

EU milk margin index estimate up to 2020

An overview of estimates of costs of production and gross margin indexes of milk production in the EU

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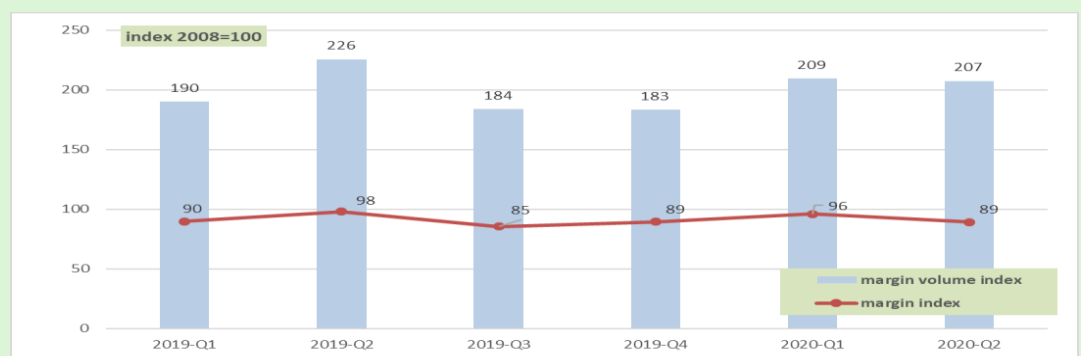
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Annex: Methodology

In the current market and policy context, tracking milk margins is important for policy makers and stakeholders. DG Agriculture and Rural Development has built a tool for the monitoring of milk production costs and margins based on indexes. Margin updates are available on the Milk Market Observatory website.

The milk margin monitoring tool is based on the Farm Accountancy Data Network (FADN) and compensates for the time-lag in data availability by using price-trend information from DG Agriculture and Rural Development and Eurostat. Depending on the availability of data, the tool provides estimates after the end of the reporting quarter (see methodology in Annex).

This brief presents estimates of EU milk production costs and margin indexes (2008=100) up to the second quarter of 2020. Developments in milk production costs per tonne are mainly driven by changes in the cost of purchased feed and energy. The seasonality of milk production also plays a role in quarterly trends: milk yield is higher after calving in the second quarter of the year, which results in lower production costs per tonne.



After recovery from 2015-2016 crisis, milk margin indexes reached the highest in decade level in 2017. The index declined by 17 % in 2018 to the level of 2010 year. In 2019 year, the operating costs increased to the higher extent than the price leading to a slight deterioration in margin. The milk farms seemed to be resilient to Covid-19 crisis. Decline in margin index during lockdown following milk price fall was not significant, cushioned by decline in operating costs. Moreover, increase in volume of milk production in the first half of 2020 led to higher margin volume index than in three quarters of 2019 (see the graph above).

1. Production costs started decreasing in 2020 after three years of increase

A long-term comparison shows an overall increase in EU¹ milk production costs² of 10 % over the period 2008-2019. Between 2008 and 2009 the costs dropped by 10%, mostly driven by lower feed costs, both purchased and home-produced (see Figure 1). Between 2009 and 2014 overall production costs increased by 35 % as feedstuff costs increased by 48 % during that period. From 2014 onwards, milk production costs decreased slightly, as farmers made adjustments in a scenario of falling prices. Between 2015 and 2017 they were by 8-10% lower than in 2014 year. From 2018 the trend changed since some Member States – leaders in the volume of milk production – experienced adverse weather conditions in 2018, causing a shortage in home-produced feedstuffs. Therefore, purchased compounds increased by 10%. In the estimate for 2019 further increase of costs, especially purchased feedstuff is expected, until first quarter of 2020 when they started falling down again.

Figure 2 shows the quarterly index of production costs over the last 2 years (until the second quarter of 2020).

After a decrease of almost 8% in the second quarter of 2019 (a combined effect of lower prices of purchased feed and higher milk production³), production costs went up again until the last quarter of 2019. In the first quarters of 2020 year a slight drop of costs is expected, of almost 4% and almost 1.5% comparing to respective periods of 2019. In all the quarters of both 2019 and 2020, production costs were above the average for 2008-2018.

The methodology applied to estimate costs and margins is explained in the annex.

