

Agriculture statistics - machinery and digitalisation

Statistics Explained

Data extracted in May 2026

Planned article update: December 2032

Highlights

Over 40% of EU farms have access to the internet. Nearly 1 in 5 EU farms with utilised agricultural area (UAA) apply some form of precision farming technology or technique. Larger farms in both physical and economic size exhibit higher adoption rates of digital technologies and automated systems than smaller farms. Tractors are the most common conventional machinery type among EU farms, with a prevalence rate of nearly 80%. Digital technologies, automated systems, and machinery play a pivotal role in modernising agriculture by enhancing efficiency and sustainability at the farm level, reducing labour requirements, and optimising agricultural inputs.

The digitalisation of the sector—defined as the adoption and integration of digital technologies such as sensor systems, variable rate technologies, GPS/GNSS, big data, artificial intelligence (AI), robotics, and the [Internet of Things](#) (IoT)—has the potential to transform agriculture. It can address key sectoral challenges while boosting competitiveness.

This article draws on the results of the 2023 [Farm Structure Survey](#) to examine how digital tools, automated systems, and machinery are being adopted across EU farms, and how farm structure is associated with technology uptake.

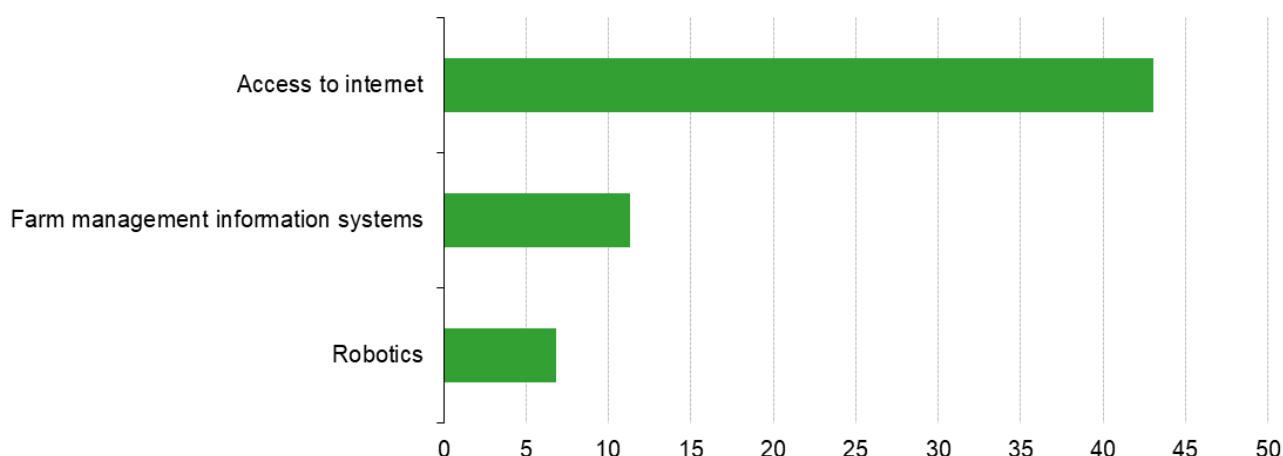
This analysis includes only agricultural holdings above the physical thresholds set by [Regulation \(EU\) 2018/1091 on integrated farm statistics](#), which represent an estimated 98% of the [utilised agricultural area](#) (UAA) and 99% of the [livestock units](#) (LSU) of all farms in the EU in 2023. Any mention to UAA, LSU or EU farms refers only to this subset, which is used as the denominator in the calculation of percentages. Very small agricultural holdings are excluded.

Digital technology adoption on EU farms varies by country and farm structure

Internet access and digital tools The adoption of digital technologies in agriculture begins with basic infrastructure, particularly internet access. In 2023, about 43% of EU farms reported having internet access, with some Northern and Central European countries (Denmark, Germany, Slovakia, Latvia, Czechia, and Austria) recording rates above 90% (Figure 1).

One in ten farms in the EU used farm management information systems in 2023. France had the highest adoption rate (about 60%) among EU countries. By contrast, robotics adoption—defined as machines capable of autonomous operation without direct human intervention—remained relatively low, covering about 7% of all farms. The adoption rate was highest in the Netherlands (about 35%).

Farms with access to internet, farm management information systems and robotics (%, 2023)



Note: Only farms above the Regulation physical thresholds included.

