



# EU Milk Margin Estimate up to 2016

## An overview of estimates of costs of production and gross margins of milk production in the EU

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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. Margin developments are also 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 information, the tool provides estimates after the end of the reporting quarter (see methodology in Annex).

This brief presents the estimates of EU milk production costs and margins up to the last quarter of 2016. After falling in 2009, milk production costs increased progressively afterwards. The growing costs trend was reversed in 2014 year - after an overall increase by almost 35% between 2009 and 2014 and reaching the peak, the operating costs started slowly decreasing throughout next 2 years. Developments in milk production costs per tonne are mainly driven by changes in the cost of purchased feed and energy as well as farmers' feeding decisions to fluctuations of milk price. 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.

Between 2008 and 2009, the average EU milk margin dropped by 30% due to the milk price fall. It recovered afterwards in spite of rising operating costs, thanks to the increase in milk prices, but 2015 and 2016 were characterised by a drop in milk prices with a consequent and sharp deterioration of milk margins. In 2016 the EU average milk margin was at very low level, by 10% lower than in 2009 crisis year, despite the lowest in the last five years costs of production, but still much higher than in 2008-2011. The recent years show variations from one to another, and even from quarter to quarter.

EU Farm Economics Briefs are available on the FADN website:  
[https://ec.europa.eu/agriculture/rural-area-economics/briefs\\_en](https://ec.europa.eu/agriculture/rural-area-economics/briefs_en)

## 1. Production costs slowly go down as the milk price drops

EU<sup>1</sup> milk production costs<sup>2</sup> per tonne dropped by 10% between 2008 and 2009, mostly driven by feed cost decrease, both purchased and home-produced (Figure 1). They have been increasing since then: +7% between 2009 and 2010, +11% between 2010 and 2011 and +5% between 2011 and 2012, +6% between 2012 and 2013, and by 3% between 2013 and 2014 reaching an overall increase of more than 21% since 2008. From 2014 milk production costs started slightly decreasing (see Figure 1), as the milk price dropped. In 2015 they declined by 8% year on year and in 2016 by another 3%, coming back to their level from before 5 years. The main factor influencing the change was feed cost, in particular purchased, which in 2016 went down by 4% comparing to the previous year and by 15% during the last 3 years period. Comparing to 2008 year, in 2016 milk costs were higher by almost 8%.

**Figure 1 EU Milk operating costs evolution 2008-2016**

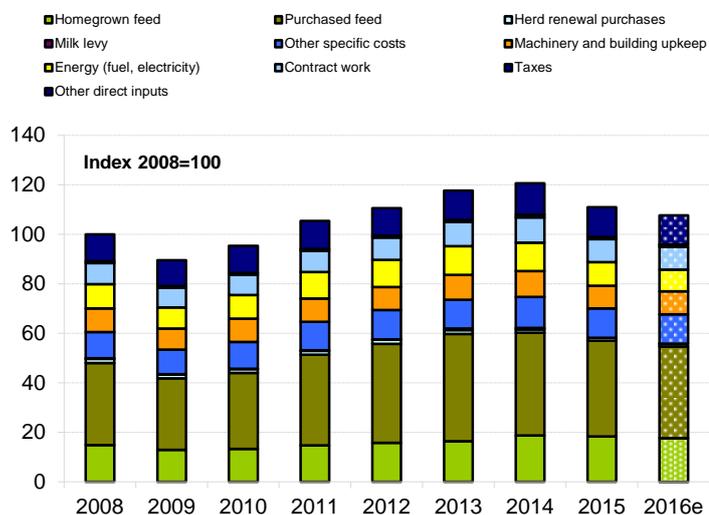
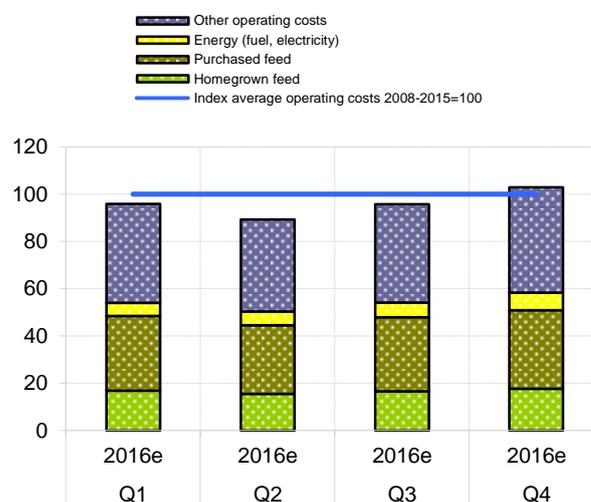


