



Brussels, December 2019

EU CEREAL FARMS OVERVIEW - 2017 -

Summary

This report gives a general overview of the production costs, margins and incomes of EU farms specialised in cereal production. It is based on the latest available data from the farm accountancy data network (FADN), a rich source of information coming from a selected group of farms, whose real accounting information is directly collected each year in all 28 Member States.

The report tracks the general trends from 2008 to 2017 from data reported by EU producers of common wheat, durum wheat, grain maize and barley. It also provides detailed information, including charts and tables with a breakdown by Member State. Gross margins for 2018 are estimated, based on a projection calculated using a range of indices from other sources.

In 2017, average EU income in cereal farms stood at €18.4 thousand by Annual Working Unit (AWU), an increase of 14% from 2016 (and 43% from its low in 2009). This increase was driven by higher cereal prices and lower costs.

Viewed in a longer perspective, margins made by EU cereal producers have broadly stabilised since the significant drop after the 2009 crisis. The latter had a significant impact that led to a fall in profitability for all the four crops detailed in this report. In the aftermath of the crisis, productivity declines ranged from 27% for maize (from €384 to €280/ha) up to 92% for barley (from €241 to only €19/ha), with durum and soft wheat productivity falling by 40% from €276 and by 54% from €304/ha respectively.

Immediately after the 2009 crisis, cereal production in the EU recovered swiftly (thanks also to rising grain prices) and margins continued to rise to even higher levels than before the crisis. The recovery was especially strong for maize grain production, which recorded a rise up to €680/ha in 2011, but more modest for barley production, which arrived only to €215/ha.

Yet in 2013, production margins for all four crops fell again by between 21% and 35% compounded by further dips in years 2014 to 2016.

Projections for 2018 are showing slight rise in productivity for both soft wheat and barley production, and a slight drop for maize and durum wheat.

The operating costs of production the four types of grain over the period 2008-2018 differ both in terms of volume or area. Taking as reference the total cost of production per tonne the trend over the period has been rather stable. However when measured by hectare operating costs fluctuate more significantly. For instance those costs range between €352 and €523/ha for barley; €819 to €910/ha for maize; €537 to €738/ha for common wheat and €516 to €686/ha for durum wheat.

Taking farm net value added (FNVA) per annual working unit (AWU) as the main income indicator, the impact of the 2009 crisis is clear. Farm net value fell from €20,221 to €12,873/AWU between 2008 and 2009. Its recovery in the following 3 years (2010-2012), resulting in net increase of FNVA as compared to the 2008 figures but was short-lived. FNVA fell again considerably in 2013 back to just below 2008 figures, and remained low until 2017.

In fact, since 2013, the value of total cereal farm output has remained systematically below the value of total input, the only factor producing a positive economic outcome being the receipt of subsidies under the EU's common agricultural policy.

The countries and regions that achieved a higher value added for producers (above €40,000/AWU, in terms of FNVA) are mainly located in east and north Germany, England, Ireland, and southern Sweden and Denmark.

