

Portrait of the EU milk production sector

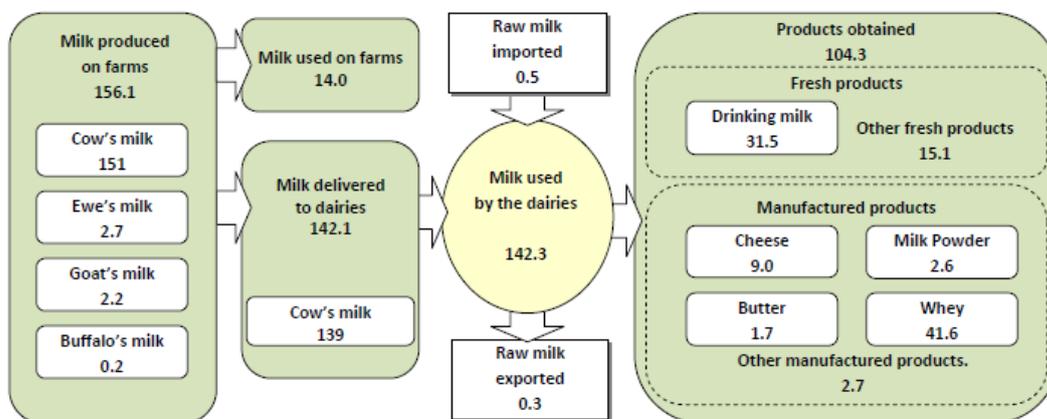
Milk and dairy production statistics

This article focuses on the production of cows' milk and aims to give an overview of selected statistics and indicators in the European Union (EU). Whether consumed as drinking milk or converted into other dairy products, milk produced in the EU was worth EUR 53.1 thousand million and accounted for 14 % of the value of EU agricultural output in 2011.

Main statistical findings

Farm milk production increased by 18 % between 2001 and 2011, to a total of 156 million tonnes. Dairies collected 142 million tonnes, 98 % of which was cows' milk.

The milk sector is highly varied, something which can blur the measured changes. Specialised farms had on national average between 3 and 141 dairy cows. Milk is used either on farms or processed in dairies. The dairies are of various sizes, with just 1.4 % of them processing half the milk collected.



¹⁾ Only the flows of raw milk are displayed, but small quantities of other products were also collected (650 tonnes) or returned (100 tonnes) by the dairies. Changes in stocks are not recorded.

Figure 1: Milk production in the EU-27, 2011 (million tonnes) - Source: Eurostat (apro_mk_pobta) and (apro_mk_farm)

With the quota system (established in 1984) due to expire on 1 April 2015, milk quotas have been gradually increased, and actual milk output has fallen short of the ceilings in most of the Member States.

The milk produced is mostly (91 %) delivered to a dairy or a collection centre but, in Bulgaria and Romania, most of milk produced is used on the farms.

The vast majority of milk produced on EU farms (96.8 %) comes from cows, although in a number of the southern European Member States significant quantities of milk are also produced by sheep, goats and buffaloes.

In Greece less than half of the milk collected in 2011 was cows' milk, and in four further countries (BG, ES, IT and CY) it accounted for less than 95 %. In terms of production (including milk processed or consumed on the farm), Greek production of ewes' milk was at about the same level (40 %) as for cows' milk, while goats' milk accounted for the remaining 20 %.

Five countries (EL, ES, FR, IT and RO) produced about 92 % of the ewes' milk in the EU. Italy is the biggest producer (88 %) of buffaloes' milk in the EU.

This article concentrates, however, on the production of cows' milk and aims to give an overview of selected statistics and indicators in the EU.

Between 2004 and 2009 in the EU-27, cows' milk collection increased from 132 to 133 million tonnes (+0.2 % annual average). In 2011 the volume collected was 139 million tonnes (+2.1 % annual average). Several factors contributed to this increase, such as good weather conditions, increasing quotas and favourable farm-gate milk prices. For all species combined, the changes were similar over the period in question. In 2012 the increase slowed down and, based on the monthly collection of cows' milk, stood at +0.6 % compared with 2011.