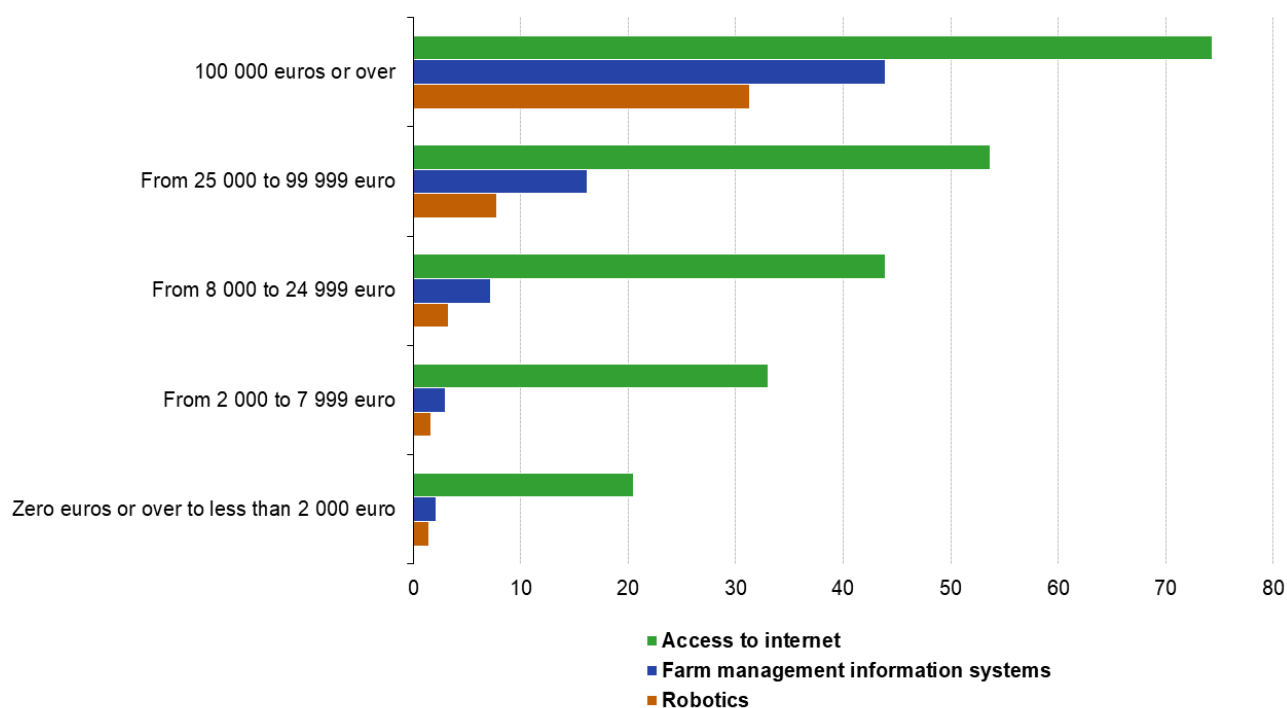
Source: Eurostat (online data code: ef_mp_digi)

eurostat 

Figure 1: Farms with access to internet, farm management information systems and robotics (%, 2023)
Source: Eurostat (ef_mp_digi)

Access to the internet and digital tool adoption rates not only vary considerably between EU countries, but also between farms of different economic sizes within the same country; adoption rates are in fact positively correlated with the economic size of farms. About three-quarters (74%) of all EU farms with a total standard output of € 100 000 or over reported internet access (Figure 2), compared to only one-fifth (about 21%) of those with a total standard output of less than € 2 000. The same pattern was noted for the use of farm management information systems (about 44% compared to 2%, respectively) and robotics (about 31% compared to about 1%, respectively).

Farms with access to internet, farm management information systems and robotics according to economic size of farm (%, 2023)



Note: Only farms above the Regulation physical thresholds included.
Source: Eurostat (online data code: ef_mp_digi)

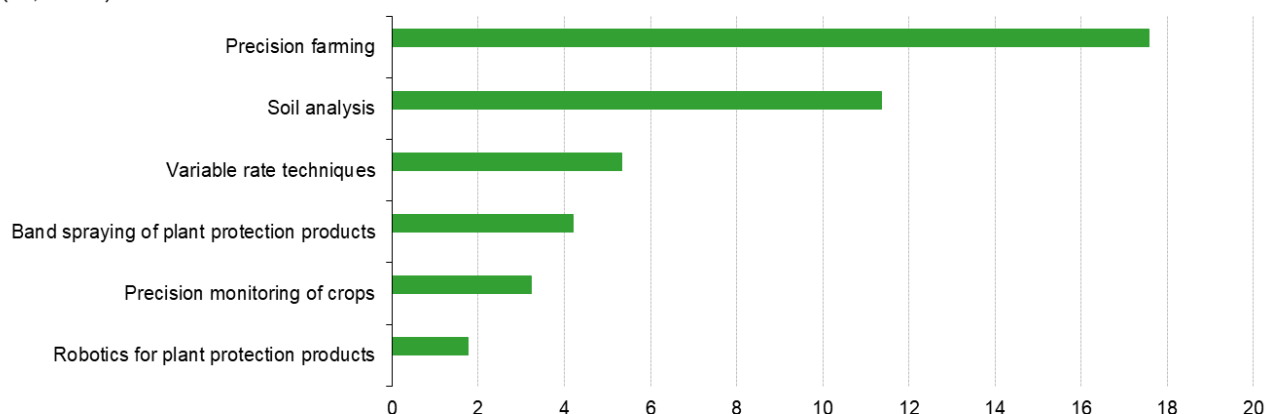
eurostat 

Figure 2: Farms with access to internet, farm management information systems and robotics according to economic size of farm (%, 2023) Source: Eurostat (ef_mp_digi)

Precision farming Precision farming refers to the application of modern information technology to gather, process and analyse data of high spatial and temporal resolution for decision-making and operations in crop production. Just under 18% of farms with utilised agricultural area (UAA) applied some kind of precision farming technology or practice in 2023, including robotics for plant protection products, band spraying of plant protection products, variable rate techniques, precision monitoring of crops and soil analysis (Figure 3). Soil analysis was by far the most widespread practice, with about 11% of farms taking it up, followed by variable rate techniques (about 5%) and band spraying of plant protection products (about 4%).

