms are required, with 'agricultural sector' being used elsewhere.

"Agriculture contributed 1.4% to the EU's GDP in 2022, similar to 2007."

Agricultural production in the EU by the millions of predominantly small farms adds up to being big business, even without considering its importance as the key building block for the downstream food and beverage processing industry. The agricultural sector contributed EUR 217.0 billion towards the EU's overall GDP in 2022. To put this in some context, the contribution of agriculture to the EU's economy was very slightly more than the GDP of Greece in 2022, the 16th largest economy among the EU countries.

This contribution (gross value added at producer prices, which is comparable to GDP at market prices), is the difference between the value of agricultural output and the value of various input costs built up in the production process, adjusted for taxes and subsidies on products. It is therefore interesting to look at the structure and composition of the value of agricultural production and the various inputs used.

The agricultural industry created added value of EUR 222.3 billion in 2022

The gross value added by the EU's agricultural industry, which is the difference between the value of everything that the EU's primary agricultural sector produced and the costs of the services and goods used in the production process, was EUR 222.3 billion in 2022. One way of looking at this is that for every EUR 1 spent on the cost of
goods and services used in the production process (known as intermediate consumption), the EU’s agricultural industry created added value of EUR 0.71. Nevertheless, this relative value added in 2022 was lower than all other years since a relative peak of EUR 0.79 in 2017.

The value of the output produced by the EU’s agricultural industry was EUR 536.7 billion in 2022

The value of everything that the EU’s agricultural industry produced in 2022 was EUR 536.7 billion; this includes the value of crops, of animals, of agricultural services, as well as some goods and services that were not strictly agricultural but which could not be separately measured.

A little more than one half (53.5 %) of the value of the total output of the EU’s agricultural industry in 2022 came from crops (EUR 287.3 billion), within which cereals and vegetables and horticultural plants were the most valuable crops (see Figure 1). Almost two-fifths (38.5 %) of total output came from animals and animal products (EUR 206.7 billion), a majority coming from just milk and pigs. Agricultural services (EUR 23.0 billion) and inseparable non-agricultural activities (EUR 19.8 billion) contributed the rest (8.0 %).

![Output of the agricultural industry (% of total output, EU, 2022)](image)

Figure 1: Output of the agricultural industry (% share of total output, EU, 2022) Source: Eurostat (aact_eaa01)

Contributions from EU countries varied significantly, reflecting differences in volumes produced, prices received, as well as the mix of crops grown, animals reared, animal products collected and services offered. More than one half
(56.9 %) of the total output value of the EU’s agricultural industry came from the ‘big four’ of France (EUR 96.6 billion), Germany (EUR 74.5 billion), Italy (EUR 71.2 billion) and Spain (EUR 63.2 billion). The next grouping of EU countries was Poland (EUR 40.0 billion), the Netherlands (EUR 36.3 billion) and Romania (EUR 22.8 billion). Three-quarters (75.3 %) of the total value of EU’s agricultural output in 2022 came from these seven EU countries.

**Intermediate consumption for the EU’s agricultural industry was EUR 314.5 billion in 2022**

Producing all this output incurred costs. Farmers had to make purchases of goods and services to be used as inputs in the production process; they bought items like seeds, fertilisers, animal feedingstuffs and fuel for their tractors as well as veterinary services, among other things. Many of these costs rose sharply in 2022, pushed higher by the impact of Russia’s invasion of Ukraine and resulting instability on markets. These input costs are termed ‘intermediate consumption’ in an accounting context. Intermediate consumption for the agricultural industry came to a total of EUR 314.5 billion for the EU as a whole in 2022.

Some costs are associated with the farming of animals; they required feed, which accounted for almost two-fifths (39.3 %) of total intermediate consumption and veterinary services (a further 2.1 %). Likewise, some costs are associated with crop farming; farmers required seeds and plants (4.5 % of total costs) and many used plant protection products, herbicides, insecticides and pesticides (4.1 %) as well as fertilisers and soil improvers (10.1 %). Other costs are common to all types of farm, independent of whether specialist or mixed-type.

**The value of the output produced by the EU’s agricultural industry in 2022 rose to a new peak**

The estimated value of agricultural output in 2022 rose sharply in nominal terms (+19.2 %). This represented a new peak and continued the upward trend that had started in 2010 (see Figure 2). This change in nominal value largely reflected the sharp rise in the nominal price for agricultural goods and services as a whole (an estimated +22.9 %), with volume of output declining moderately from the level in 2021 (an estimated 3.0 % lower).