In addition to EU indigenous production, the dairies imported 500 000 tonnes of milk from non-member countries in 2011 and exported 280 000 tonnes. Intra-EU exchanges were quite substantial (5.5 million tonnes); the largest milk importer within the EU-27 in 2011 was Italy, with 30 % of total EU milk imports.

In volume, whey is the most important product. Taking the milk used for processing the various products as a basis makes the quantities more comparable. The distinction between used whole and skimmed milk limits double counting (e.g. cream and skimmed milk are drawn from the same milk). The total collection of milk by dairies in the EU-27 amounted to 142.1 million tonnes in 2011. It was mainly used for producing cheese (67 million tonnes of raw milk used), butter and other yellow products (42 million tonnes) and drinking milk (31 million tonnes). The other dairy products (cream, yoghurt, concentrated milk, buttermilk, etc.) used the remaining volume of milk.

Among the Member States, Germany and France recorded the largest quantities of milk collected in 2011, as well as the highest production levels of butter and cheese.

Structure of dairy farms

The total number of [agricultural holdings](#) in the EU-27 decreased steadily (20 %) between 2003 and 2010, resulting in some 12 million agricultural holdings. The number of farms with [livestock](#) (56 % of all agricultural holdings) reported an even stronger decrease of 35 % within the same period, resulting in 6.7 million holdings. In 2010, of the 2.6 million holdings with cattle, 1.7 million had dairy cows, a fall of around a third (32 %) compared to 2007 and a half (47 %) compared to 2003. This downward trend was reported generally in all the Member States between 2007 and 2010, though the sharpest declines were observed in the Czech Republic (45 %), Slovakia (45 %), Slovenia (43 %) and Estonia (42 %).

Based on calculated standard output, the specialist dairying holdings are defined as deriving at least two thirds of their output from dairy activity. In 2010, they reared 76 % of the dairy cows, accounted for 37 % of the farms with dairy cows, and their dairy herd was on average five times larger than on non-specialist holdings. Their number dropped by 20 %, from 795 000 in 2007 to 636 000 in 2010.

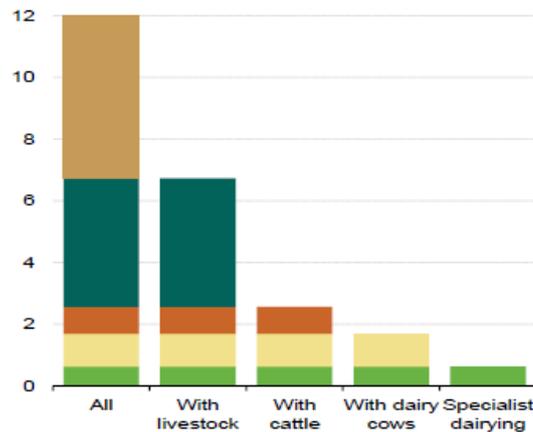


Figure 2: Number of agricultural holdings involved in milk production, EU-27, 2010 (million holdings) - Source: Eurostat (ef_olslsuft)

Although there has been a decline in the number of dairy cows in the EU over recent years, their average number per holding has increased. In 2010, the average EU specialist dairying holding had around 28 dairy cows, which was about 30 % more than in 2007. This number, however, varied considerably among the Member States: while it was high in the countries with optimised milk production (Denmark with 141 dairy cows per holding, followed by the United Kingdom with 122 and Cyprus with 111), the average specialised dairy cow herd had fewer than 15 cows in seven Member States. Of these seven, the most striking figures were recorded in Romania (an average of 3 cows per specialist dairying farm), Bulgaria (5), Lithuania (6) and Latvia (7).