Farms with precision farming

(%, 2023)



Note: Only farms with UAA and above the Regulation physical thresholds included.

Source: Eurostat (online data code: ef_mp_digicr)

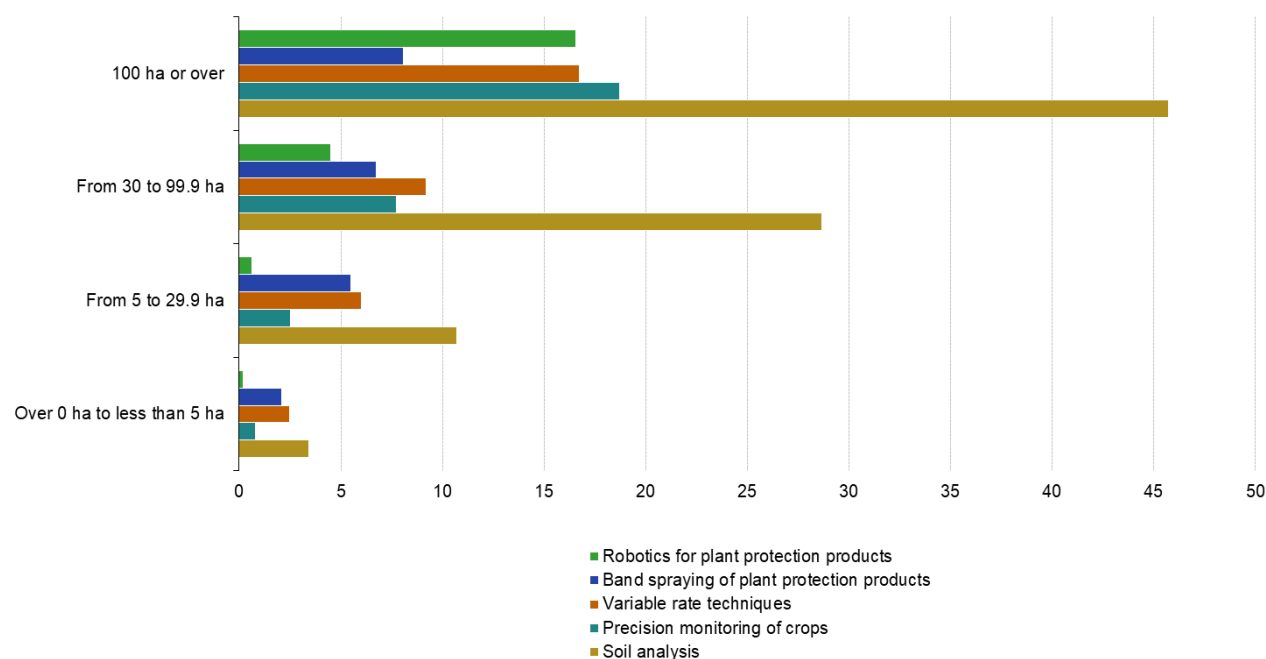
eurostat

Figure 3: Farms with precision farming (%, 2023) Source: Eurostat (ef_mp_digicr)

Only a minority of EU farms with UAA used precision farming technologies or techniques, regardless of size class or the type of technology and practice (Figure 4). However, adoption rates were progressively higher among larger farms, most notably in the use of robotics for plant protection products. In farms with 100 ha or more of UAA, adoption rates varied between about 8% for band spraying of plant protection products and 46% for soil analysis. In stark contrast, precision crop monitoring and the use of robotics for plant protection products were used by less than 1% of farms with less than 5 ha of UAA.

Farms with precision farming according to size of farm

(%, 2023)



Note: Only farms with UAA and above the Regulation physical thresholds included.

Source: Eurostat (online data code: ef_mp_digicr)

eurostat

Figure 4: Farms with precision farming according to size of farm (%, 2023) Source: Eurostat (ef_mp_digicr)

Although only about 18% of EU farms with UAA adopted precision farming technologies or practices, these farms

managed about 44% of the EU's total UAA (see Figure 5). In some EU countries the share of UAA managed by farms using precision farming technologies or techniques was considerably higher than the EU average; in Luxembourg, Finland and Estonia at least three-quarters (75%) of the national UAA was managed in this way. This contrasted with Greece and Cyprus where the share was below 10%.