Figure 1 EU Milk operating costs, trend 2008-2019

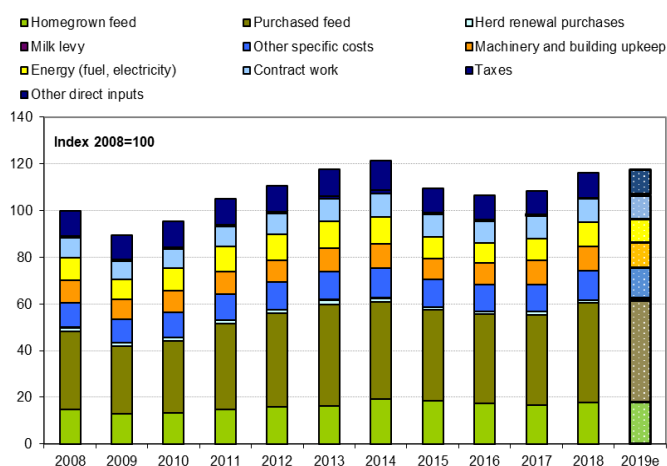
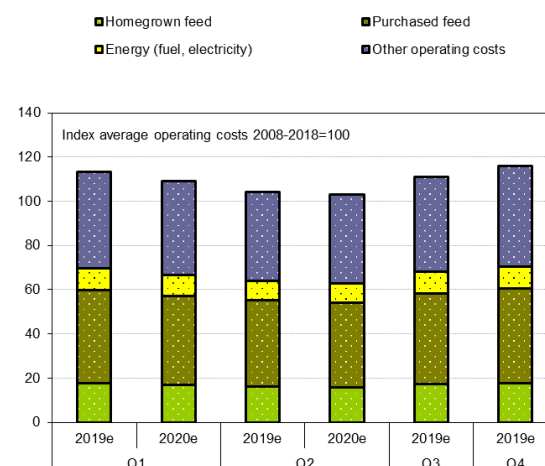


Figure 2 Trend of EU Milk operating costs, quarters in 2019 and 2020



Source: DG AGRI (EU FADN, Model of allocation of costs for milk, Information from market units) and ESTAT price indexes. e: estimate.

¹ "EU" refers to the EU-28 aggregate and EU-27 before Croatia joining in 2013. In this brief, the most recent FADN data are for 2018.

² In this brief, production costs refer to operating costs. They include feed, veterinary costs, upkeep of machinery, energy, contract work, taxes on land and buildings. They do not include depreciation, wages, rent and interests paid, nor opportunity costs for family labour and assets.

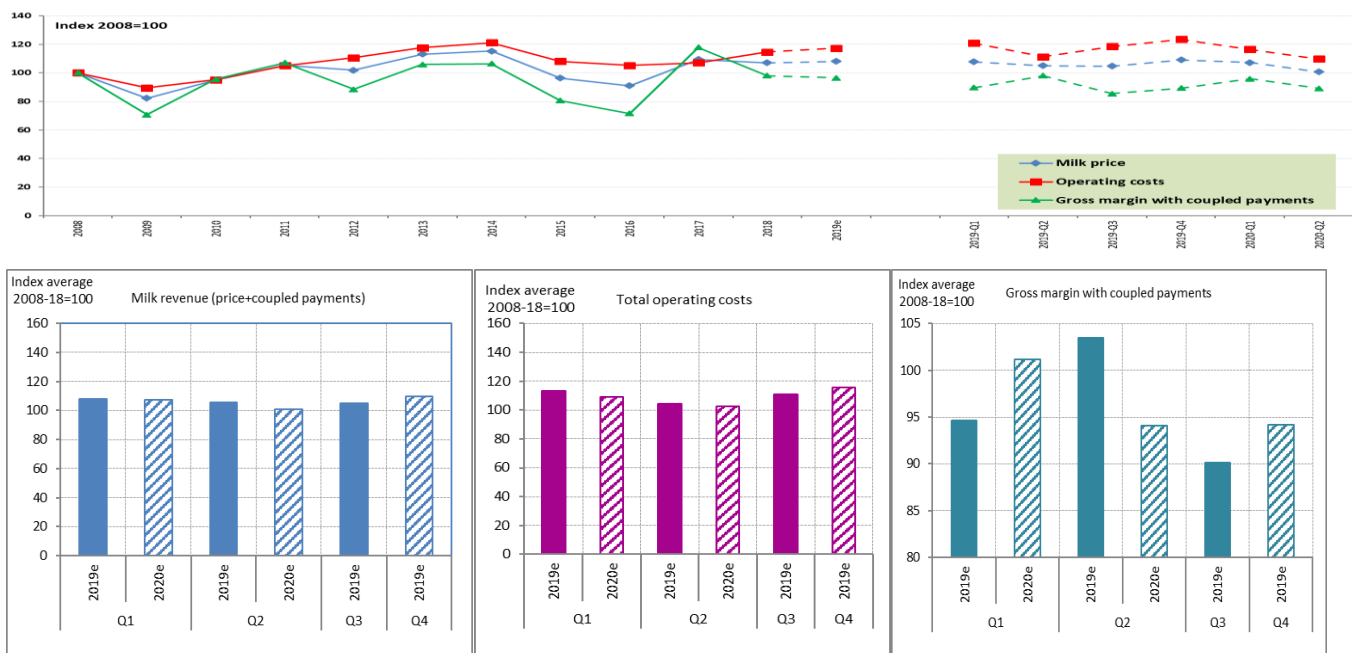
³ The seasonality of milk production plays a role in the development by quarter: milk production is higher in the second quarter and reduces production costs per tonne.