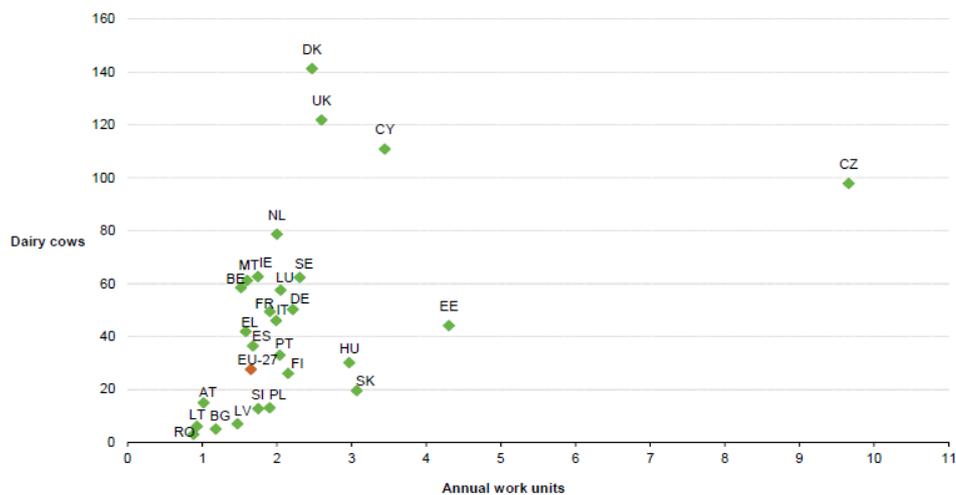


Figure 3: Labour force and dairy cow population per specialist dairying holding, 2010 (average number per holding) - Source: Eurostat (ef_olfftecs) and (ef_olslsuft)

A specialist dairying farm needs more labour on average than other kinds of farm. In the EU-27 in 2010, the average labour force in specialist dairying farms was twice as high (1.63 AWU — [Annual Work Unit](#)) as in other farms (0.81 AWU). In Cyprus it was seven times higher (3.44 vs 0.48 AWU), whereas the Netherlands was the only Member State where specialist dairying employed fewer workers (1.95 AWU) than the average (2.24 AWU). In the Czech Republic, this proportion is close to the EU average, and the large labour force per farm (9.62 AWU) reflects the general structure of farms in the country.

Comparing the detailed national figures, there are three main groups. The first includes mainly countries which have large rural zones with many small farms and where the average number of workers (less than 2 AWU) and dairy cows (less than 20) per specialist dairying holding is very low. Countries in this group include Romania with 0.88 AWU and 3 cows per average specialist dairying holding, followed by Lithuania (0.93 AWU and 6 cows), Bulgaria (1.18 AWU and 5 cows) and Latvia (1.47 AWU and 7 cows).

In the second group (CZ, EE, HU, SK and FI), the labour force (more than 2 AWU) is large compared to the average number of dairy cows per holding. The size of farms in this group is especially important in the Czech Republic (9.66 AWU and 98 cows) and Estonia (4.31 AWU and 44 cows).

The third group includes countries with more specialised work on dairying combined with a significant labour force. This group includes countries such as Cyprus (3.44 AWU and 111 cows), Denmark (2.47 AWU and 141 cows), the United Kingdom (2.60 AWU and 122 cows), the Netherlands (2.00 AWU and 79 cows) and Belgium (1.52 AWU and 58 cows).

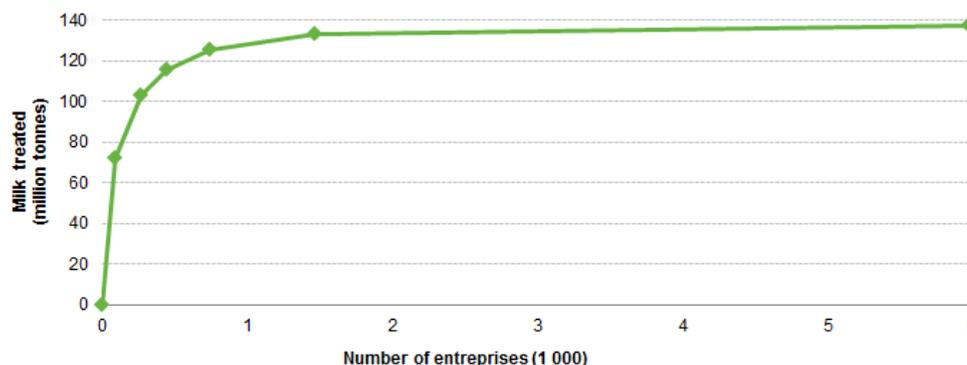


Figure 4: Distribution of milk processed yearly by dairy, EU-27, 2009 - Source: Eurostat (apro_mk_stmt)

The structure of dairy enterprises, including enterprises processing milk, is surveyed every third year. The results show the volume of milk to be growing, with fewer enterprises accounting for a higher share of total production capacity.