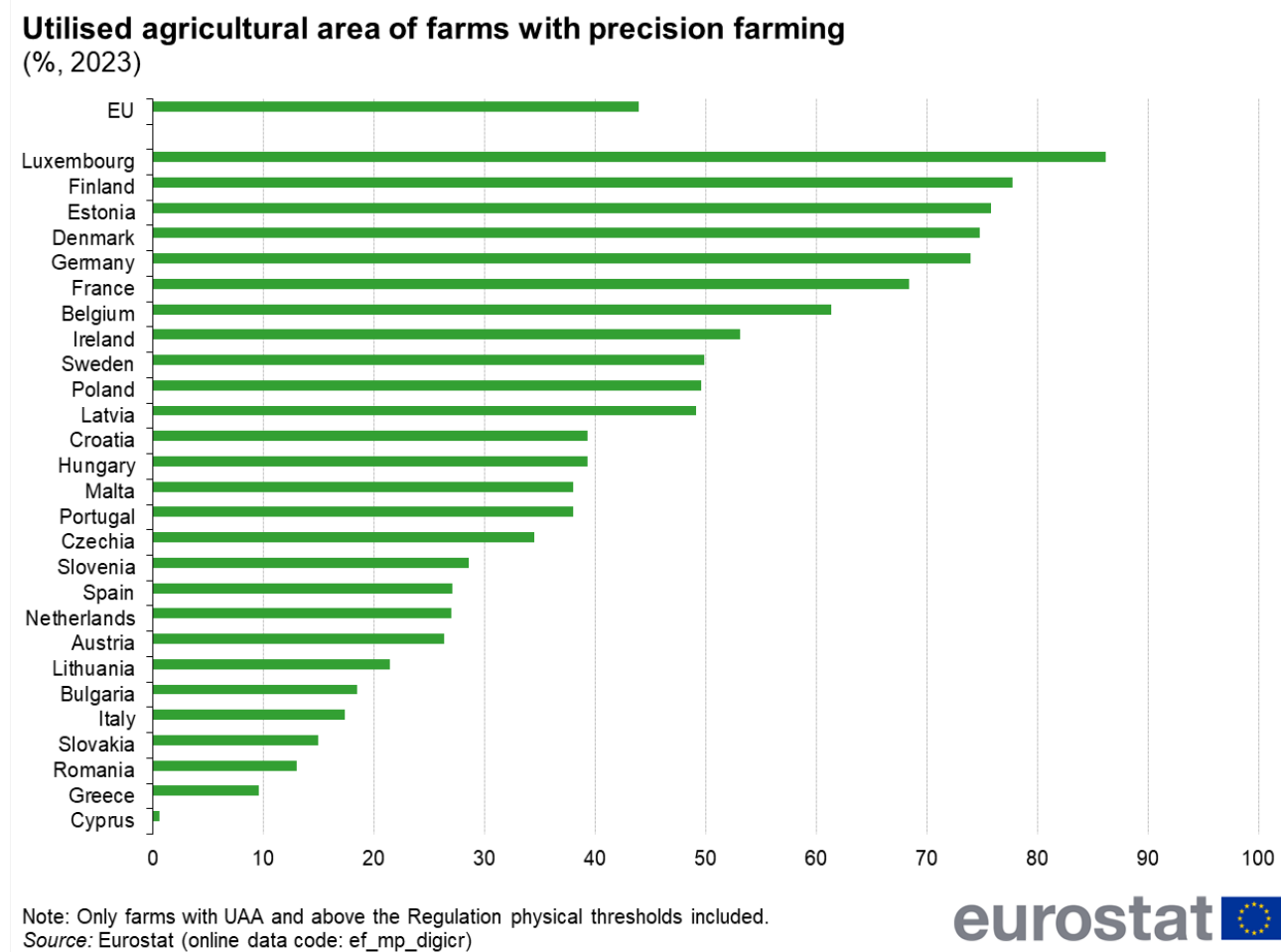
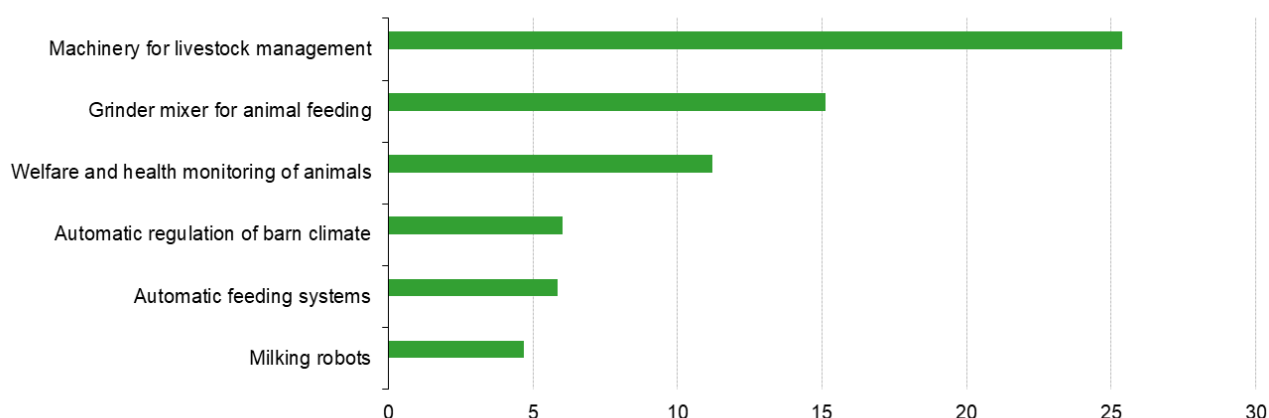