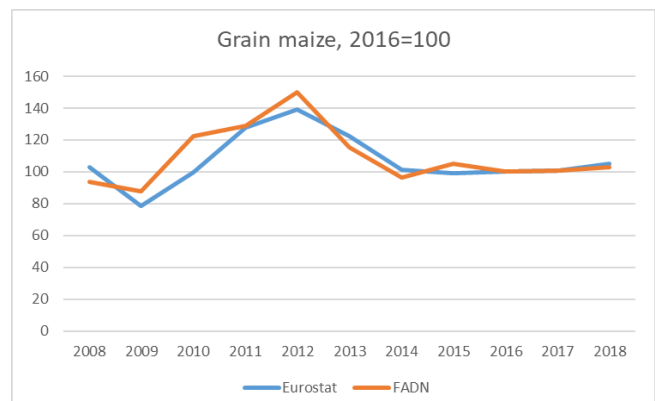
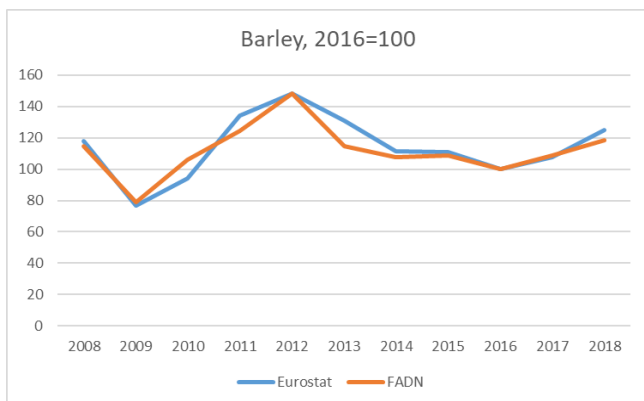
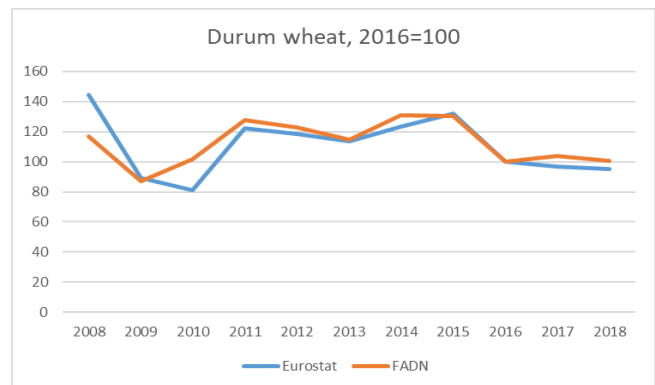
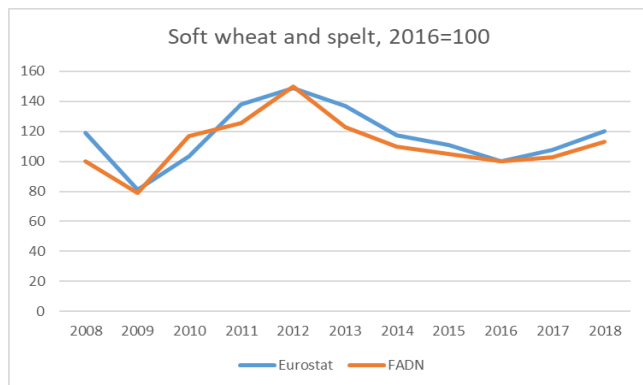
For the other main producers, there are significant differences between regions. Some producers located in regions in Portugal, Spain or France recorded medium-high levels of value added ($€30,000 < €40,000$), but others, also located in France, Italy, Poland, Finland and Spain, recorded much lower income (below €20,000 or even €10,000).

1. INTRODUCTION

The report estimates margins in cereal production and provides indicators of the income of farms specialised in cereal production in EU Member States. Specialised farms are those that have at least 40% of their standard output (SO) from the specific crop. For income, specialist cereal farms are those that generate at least 2/3 of their farm output (economic value) from cereal production.

Gross margins, net margins, and net economic margins are calculated and presented in the tables. The income chapter takes into account all factors influencing economic activities in farms specialising in the production of cereals, such as farm net value added (FNVA), farm net income (FNI) and remuneration of family labour (RFL). The analysis covers data from the accounting years 2008 to 2017. The tables show gross margins, net margins and net economic margins by crop and by Member State. Gross margins are estimated for 2018. The calculations are based on data collected in the EU’s FADN database, with external indicators used to provide the 2018 estimates.

CHART 1: CEREAL PRICES EVOLUTION



* Index of prices. Base year 2016

For FADN data, the figures for 2018 are estimates

The European Union is one of the world’s biggest cereal producers. Cereal crops account for close to one third of total EU agricultural land use. Most cereal production is used for animal

feed, with only a third grown for human consumption. Cereal production for biofuels is growing, though it still accounts for a small percentage of total land use.

Over the last 10 years, cereal prices in the EU have closely tracked the trends in prices on global markets. Generally speaking, global cereal markets have seen an abundance of supply and a slower rise in demand.

Over the 2008-2018 period, cereal prices peaked first between 2011 and 2012 (after a serious drought in Russia in 2010) and then in 2013 (following a drought in the US in 2012). At the end of 2013, prices fell again and stayed relatively low until 2018, fluctuating between about 10 to 20%. Over the 2008-2018 period, cereal prices in the EU hit their lowest level in 2016. After an extended period of low prices, in mid-2018 prices rallied due to a serious drought in large parts of Europe in the spring and summer of 2018.