In 2009 there were nearly 6 000 milk-processing enterprises in the EU-27, dealing with 137 million tonnes of milk, i.e. 23 000 tonnes per enterprise. But small enterprises were numerous, and 75 % handled less than 5 000 tonnes a year. Small enterprises like these handled only 3.2 % of the total EU-27 cows' milk production, while 53 % was handled by less than 1.4 % of all the EU milk-processing enterprises, each of them having annual milk treatment capacity of more than 300 000 tonnes.

Bovine population

Data on [bovine](#) population categories are gathered in the [livestock survey](#) at least once a year from all the EU Member States (see Data sources and availability).

In 2011, the EU-27 had 86.2 million bovine animals. About half of them (42.7 million) were aged two years or more, and 96 % of them were female. Within this category there were 35 million cows — nearly two thirds of them (22.8 million) dairy cows (representing 27 % of the total bovine population of the EU-27). Of the younger categories, 30 % of all bovine animals (26.1 million) were aged less than one year, only 19 % of which were raised for slaughter. Bovines aged one year accounted for the remaining 20 %.

One out of 200 bovine animals was a buffalo, most of them (90 %) reared in Italy.

The bovine population has been declining in the [EU-27](#) and totalled slightly over 86 million head in 2011, down 3 % compared to 2006, and by 8 % over the past decade. There was a decrease in a great majority of EU countries, with the most remarkable drop over the past decade occurring in Romania (32 %) and Slovakia (25 %). Only in four countries did the bovine population increase (in Greece by 12 %, Portugal 8 %, Cyprus 7 % and the Netherlands 2 %), while in two other countries (Lithuania and Poland) it remained relatively stable over the past decade.

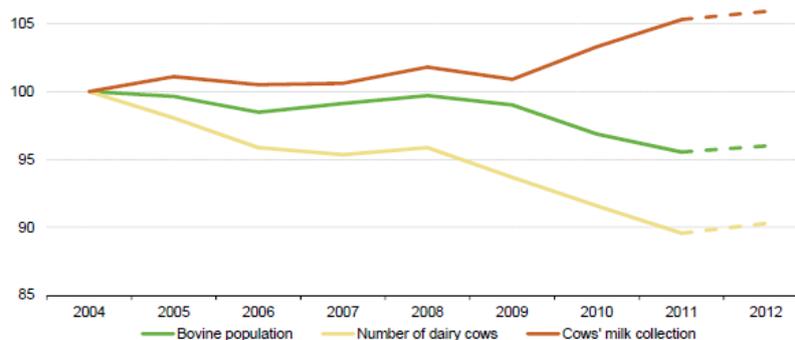
Bovine animals: 86 196		Female	Male
<i>By species</i>			
Buffaloes		394	
	Breeding females	264	
Cattle and hybrids		85 803	
<i>By category</i>			
Aged 2 years and over or having already calved		41 143	1 582
	Breeding females (cows)	35 027 (of which dairy: 22 844)	
	Heifers	6 115	
Aged over 1 year but under 2 years, but having never calved		11 595	5 811
	Heifers		
Less than 1 year: calves and young cattle:			
	Not for slaughter	12 505	8 504
	For slaughter	5 057	

Figure 5: Bovine population, EU-27, 2011 (1000 head) - Source: Eurostat (apro_mt_lscatl)

In 2011, cows represented about 41 % of the live bovine population of the EU, a ratio which had been declining. Small herds with only a few cows had an impact on this ratio (Table 1). About 65 % of them were dairy cows. Both shares reflect the orientation of cattle farming towards meat or milk production. Five countries are around the EU average for the share of dairy cows (59 % to 68 %), whereas seven countries with a lower proportion of dairy cows are focused on meat production. The remaining 15 countries can be identified as 'dairy oriented'. Among them, Bulgaria and Romania are geared to own consumption of milk, with about 60 % of cows.