Figure 5: Utilised agricultural area of farms with precision farming (%, 2023) Source: Eurostat (ef_mp_digicr)

Livestock farming technologies Livestock farms use specialised machinery and automated systems to reduce labour, increase productivity, and improve product quality. In 2023, about one quarter (25%) of all farms with livestock used some type of machinery for livestock management, including technologies for the welfare and health monitoring of animals, grinder mixer for animal feeding, automatic feeding systems, technologies for the automatic regulation of barn climate and milking robots (Figure 6). The use of grinder mixer for animal feeding (about 15%) or animal welfare and health monitoring systems (about 11%) were the most prevalent types of machinery or automated systems.

Farms with machinery for livestock management (%, 2023)



Note: Only farms with livestock and above the Regulation physical thresholds included. No data for Ireland.
Source: Eurostat (online data code: ef_mp_digilsk)

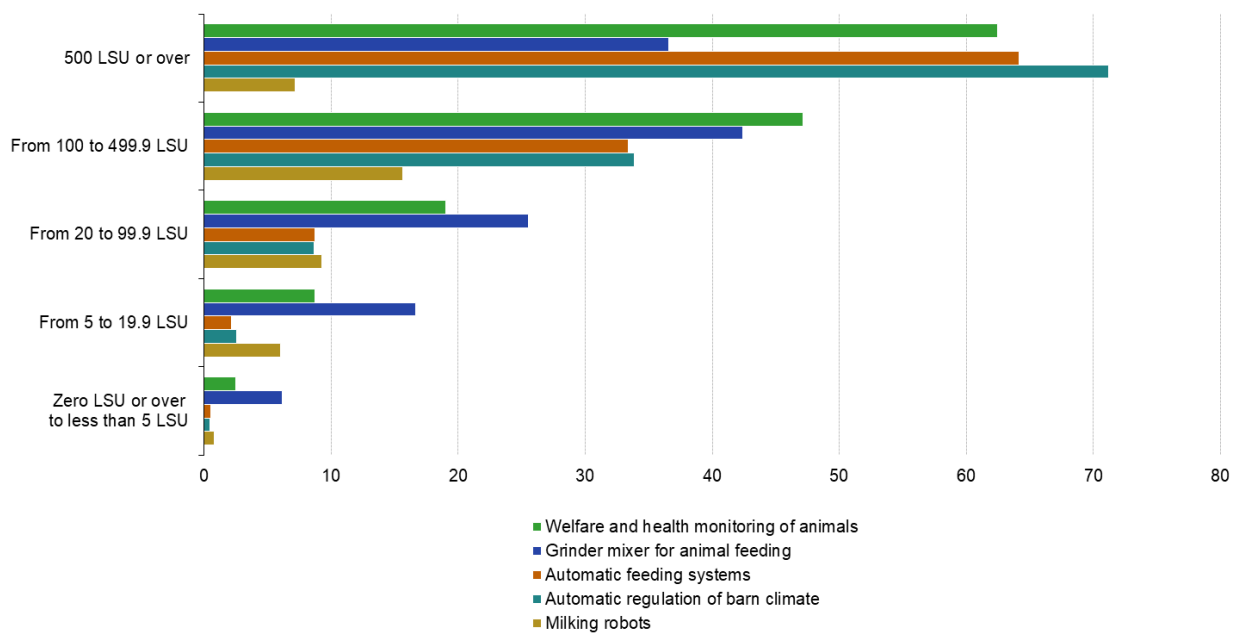
eurostat 

Figure 6: Farms with machinery for livestock management (%, 2023) Source: Eurostat (ef_mp_digilsk)

Adoption rates of precision livestock technologies varied significantly by farm size, measured in livestock units (LSU) (see Figure 7). For most types of livestock machinery, adoption rates increased with farm size. The exceptions were grinder mixers for animal feeding and milking robots for which the adoption rates were higher for mid-to-large-sized farms (100 and 499.9 LSU) than for the largest farms (500 LSU). This pattern mirrors the structure of dairy farms, which tend to be smaller in terms of LSU on average than extensive cattle-rearing and fattening farms and intensive granivore farms.

The use of technologies for the automatic regulation of barn climate was simultaneously the most widespread type of machinery for livestock management among the largest farms with livestock (about 71%) and the least widespread among the smallest (less than 5 LSU; under 1%).