Figure 2 shows the quarterly trends in the last year.

After a decrease of almost 7% in the second quarter of 2016, due to mostly a decrease in the price of purchased feed and thanks to higher milk production<sup>3</sup>, milk operating costs were increasing since then again until the last quarter of 2016. In the first 3 quarters of 2016 milk production costs level was below its preceding 8 years average, going slightly above that index only at the end of the year. All costs items started growing in the fourth quarter, especially energy costs, as an outcome of milk price recovery.

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

**Figure 2 Evolution of EU Milk operating costs quarters in 2016**



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

<sup>1</sup> "EU" refers to the EU-28 aggregate and EU-27 before Croatia joining in 2013. In this brief, the most recent FADN data are from 2015.

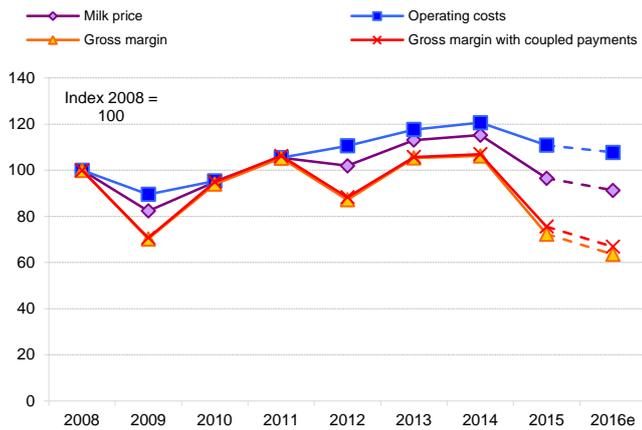
<sup>2</sup> In this brief, production costs refer to operating costs. They include feed, veterinary costs, upkeep of machinery, energy, contract work, taxes on land and buildings. They do not include depreciation, wages, rent and interests paid, nor opportunity costs for family labour and assets.

<sup>3</sup> The seasonality of milk production plays a role in the development by quarter: milk production is higher in the second quarter and makes production costs per tonne lower.

## 2. Gross margins: a lot of instability and a record low level in third quarter of 2016

Concerning developments in dairy gross margins, years 2010 to 2014 were characterised by an increase in costs of production. After the dramatic drop of 2009, milk prices were generally trending upwards until 2014, but with a clear decline afterwards. These developments in prices and costs had an impact in the EU milk gross margin (see Box 1 in Annex), which has experienced many variations over the past eight years, with significant lows in 2009 and in the last two years - 2015 and particularly in 2016 - reaching record low level (Figure 3). The recent market turmoil can be seen as an aftermath of dairy herd and milk production increase linked to high milk price in 2014, together with a decline in global import demand (notably from China and Russia).

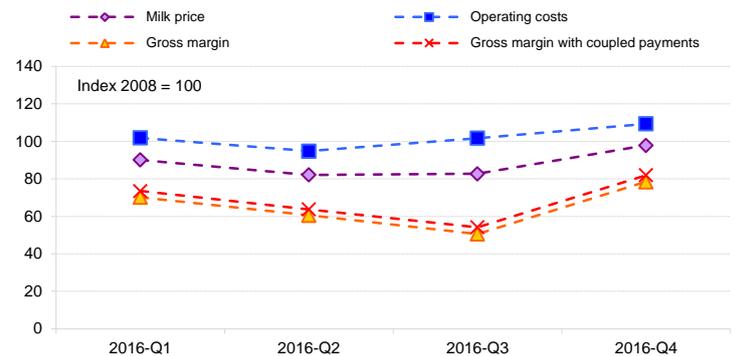
**Figure 3 EU Milk price, operating costs and margin per tonne, annual data 2008-2016**