The number of dairy cows stood at 22.9 million in 2011, having suffered a fall of 4 % over the previous decade. Germany had the highest number of dairy cows, accounting for 18.3 % of the total EU-27 dairy cow population in 2011. The smallest milk producer was Malta with just slightly over 6 000 dairy cows in 2011.

The bovine population has been on a downward trend since 2008, despite a period of relative stability in both 2006 and 2008. While the live bovine population as a whole was down by about 5 % between 2004 and 2011, the population of dairy cows fell by 9 % over the same period. Nevertheless, the provisional results of the 2012 November/December survey show a small reversal of the trend.



2012: provisional results

Figure 6: Changes in the bovine population and milk collection in EU-27, 2004-2012 - Source: Eurostat (apro_mt_lscatl) (apro_mk_pobta) and (apro_mk cola)

	Live bovine population (thousand)			Cow population (% of live bovines)			Dairy cow population (% of total cows)		
	2001	2006	2011	2001	2006	2011	2001	2006	2011
EU-27	93 780	88 846	86 196	41.7	40.9	40.6	68.9	66.6	65.3
BE	2 908	2 607	2 472	39.4	40.5	40.4	53.4	50.3	51.1
BG	641	637	568	58.0	56.7	58.1	96.4	96.9	93.0
CZ	1 520	1 390	1 340	39.2	40.9	41.6	83.2	73.5	67.2
DK	1 840	1 579	1 612	40.8	41.4	42.2	83.6	84.9	85.0
DE	14 227	12 677	12 528	37.1	37.8	38.9	84.8	84.5	86.0
EE	261	245	238	49.7	46.9	46.5	99.4	94.9	86.9
IE	6 408	6 340	5 925	36.0	34.4	35.8	49.7	46.9	49.8
EL	559	683	627	51.5	44.9	43.4	59.7	54.8	47.8
ES	6 411	6 184	5 923	48.0	44.9	44.2	38.4	34.0	30.5
FR	20 320	18 902	19 129	41.4	41.7	40.8	49.9	48.2	46.9
IT	6 933	6 340	5 898	36.4	35.2	36.4	82.4	81.2	81.8
CY	53	56	57	45.7	42.6	42.4	100.0	100.0	100.0
LV	385	377	381	55.0	50.9	48.9	98.8	95.0	88.2
LT	752	839	752	59.3	49.0	48.9	99.1	97.1	95.0
LU	198	186	188	38.3	40.0	39.7	58.0	61.9	59.6
HU	783	702	694	47.0	45.9	47.1	93.8	83.2	76.5
MT	19	19	15	44.2	39.8	42.4	97.6	98.7	98.4
NL	3 842	3 673	3 912	42.6	41.2	41.2	94.8	95.2	93.4
AT	2 119	2 003	1 977	40.4	39.9	39.7	69.9	66.0	67.3
PL	5 499	5 281	5 501	54.4	50.8	46.7	98.0	98.3	95.3
PT	1 404	1 452	1 519	49.1	47.7	45.0	49.0	39.0	35.4
RO	2 800	2 934	1 989	57.8	56.8	59.0	100.0	96.5	98.4
SI	477	454	462	39.5	38.1	36.9	72.0	65.0	63.9
SK	625	508	463	41.5	43.1	43.4	88.9	84.6	76.6
FI	1 019	929	903	37.3	36.4	37.4	92.6	88.2	83.5
SE	1 617	1 516	1 450	36.0	36.4	36.5	73.0	69.7	65.6
UK	10 161	10 335	9 675	38.2	36.0	35.6	56.8	53.9	52.3

Table 1: Dairy cow population, 2001, 2006, 2011 - Source: Eurostat (apro_mt_lscatl) see Country codes

Milk production and output value

The dairy sector is of great importance to EU agriculture in a variety of ways. Dairy production has a diverse structure across the EU Member States in terms of farm and dairy herd sizes, as well as milk yields. The production of cows' milk reflects the importance of the milk sector, and the apparent yield shows its efficiency. In 2011, the EU's main producers were Germany and France; together with four other countries (the UK, the Netherlands, Italy and Poland) they accounted for about 70 % of total EU-27 production. Despite the relatively steep decline in the number of dairy cows between 2001 and 2011 (16 %), the production of milk increased to 151 million tonnes in 2011, two million tonnes more than in 2010, indicating strong growth in milk yields (+18.4 % from 2001 to 2011, i.e. +1.7 % per year).