**Developments in output of the agricultural industry**

*(2007 = 100, basic prices, EU, 2007-2022)*

![Graph showing developments in output of the agricultural industry](image)

*Note: indices originally compiled with 2015 = 100, rescaled to 2007 = 100.*

*Source: Eurostat (online data code: aact_eaa05)*

*Figure 2: Developments in output of the agricultural industry (2007 = 100, basic prices, EU, 2007-2022)*

*Source: Eurostat (aact_eaa05)*
This sharp increase in the output value of the EU’s agricultural industry in 2022 was driven by higher values in all EU countries. The strongest rates of increase were in Poland (+43.1 %), Lithuania (+41.9 %) and Estonia (+41.3 %). Increases of between 20 % and 35 % were also recorded in Latvia, Finland, Slovenia, Germany, Ireland, Czechia, Denmark, Austria and Slovakia. The least sharp rises in output value were in Cyprus (+6.6 %), Hungary (+6.8 %) and Romania (+7.9 %).

The gross value added generated by the EU’s agricultural industry in 2022 continued its upward trend.

The value of the intermediate goods and services used by the agricultural industry in 2022 was up sharply on a year earlier (+21.8 %). This was a steeper rate of increase than that of the value of agricultural output (+19.2 %), resulting in a less sharp rise (+15.8 %) in the gross value added generated by the agricultural industry. This increase in gross value added continued the upward trend since 2010.

Developments in output and consumption of the agricultural industry
(2007 = 100, basic prices, EU, 2007-2022)

Agricultural labour productivity

The economic performance of the agricultural industry can be measured in terms of net value added at factor cost, which is gross value added adjusted for the consumption of fixed capital and subsidies and taxes on production. It is also known as factor income, as it is the remuneration available for all the factors of production (land, capital and labour).

Factor income in the EAA can be expressed per full-time labour equivalent. As such, it is considered a partial labour productivity measure; it is a measure of the net value added by the equivalent of each full-time worker in the agricultural industry. This productivity indicator is measured in real terms (adjusted for inflation) and expressed as an index (called Indicator A). It should not be confused with total income of farming households or the income of a person working in agriculture.
To understand the development of this agricultural income measure, it is first necessary to understand the development of the agricultural labour amongst which this remuneration is notionally shared. With so much part-time, seasonal and unsalaried labour input in agriculture, the amount of work actually carried out in farming activities is best described when using a unit called the annual work unit (AWU). This unit expresses the volume of work done in full-time work equivalents.

**Downward trend in the volume of agricultural labour in the EU continued in 2022**

Agricultural labour input in the EU was the equivalent of 7.8 million full-time workers in 2022.

A majority of total agricultural labour input is non-salaried labour; it was the equivalent of 5.4 million full-time workers in 2022. Salaried labour was the equivalent of 2.3 million full-time workers in 2022.

There is a long-established downward trend in the number of people working in the EU’s agricultural sector; during the period between 2007 and 2022, the average rate of decline in the volume of agricultural labour used across the EU as a whole was 2.6 % per year. The downward trend continued in 2022, albeit estimated at a slightly slower pace (-1.9 %).

Less total agricultural labour input was used in most EU countries in 2022 than in the preceding year, with particularly stark contractions continuing in Bulgaria (-6.8 %) and in Spain (-6.1 %). However, there were some countries where the volume of labour used was estimated to have rebounded in 2022: Slovakia (+7.1 %), Lithuania (+2.9 %) and Latvia (+2.4 %).

In a few EU Member States, particularly Slovakia, Lithuania, Cyprus, Portugal and Sweden, more salaried agricultural labour was used in 2022 than in 2021 (see Figure 4), in part reflecting an increase in hiring requirements at seasonal peaks. This was often in contrast to the overall decline in the total amount of agricultural labour used.
Over the long-term, the amount of agricultural labour used has been in steep and steady decline.