Farms with machinery for livestock management according to size class of LSU (%, 2023)



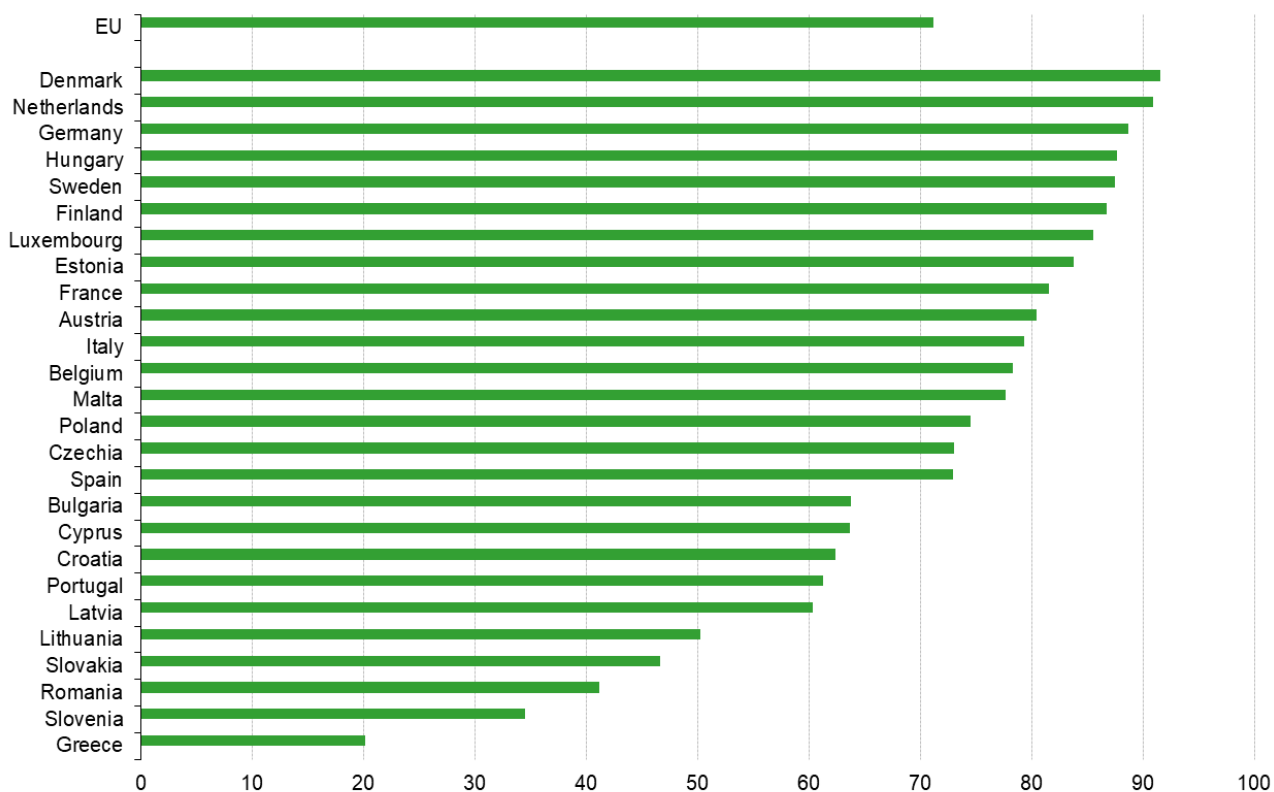
Note: Only farms with livestock and above the Regulation physical thresholds included. No data for Ireland.
Source: Eurostat (online data code: ef_mp_digilsk)

eurostat 

Figure 7: Farms with machinery for livestock management according to size class of LSU (%, 2023) Source: Eurostat (ef_mp_digilsk)

EU farms using machinery for livestock management covered the equivalent of about 71% of all LSU on EU farms (Figure 8). Among EU countries, shares were highest in Denmark and the Netherlands (about 90%) and lowest in Greece (about 20%).

Livestock units of farms with machinery for livestock management (%, 2023)



Note: Only farms with livestock and above the Regulation physical thresholds included. No data for Ireland.
Source: Eurostat (online data code: ef_mp_digilsk)