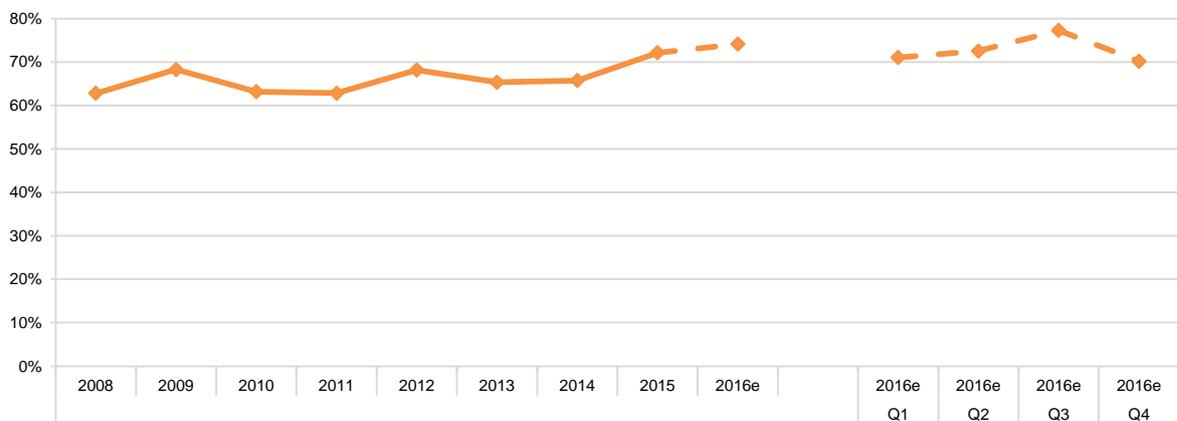
When looking more closely at the development of gross margin during the quarters of 2016, it appears that the decline is mainly driven by the fall and rise in milk prices (Figure 4). Declining milk prices and variations in operating costs triggered a decrease in gross margin. In first 3 quarters gross margin continued decreasing, reaching its lowest level since the start of monitoring tool at barely 50% of 2008 value. In the last quarter 2016, the gross margin went up by 55% comparing to the previous period, despite raising operating costs, as an evident effect of milk price recovery.

Milk operating costs to price ratio is presented on Figure 5. In 2008-2014 total operating costs were at the level of 63-68% of milk price. Then, the ratio increased in 2 recent years reaching maximum level of 74% in 2016.

**Figure 4 EU Milk price, operating costs and margin per tonne, quarterly data 2016 (estimates)**



**Figure 5 Ratio of milk operating costs to milk price in 2008-2016 and quarters of 2016**



Source: DG AGRI (EU FADN, Model of allocation of costs for milk, Information from market units) and ESTAT price indices, 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 2015, 14 875 sample farms fulfilled these criteria and their average milk specialisation rate was 65,6%. The total volume of milk production represented by these FADN farms corresponds to 90 % of the total milk production from FADN field of survey.

#### **Box 4: The estimates for 2016 year**

The yield, output, operating costs and gross margin for 2016 year are estimated on the basis of milk yield indices, milk price indices and detailed input price indices. Specific indices for each Member State are used. In the 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 (which is not the case in the EU dairy farms report). It is assumed that structures (number of cows per farm, input quantities) remain unchanged as compared to the base year 2015. The sources of the indices 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 2016**

The estimates of the quarters seek to closely monitor the situation for dairy farmers. The output, operating costs and gross margin for quarters are estimated at aggregate level (EU groups and Member State level) on the basis of milk yield indices, milk price indices and simplified input price indices for feed and energy. The aggregate level and the simplified indices 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 Term Outlook 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 to the grain part of the feed, purchased feed index has been applied (the grains are valued at market price in FADN so that is the best index).

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).

This document does not necessarily represent the official views of the European Commission

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