Total agricultural labour input declined sharply in almost all EU countries during the period between 2007 and 2022 (see Figure 5); the sharpest declines were in Bulgaria (an average -7.5 % per year), Slovakia (-5.6 % per year), Romania (-5.0 % per year) and Estonia (-4.5 % per year). This contraction in the agricultural labour force reflected both push and pull factors; there have been great strides in mechanisation and efficiency on the one hand and, on the other, a wider choice of attractive job opportunities in other sectors of the economy. The main exceptions to this general trend were Malta (+1.7 % per year on average) and Ireland (+0.3 % per year on average).
The contraction in the total work input from non-salaried labour between 2007 and 2022 was more pronounced than for salaried labour at the level of the EU as a whole (-3.5 % per year on average compared with -0.1 % per year). Over this period, there was an expansion in the use of salaried labour input in Luxembourg (+4.1 % per year on average), Austria (+2.5 % per year on average), Ireland (+2.1 % per year on average) and Denmark (+1.9 % per year on average), among others. By contrast, there were sharp contractions in the use of salaried labour input in Greece (-3.9 % per year on average), Slovakia (-3.6 % per year on average), Slovenia (-2.6 % per year on average) and Czechia (-2.5 % per year on average).

Agricultural income as defined by real factor income per AWU rose for the EU in 2022 (+12.5 %)

Agricultural income, as defined by deflated (real) factor income per AWU and expressed as an index (called indicator A), for the EU as a whole in 2022 was 12.5 % higher than in 2021. This reflected a higher (+10.3 %) level of factor income compared with 2021 that was notionally achieved by a smaller total agricultural labour input (down -1.9 %).

A majority of EU Member States recorded increases or no change in this index of agricultural income per AWU in 2021 (see Figure 6). The overall rise at the level of the EU as a whole, reflected higher agricultural incomes in four of the 'big seven' agricultural producer Member States – Germany (+46.3 %), Poland (+26.5 %), France (+24.5 %), Italy (+10.7 %) – as well as, inter alia, Luxembourg (+29.9 %), Denmark (+28.8 %), Estonia (+24.6 %), Slovenia (+20.5 %), Austria (+19.6 %), Bulgaria (+15.0 %), Finland (+11.6 %), Ireland (+10.4 %) and Greece (+10.0 %).

The sharpest declines were in Romania (-26.0 %), Portugal (-11.7 %), Malta (-8.7 %) and Lithuania(-8.0 %).
The upward trend in the index of agricultural income for the EU continued in 2022.

Agricultural income per AWU for the EU as a whole in 2022 continued its upward trend since a relative low in 2009. For most of this period, this development reflected a relatively steady level of factor income being accompanied by a continuing contraction in agricultural labour input. However, in 2022 there was also a sharp rise in factor income. Agricultural income per AWU for the EU as a whole was 71.9% higher than the level in 2007. Over the same period, factor income was 15.0% higher but agricultural labour input had shrunk by 33.1%. 

Figure 6: Agricultural income per annual work unit (Indicator A) (2015 = 100, 2021-2022) Source: Eurostat (aact_eaa06)

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Resource performance of the agricultural sector

There is increasing interest in the efficiency with which resources are used\(^1\). In order to become more sustainable, an economy would need to decouple economic growth from resource use and its environmental impact.

To better monitor this sustainability, prices should reflect the real costs of resource use. However, the social and environmental outputs of farming activities are rarely priced. Indeed, so-called ‘green accounts’ for agriculture are far from being completed, nor the green efficiency indicators that could result from them. Likewise, total factor productivity indicators for agriculture that look at a measure of agricultural output against a combined measure of the input from intermediate consumption, land, labour and capital are also not yet available.

Some indication of the resource performance of agriculture can be derived, however, from the EAA by looking at trends in the ‘volumes’ of outputs generated and of the goods and services used up or ‘consumed’ as inputs in the production process. These volumes come from a decomposition of the values into price and volume components. These implicit volumes are not quantities; they are not measured in terms of kilograms or tonnes. They are termed ‘volumes’ because they capture not only changes related to quantity but also to quality as well as composition, which is important to bear in mind. As indices, they provide an overview of the trends in the volumes of inputs and outputs, which can be used for some productivity and performance measures.