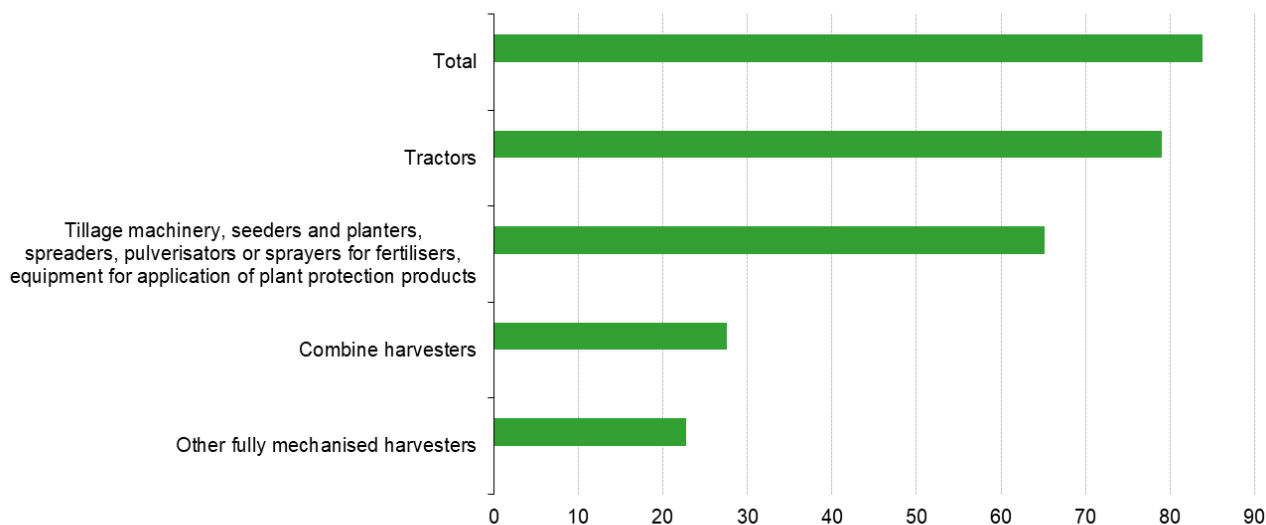
eurostat 

Figure 8: Livestock units of farms with machinery for livestock management (%, 2023) Source: Eurostat (ef_mp_digilsk)

Use of conventional farm machinery in the EU is widespread

In 2023, about 84% of EU farms used conventional machinery (Figure 9), including tractors and machinery for tillage, planting, fertilisation, application of plant protection products and harvesting activities. Of these, tractors were the most common (about 79% of all farms), closely followed by tillage machinery, seeders and planters, spreaders, pulverisators or sprayers for fertilisers, and equipment for application of plant protection products (about 65%).

Farms using conventional machinery (%, 2023)



Note: Only farms above the Regulation physical thresholds included.
Source: Eurostat (online data codes: ef_mp_mach and ef_mp_digi)

eurostat 

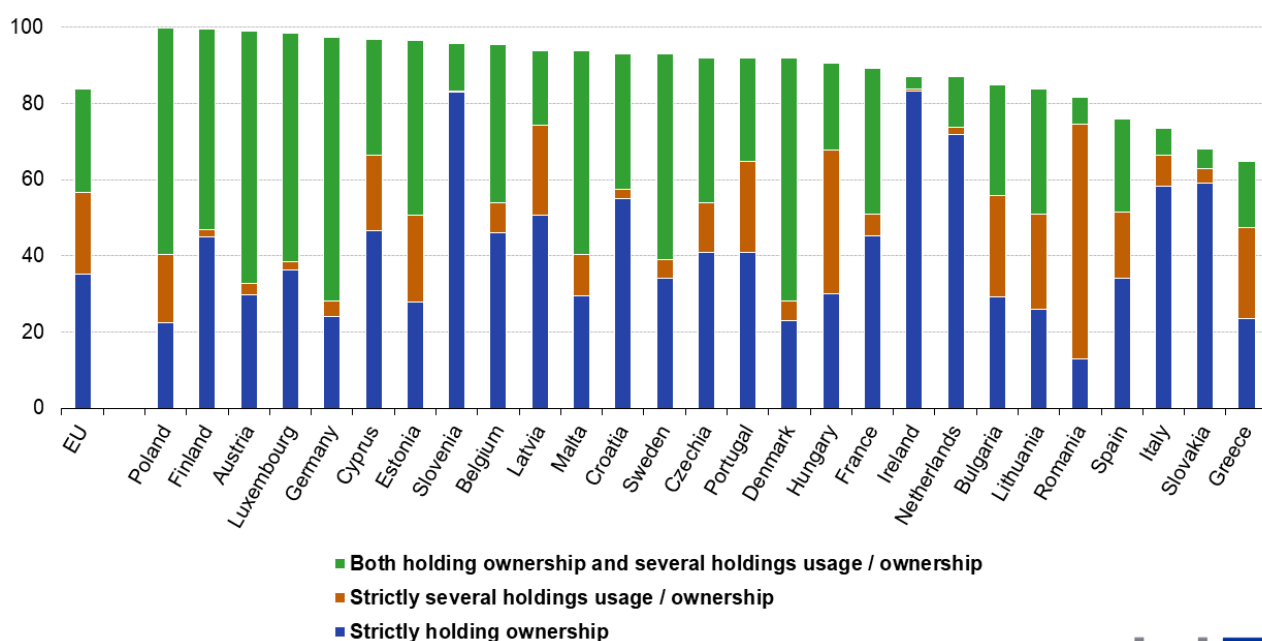
Figure 9: Farms using conventional machinery (%, 2023) Source: Eurostat (ef_mp_mach) and (ef_mp_digi)

In 2023, almost all farms in Poland and Finland used conventional farm machinery (see Figure 10). In Slovakia and Greece, about two-thirds (68% and 65%, respectively) of farms used conventional farm machinery, the lowest shares among EU countries.