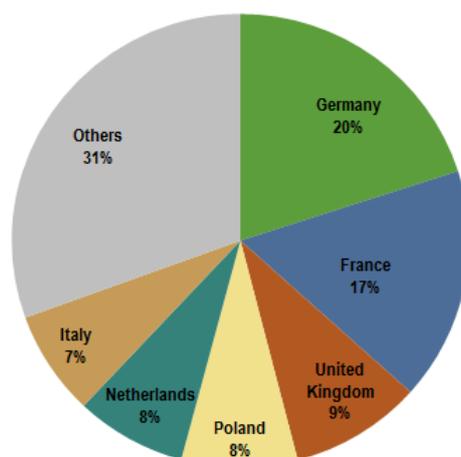


Figure 7: Countries' shares in cows' milk production, EU-27, 2011 - Source: Eurostat (apro_mk_farm)

	EU-27	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV
Cows' milk production (1 000 t)	151 221	3 151	1 126	2 736	4 880	30 301	692	5 556	757	6 488	25 116	11 299	156	842
Number of dairy cows (1 000 heads)	22 602	511	305	374	579	4 188	96	1 036	130	798	3 664	1 519	24	164
Apparent yield (in kg/head)	6 692	6 171	3 670	7 313	8 427	7 232	7 198	5 365	5 823	8 131	6 855	6 438	6 474	5 129
	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
Cows' milk production (1 000 t)	1 782	292	1 712	:	11 851	3 307	12 414	1 919	4 075	602	928	2 301	2 850	14 088
Number of dairy cows (1 000 heads)	350	45	248	6	1 504	527	2 446	242	1 154	109	154	282	348	1 800
Apparent yield (in kg/head)	5 100	6 567	6 850	:	7 879	6 271	5 075	7 928	3 531	5 514	6 024	8 173	8 200	7 827

Table 2: Cows' milk apparent yield, 2011 - Source: Eurostat (apro_mk_farm) and (apro_mt_lscatl)

The average cows' milk yield increased by 20 % within ten years across the EU-27. It was about 6 692 kg per dairy cow in 2011 (5 585 kg in 2001); the range extended from more than 8 000 kg per cow in Denmark, Spain, Finland and Sweden to less than 4 000 kg per cow in Romania and Bulgaria, where the yield was affected by a combination of slower development and smaller herd size.

Looking at the main products made from milk in 2011, we can see that the production of cheese required the highest amount of milk. 67 million tonnes of milk (whole milk, skimmed milk and buttermilk) were used to produce 9 million tonnes of cheese.

	Utilisation of milk		Products obtained
	Total	of which 'whole milk'	
Drinking Milk	31.26	17.56	31.53
Cheese	67.08	52.08	9.02
Milk powder	19.31	4.70	2.60
Butter	3.26	34.48	1.67

Table 3: Utilisation of milk by the dairies and products obtained, EU-27, 2011 (million tonnes) - Source: Eurostat (apro_mk_pobta)

In the same year, 31 million tonnes of raw milk were turned into a similar amount of drinking milk, while a further 19 million tonnes of milk were required to produce 2.6 million tonnes of milk powder.

Butter production required the use of about 35 million tonnes of whole milk, this amount of whole milk generating, at the same time, skimmed milk and buttermilk. This explains why the amount of 'whole milk' used for producing butter was higher than the 'total' amount of milk used. The use of skimmed milk and whole milk reflects the use of the main valuable milk contents, i.e. fat matter and proteins.

Although butter and milk powder might seem to be marginal products in terms of the amounts of products obtained, the importance of the two becomes more apparent when we consider the value of milk used in the production process.

Figure 8 shows the monthly cows' milk collection and illustrates the seasonality of milk production, varying from about 10 % above average (May) to 10 % below (November and February).

The volume collected monthly is compared with the same month of the previous year. Since mid-2012 cows' milk collection has fallen below the level of the previous year.