Rising output volume of agricultural industry but with rising volume of input goods and services as a whole

Over the period between 2007 and 2022, there was an upward trend in the output volume of the EU’s agricultural industry (a total increase of +9.8 %). To a large extent, higher output volumes were underpinned by the rise in the

\(^1\)The Europe 2020 strategy includes the *Roadmap to a Resource Efficient Europe* (COM(2011) 571) that outlines how the European economy can be transformed into a sustainable one by 2050.
volume (+3.8 %) of input goods and services consumed (see Figure 8). These medium-term trends point to little
evidence of any decoupling of output growth from resource use at the EU level. Indeed, the cutback in the use of
intermediate goods and services in 2022, when prices generally rose sharply due to the war in Ukraine, was
accompanied by a cutback in agricultural output.

Volume indices of agricultural output and
of intermediate consumption
(2007 = 100, EU, 2007-2022)

Among EU countries, there was also little suggestion of an apparent decoupling of agricultural output growth from
intermediate consumption growth, with a few notable exceptions. Over the period between 2007 and 2022,
agricultural output in Belgium grew by 14.5 % at the same time as the volume of intermediate consumption of
goods and services declined by 35.4 %. This pattern was also clear in Denmark where agricultural output grew by
24.4 % at the same time as a cutback in the volume of intermediate consumption (-5.6 %). It was also noted in
Bulgaria, Germany and Greece. In Croatia and Finland, the considerable (-26.4 % and -20.6 %) cutbacks in the
consumption of goods and services were in parallel with much smaller rates of decline (-6.4 % and -5.0 %
respectively) in the volume of agricultural output. It should be borne in mind that these changes may, in part, reflect
changes within the structure of the agricultural industries in these countries as well as improved resource efficiency.

Figure 8: Volume indices of agricultural output and of intermediate consumption (2007 = 100, EU, 2007-2022)
Source: Eurostat (aact_eaa05)
Figure 9: Change in the volume indices of agricultural output and of intermediate consumption (%, 2007-2022) Source: Eurostat (aact_eaa05)

Source data for tables and graphs

- Performance of the agricultural sector: figures

Data sources

The EAA are a satellite account of the European system of accounts (ESA 2010). They cover the agricultural products and services produced over the accounting period sold by agricultural units, held in stocks on farms, or used for further processing by agricultural producers. The concepts of the EAA are adapted to the particular nature of the agricultural industry: for example, the EAA includes not only the production of grapes and olives but also the production of wine and olive oil by agricultural producers, if produced from own grapes and olives. It includes information on intra-unit consumption of crop products used in animal feed, as well as output accounted for by own account production of fixed capital goods and own final consumption of agricultural units.

The EAA comprises a production account, a generation of income account, an entrepreneurial income account and some elements of a capital account. For the production items, EU Member States transmit to Eurostat values at basic prices, as well as their components (values at producer prices, subsidies on products and taxes on products).

The output of agricultural activity includes output sold (including trade in agricultural goods and services between
agricultural units), changes in stocks, output for own final use (own final consumption and own-account gross fixed capital formation), output produced for further processing by agricultural producers, as well as intra-unit consumption of livestock feed products. The output of the agricultural industry is made up of the sum of the output of agricultural products and of the goods and services produced in inseparable non-agricultural secondary activities; animal and crop output are the main product categories of agricultural output.

Three indicators are computed in relation to agricultural income:

- an index of real income of factors in agricultural activity per AWU (Indicator A);
- an index of real net agricultural entrepreneurial income, per unpaid AWU (Indicator B);
- and the net entrepreneurial income of agriculture (Indicator C).

The information presented on agricultural income relates to indicator A (the real income of factors in agriculture per AWU). This indicator corresponds to the real (deflated) net value added at factor cost of agriculture per AWU and is expressed as an index. Net value added at factor cost is calculated by subtracting from the value of agricultural output at basic prices the value of intermediate consumption, the consumption of fixed capital and adding the value of (other) subsidies less taxes on production.

Agricultural price statistics provide information on the development of producer (output) prices for agricultural products and purchaser prices for the means of agricultural production (the intermediate consumption of goods and services within the production process). Data on prices are available for single commodities and for larger aggregates in the form of absolute prices and price indices.

The index of producer prices for agricultural products is based on sales of agricultural products, while the input index (for intermediate goods and services) is based on purchases of the means of agricultural production. Prices should be recorded at points which are as close as possible to those of the transactions which the farmer actually undertakes. This means that product prices should be recorded at the first marketing stage so as to best indicate the actual producer prices received by farmers. Similarly, the prices paid by farmers for their means of production should be recorded at the last marketing stage, that at which the items arrive on the farm, so as to best indicate the purchase prices paid by farmers. It is assumed, by convention, that the fertilisers and feeding stuffs purchased are used in the same production period and that there are no stocks on farm.