The most common machinery ownership model in the EU was sole ownership; just over one third (about 35%) of EU farms owned solely all their conventional machinery. A little over one quarter (about 27 %) of farms used a combination of their own machinery and machinery that was used or owned by several other holdings. This includes shared and rented machinery. Farms that did not own their machinery and only rented or shared from others represented a further one-fifth of farms (about 21%).

Outright (sole) ownership of conventional machinery was particularly common in Ireland and Slovenia (both about 83% of farms). By contrast, farms that relied on sharing and renting conventional machinery from other holdings was typical in Romania and the most common model in Greece and Hungary. The use of machinery of the mixed ownership model was the most common form in Germany, Austria, Denmark and Luxembourg, with this practice being reported in at least 60% of all farms.

Farms using conventional machinery according to ownership status (%, 2023)



Note: Only farms above the Regulation physical thresholds included.

Source: Eurostat (online data codes: ef_mp_mach and ef_mp_digi)

eurostat 

Figure 10: Farms using conventional machinery according to ownership status (%, 2023) Source: Eurostat (ef_mp_mach) and (ef_mp_digi)

Source data for tables and graphs

- [Download Excel file](#)

Data sources

Farm structure data are collected from agricultural censuses every 10 years and from sample surveys every 3 or 4 years in between. Results from the 2023 survey are being published gradually. This analysis includes only agricultural holdings above the physical thresholds set by [Regulation \(EU\) 1091/2018](#) on integrated farm statistics.

Context

Digitalisation is at the centre of the European Commission's priorities and embedded in the framework of the [Common Agricultural Policy \(CAP\)](#), with digital technologies acting as key enablers of innovation, economic performance, resilience, and sustainability at the farm level. The national CAP Strategic Plans support farmers through training, financial incentives, and infrastructure development to bridge the digital divide and shape the future of the sector. Such priorities are also highlighted in the Commission's [Vision for Agriculture and Food](#), which proposes the launch of an EU-wide digital strategy on agriculture.

Digital technologies in agriculture—such as precision farming, robotics, and farm management systems—are key to improving competitiveness, reducing environmental impact, and addressing labour shortages, but their adoption remains uneven across the EU, according to the Joint Research Centre's (JRC) report [The state of digitalisation in EU agriculture: insights from farm surveys \(JRC, 2025\)](#).

According to the report, national and regional differences in the adoption of digital technologies across the EU are shaped by a combination of factors, including the specific structure of the agricultural sector, economic conditions, access to capital and financial support, the quality of infrastructure and the availability of technology. High upfront costs and limited digital skills are considered the primary barriers to wider adoption, with most farmers relying on their own financial resources to invest in new technologies. Digital technologies for livestock production are generally considered the most expensive, followed by crop-specific technologies. Age also plays a role in the adoption of digital technologies, with younger farmers described as more likely to pursue it than older farmers, although the relationship can vary by technology type, digital literacy rate and region. Specialised and targeted digital training is mentioned as a necessary tool to overcome adoption barriers.

View this article online at

http://ec.europa.eu/eurostat/statistics-explained/index.php/Article_name

Explore further

Other articles

- [All Statistics Explained articles on agriculture](#)

Database

Database

- **Detailed datasets**

[Agriculture \(agr\)](#) , see:

Farm structure (ef)

Management and practices (ef_mp)

Internet facilities, robotics, precision farming and machinery for livestock management in farms by economic size of farm, farm type and NUTS 2 region ([ef_mp_digi](#))

Precision farming by age and training of manager, size of farm and NUTS 2 region ([ef_mp_digicr](#))

Machinery for livestock management by age and training of manager, size classes of livestock and NUTS 2 region ([ef_mp_digilsk](#))

Machinery used by agricultural holdings by type of ownership, farm size, farm type and NUTS 2 region ([ef_mp_mach](#))

Thematic section

- [Agriculture](#)

Publications

Publications

- [Key figures on the European food chain - 2025 edition](#)

Methodology

Methodology

- [Principal quality characteristics of EU countries' farm data collections for 2023 - 2026 edition - Statistical reports - Eurostat](#)
- [Integrated farm statistics manual, 2023 survey - 2026 edition - Manuals and guidelines - Eurostat](#)
- [Farm structure \(ef\)](#)

Legislation

- [Regulation \(EU\) 2018/1091](#) of the European Parliament and of the Council of 18 July 2018 on integrated farm statistics
- [Regulation \(EU\) 2021/2269](#) of the European Parliament and of the Council of 15 December 2021 on Union contribution for integrated farm statistics
- [Commission Implementing Regulation \(EU\) 2020/405](#) of 16 March 2020 specifying the arrangements and contents of the quality reports on integrated farm statistics
- [Commission Implementing Regulation \(EU\) 2021/2286](#) of 16 December 2021 on the data to be provided for the reference year 2023

External links

- [Vision for Agriculture and Food](#)
- [Digitalisation of agriculture and rural areas in the EU](#)
- [The state of digitalisation in EU agriculture: insights from farm surveys \(JRC, 2025\)](#)