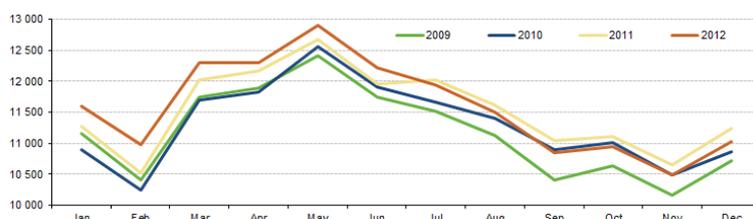


Figure 8: Monthly cows' milk collection, EU-27 (1000 tonnes) - Source: Eurostat (apro_mk_colm)

Figure 9 shows changes in agricultural input and output prices (deflated) over the last six years.

Looking at input prices, the cost of energy (power) has been increasing steadily since 2005. Animal feed-stuffs prices, which have a stronger impact on cows' milk prices, rose between 2006 and 2008, followed by a sharp decline in 2009 and a further significant increase in 2011. The trends in the price of animal output are affected by the pull effect of changes in the price of cows' milk (weighted as 34 % of total animal output). The prices for other types of milk appear less connected to the prices of energy and feedstuffs.

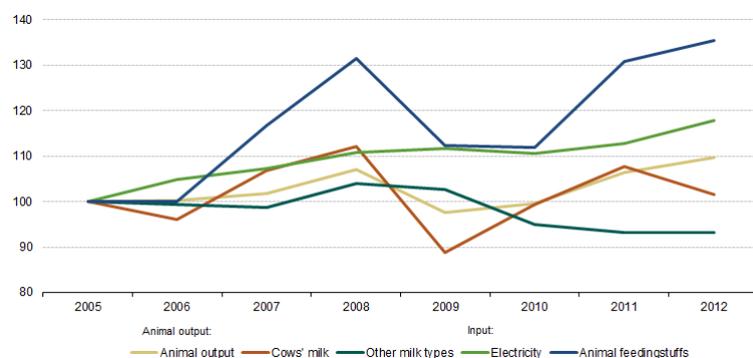


Figure 9: Agricultural output and input prices, EU-27, 2005-2012 (2005=100) - Source: Eurostat (apri_pi05_outa) and (apri_pi05_ina)

The EU is a major player in the world dairy market, especially as the leading exporter of many dairy products, most notably cheese. In 2012, according to the second estimates, nearly 53 % of total EU-27 agricultural output (valued at EUR 390.5 thousand million) concerned crop production, while animals and animal products accounted for 42 %. The remaining 5 % represented agricultural services output. Out of nearly EUR 164 thousand million worth of animals and animal products output, milk and milk products represented a little more than one third, which made milk the EU's single largest agricultural product sector in terms of value, at approximately 13 % of total agricultural output. Animals and animal product values accounted for very similar shares of total agricultural output in 2012 as in 2011. However, despite the 7.7 % increase in the value of animals, milk values fell by almost 3 % in 2012 compared to 2011, mainly due to falling cows' milk prices.

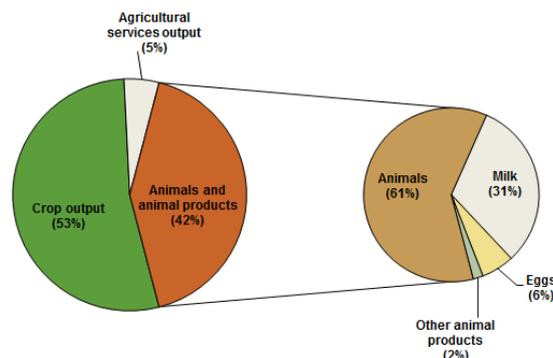


Figure 10: Agricultural output, EU-27, 2011 (%) - Source: Eurostat (aact_eaa01)

Data sources and availability

The Farm Structure Survey, a robust survey with a wide scope : From 2009 onwards, the structure of livestock rearing no longer forms part of an EU survey as such, the data being drawn from the FSS. Although this gives a wider scope (including land use, livestock, [labour force](#) , etc.) and a longer reference period, the results are less informative about the bovine population than the data previously collected through the Livestock Survey. Every third year, the [Farm Structure Survey](#) records data about farm structure, which can be used for describing the structure of animal herds. The legal basis for the FSS is [Regulation 1166/2008](#) .