As regards spatial comparisons, the structure of the weights with respect to products and means of production reflect the value of the sales and purchases in each country during the base year (currently 2010 = 100); the weights therefore differ from one country to another.

Context

The performance of the agricultural sector has traditionally been about how successful farming is in delivering primary agricultural products and services. However, it is increasingly taking on a green aspect, recognising the impact of agriculture on water, air and soil quality, land use diversity, ecologies, wildlife and climate change.

The European Green Deal\(^2\) sets out how to make Europe the first climate-neutral continent by 2050. The Farm to Fork Strategy\(^3\), for a fair, healthy and environmentally-friendly food system, was adopted by the European Commission on 20 May 2020 and lies at the heart of the Green Deal. Among other things, it addresses comprehensively the challenges of sustainable food systems by recognising that ‘food production still results in […] pollution, contributes to the loss of biodiversity and climate change, and consumes excessive amounts of natural resources\(^4\). This is a reason for the goal to increase the area under organic farming to 25 % of the utilised agricultural area by 2030, a goal that goes hand-in-hand with measures to change resource performance. Individual targets to reduce dependency on chemical pesticides and antimicrobials, reduce excess fertilisation and

\(^2\)For more information, see: A European Green Deal.

\(^3\)For an overview of the strategy and related documents, see Farm to Fork strategy.

\(^4\)For more information, see the Communication from the Commission on the European Green Deal.
reduce waste will pave the way for a more sustainable food-chain.

Assessing the performance of the agricultural sector matters for a number of reasons:

• farming is a cornerstone of the rural community, one on which a number of ‘upstream’ sectors (such as machinery, animal healthcare and input businesses) and ‘downstream’ sectors (such as food processing, packaging and transport businesses) depend;
• farming is about providing a stable supply of safe, quality food;
• farming has a key role to play in preserving landscapes and biodiversity;
• farming has a key role to play in climate change action; and
• to support this, there is a need to ensure a fair income for farmers.

Economic impacts on farmers therefore not only influence future farming business decisions but also wider ecological and environmental business decisions and behaviour.

The performance of the agricultural sector as a whole can be assessed by bringing the information about the volume and price changes for agricultural goods and services under the umbrella of an accounting structure. To this end, the economic accounts for agriculture (EAA) provide a set of comparable data that provide an insight into:

• the economic viability of agriculture;
• the income generated by farmers;
• the structure and composition of agricultural production and the inputs used in that production; and
• the relationships between prices and quantities of both outputs and inputs.

Other articles

• Agricultural production — livestock and meat
• Agricultural production — crops
• The EU potato sector — statistics on production, prices and trade
• The fruit and vegetable sector in the EU — a statistical overview

Tables

• Agriculture (t_agri) , see:

Economic accounts for agriculture (t_aact)
Agricultural prices and price indices (t_apri)

Database

• Agriculture (agri) , see:

Economic accounts for agriculture (aact)
Economic Accounts for Agriculture (aact_eaa)
Agricultural Labour Input Statistics (aact_ali)
Unit value statistics for agricultural products (aact_uv)
Agricultural prices and price indices (apri)
Selling prices of agricultural products (absolute prices), land prices and rents (apri_ap)
Price indices of agricultural products (apri_pi)
Dedicated section

• Agriculture

Publications

• Agriculture, forestry and fishery statistics — 2020 edition (statistical book)

Methodology

• Absolute agricultural prices (ESMS metadata file — apri_ap_esms)
• Economic accounts for agriculture (ESMS metadata file — apri_ap_esms)
• Manual on the economic accounts for agriculture and forestry EAA/EAF 97 (Rev. 1.1)
• Price indices of agricultural products (ESMS metadata file — apri_ap_esms)
• Target methodology for agricultural labour input (ALI) statistics (Rev. 1) (ESMS metadata file — aact_esms)

Legislation

• Regulation (EC) No 138/2004 of 5 December 2003 concerning economic accounts for agriculture
• Summaries of EU Legislation: Economic accounts for agriculture

External links

• European Commission — Agriculture and rural development — food, farming, fisheries
• European Commission — a European Green Deal
• European Commission — farm to fork strategy