2. Milk margin index: large variability, highest level in 2017 and gradual decline ever since

Specialised milk farms experienced three notable milk price drops over the last decade: in 2009, in 2012 and the last and longest one from 2014 to mid-2016. All of these periods were followed by a milk price recovery. The developments in prices and costs had an impact on the EU milk gross margin index (2008=100) (see Box 1 in the annex), which showed strong variations over the past 10 years, with significant dips in 2009, 2015 and particularly in 2016, when it reached a record low level (Figure 3). This was the result of the milk price deterioration between 2014 and 2016, following the global milk production expansion in 2014 and the weakening of global import demand (notably from China and Russia). The situation on the global market changed again in 2017 due to a decline in milk production and growing demand in dairy fats, mainly butter and cheese. As a result, milk producers saw a steady increase in raw milk prices in 2017 (+20 %) which, combined with a moderate cost increase (+2 %), led to a remarkable annual improvement in the milk margin index (+65 %). The global demand for dairy products was more stable in 2018, compared to its large growth in 2017. Production of raw milk in 2018 was almost +1 % higher than in the previous year.

Shortage of own produced feed stuffs led to +7% increase in overall operating costs which with price decrease (of -2.4%) deteriorated the margin (-17%). The estimate for 2019 shows further increase in operating costs (by more than 2%) due to mainly increase in compound feed stuff along the slight increase in the milk price (by +1%) which altogether led to decline of milk margin by almost 2%. When looking more closely at the development of gross margins during the quarters of 2019 and 2020, it appears that the fluctuations were mainly driven by a variable costs level as milk price changed moderately (Figure 3). Due to good weather and forage conditions milk production increased in the first two quarters of 2020 (+2% comparing to the same period of the previous year), the milk price remained at high level in the first quarter and dropped in the second by 6% driven by increased volume of production and increased domestic and export demands. The costs declined as well but not enough to sustain the level of milk margin from the previous quarter. The milk farms seemed to be resilient to the crisis caused by Covid-19 pandemic as despite dropping margin the margin volume index increased in first half of 2020.

Figure 3. EU indexes for milk price, operating costs and milk margin with coupled payments in 2008-2020 (2019 and 2020 estimates).



Source: DG AGRI (EU FADN, Model of allocation of costs for milk, Information from market units) and ESTAT price indexes, e: estimate.

To obtain reliable estimates of production costs and margins, it is necessary to focus on specialised dairy farms. To qualify as such, a farm has to dedicate more than 40% of its production *potential* to milk production. On top of this main criterion, an *actual* specialisation rate of more than 35% is required. In FADN 2018, 14 397 sample farms fulfilled these criteria and their average milk specialisation rate was 64.8%. The total volume of milk production represented by these FADN farms corresponds to more than 90 % of the total milk production from the FADN field of survey.

Box 4: The estimates for 2019 and 2020

The yield, output, operating costs and gross margins for 2019 and 2020 are estimated based on milk yield indices, milk price indices and detailed input price indices. Specific indices for each Member State are used. In those Member State where the accounting year does not correspond to the calendar year, the underlying data are adjusted using the same methodology (indices) to fit the calendar year. It is assumed that structures (number of cows per farm, input quantities) remain unchanged as compared to the base year 2018. The sources of the indexes used are the following:

- For milk price: DG Agriculture and Rural Development
- For milk yield: EUROSTAT databases, DG Agriculture and Rural Development
- For purchased feed: EUROSTAT databases, DG Agriculture and Rural Development
- For other inputs: EUROSTAT databases (Agricultural prices and price indices).

These estimates are calculated at aggregated level.

Box 5: The quarterly estimates in 2019 and 2020

The estimates of the quarters seek to monitor closely the situation for dairy farmers. The output, operating costs and gross margin for quarters are estimated at aggregate level based on milk yield indexes, milk price indexes and simplified input price indexes for feed, energy, veterinary costs, buildings maintenance, inflation and other costs. The aggregate level and the simplified indexes make it possible to obtain quick results.

For milk price and purchased feed, we use the same source as mentioned above. The milk yield is taken from the Medium Market Observatory (MMO) done by DG Agriculture and Rural Development. For energy, after investigating the available data, we used the EU weighted average of the 'Consumer prices of heating gasoil inclusive of duties and taxes', after having adjusted it to better fit our historical data series.

For the feed, both home-grown and purchased, an index of compound feedstuffs for cattle excluding calves has been applied (the grains are valued at market price in FADN so we find this index the most appropriate to our needs).

The seasonality of milk production is taken into account:

The actual fluctuations of milk production during the year have been applied (average share of milk production by quarter at national level).

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Contact: DG Agriculture and Rural Development, Unit Farm Economics

Tel: +32-2-29 91111 / E-mail: Agri-RICA-Helpdesk@ec.europa.eu

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