The Member States collect information on land use, livestock numbers, rural development, management and farm labour input from individual agricultural holdings. Based on the share of virtual value for standard output, activities of the farm (e.g. milk production) are used to classify the type of farming. If the share of standard output from dairy cows and related items is more than two thirds of total farm output, it is classified as 'specialist dairying'.

Milk and milk product statistics : Milk and milk product statistics are collected under [Decision 97/80/EC](#) implementing [Directive 96/16/EC](#) . They cover farm production and the utilisation of milk (annual, by country and NUTS 2 region), collection (monthly for cows' milk) and production activity by dairies (annual) as well as statistics on the structure of dairies (every third year).

Due to the small number of dairy enterprises, national data are often subject to statistical confidentiality. Thus, providing EU-27 results in this context is a challenge.

Milk product quantities : Dairy products are recorded in terms of weight. It is thus difficult to compare the various products (e.g. fresh milk and milk powder). The quantity of whole or skimmed milk used in the processes provides more comparable figures.

In such a system, some quantities of used skimmed milk (USM) may acquire negative values. For instance, production of cream uses whole milk and generates skimmed milk. In such a case, cream is expressed as the quantity of used whole milk (UWM) and a negative quantity of skimmed milk. Whether this skimmed milk is then used by another process or kept as such, it will be expressed as a positive USM. The balance for both is thus zero for USM and the initial quantity of UWM.

Livestock Survey : The livestock survey provides information about the livestock population at the national and regional level twice a year. The data are intended to be more precise than the FSS figures for the above categories. Furthermore, the nomenclature of livestock contains more animal categories. The surveys are conducted in all the EU countries at least once a year (in November/December). The Member States with at least 1.5 million bovine animals conduct a second survey in May/June. The regional data refer to the November/December survey.

Economic Accounts for Agriculture (EAA) : The [EAA](#) is a satellite account of the European System of Accounts ([ESA 1995](#)), providing complementary information and concepts adapted to the particular nature of the agricultural industry. Although their structure very closely matches that of the national accounts, their compilation requires formulating appropriate rules and methods. Agricultural output measures the value of agricultural products (crop and animal products) produced during the accounting period. It includes the value of agricultural services and excludes intra-unit consumption.

Agricultural price statistics : Data collection for agricultural price statistics (agricultural price indices and absolute agricultural prices) is based on a gentlemen's agreement following the methodological descriptions in the Handbook for EU agricultural price statistics.

The main use for absolute agricultural prices is to compare the price level between Member States and to study sales channels. On the other hand, agricultural price indices are used above all in connection with the analysis of price developments and the effect on agricultural income.

Annual work unit (AWU) : One annual work unit (AWU) corresponds to the work performed by one person who is occupied on an agricultural holding on a full-time basis. Full-time means the minimum hours required by the relevant national provisions governing contracts of employment or, if not defined, 1800 hours per year.

Dairy farm : A dairy farm is an agricultural holding producing milk, usually coming from dairy cows, but also

from goats, ewes or buffaloes. Milk may be either processed on-site or taken to a dairy factory for processing. A typical dairy cow herd is fed with grass and maize silage, and cows are intended to calve every 12 months. Feedstuffs are distributed in line with the individual production level of animals. Milking and milk storage equipment are adapted to the herd and to the collection by / delivery to dairies. Production conditions may be limited if milk is used for producing registered IG cheese. Milk production and composition have a seasonal trend depending on the availability of feed and the climate conditions. The highest production is obtained during the spring and summer months.

Symbols :

- '?' not available
- '-' not applicable, real zero or zero by default

Context

This article draws a portrait of a highly varied EU milk production sector (dairy herd size, processing on farms, activity of dairies) and reports on the main changes over the last decade. Milk production per cow increased by 20 % in 10 years.

Further Eurostat information

Database

- [Agriculture](#)

Dedicated section

- [Agriculture](#)

Methodology / Metadata

- [Livestock and meat](#) (ESMS metadata file)
- [Farm structure](#) (ESMS metadata file)

Notes

This article is available on Statistics explained at http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Milk_and_dairy_production_statistics

Manuscript completed on 27.06.2013 - Data from 8.05.2013