2. COST OF PRODUCTION

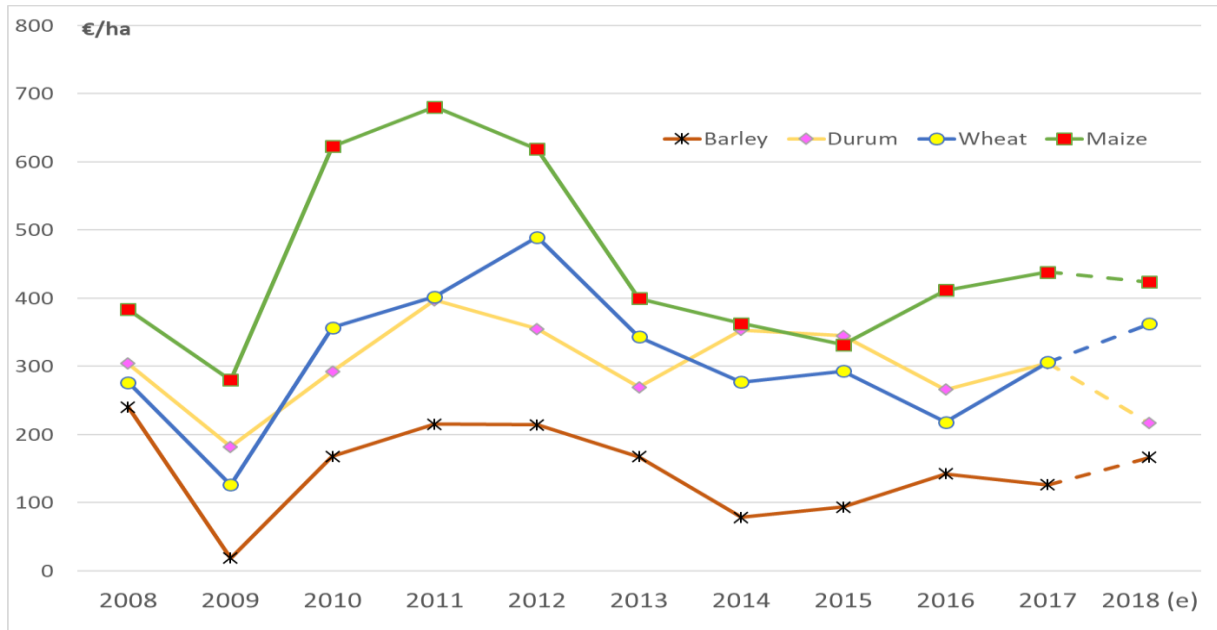
This section provides **an overview of the production costs, margins and incomes of EU farms specialised in cereal production** based on the latest available data (up to 2017) from the farm accountancy data network. It tracks the trends from 2008 to 2017 for EU producers of common wheat, durum wheat, grain maize and barley. It also provides estimates for 2018, based on 2017 projections. More detail is given in the tables with a breakdown by Member State.

The **gross margin** made by EU cereal producers is calculated as the sum of output minus operating costs (seed, plant protection products, water, fuels, machinery, contract work, etc.).

Gross margin is illustrated in the graph below excluding coupled payments to the cereals, with both values given in the tables annexed.

Decoupled payments on the contrary are not allocated by definition to specific products. They are taken into account on the basis of broader income indicators.

Allocating costs to cereal-producing farms. The FADN calculates costs for the farm as a whole, not by 'enterprise' (specific economic activity). In order to estimate cereal production costs and margins, a portion of the farm costs must be allocated to cereal production. For this purpose, the EU's FADN unit has created a number of models that allocate farm costs according to different ratios for different crops.

CHART 2: AVERAGE GROSS MARGINS IN CEREAL PRODUCTION (EU28)

For all four cereal crops, the margins generated over the period 2008-2018¹ differ depending upon whether they are calculated by tonnes of grain, or by hectare. Margins by hectare fluctuate from 10% to 45% for barley production (EU average), as shown in chart 2 above. By contrast, margins calculated by tonne of grain produced minus the total production costs show a near-steady trend over the same period. A breakdown by country is given in the annexed tables.

The chart clearly shows that maize is the most profitable cereal in the EU, and barley is the least profitable, year after year. The margins for common and durum wheat shift over four-year periods.

¹ Year 2018 is an estimate, as previously explained.

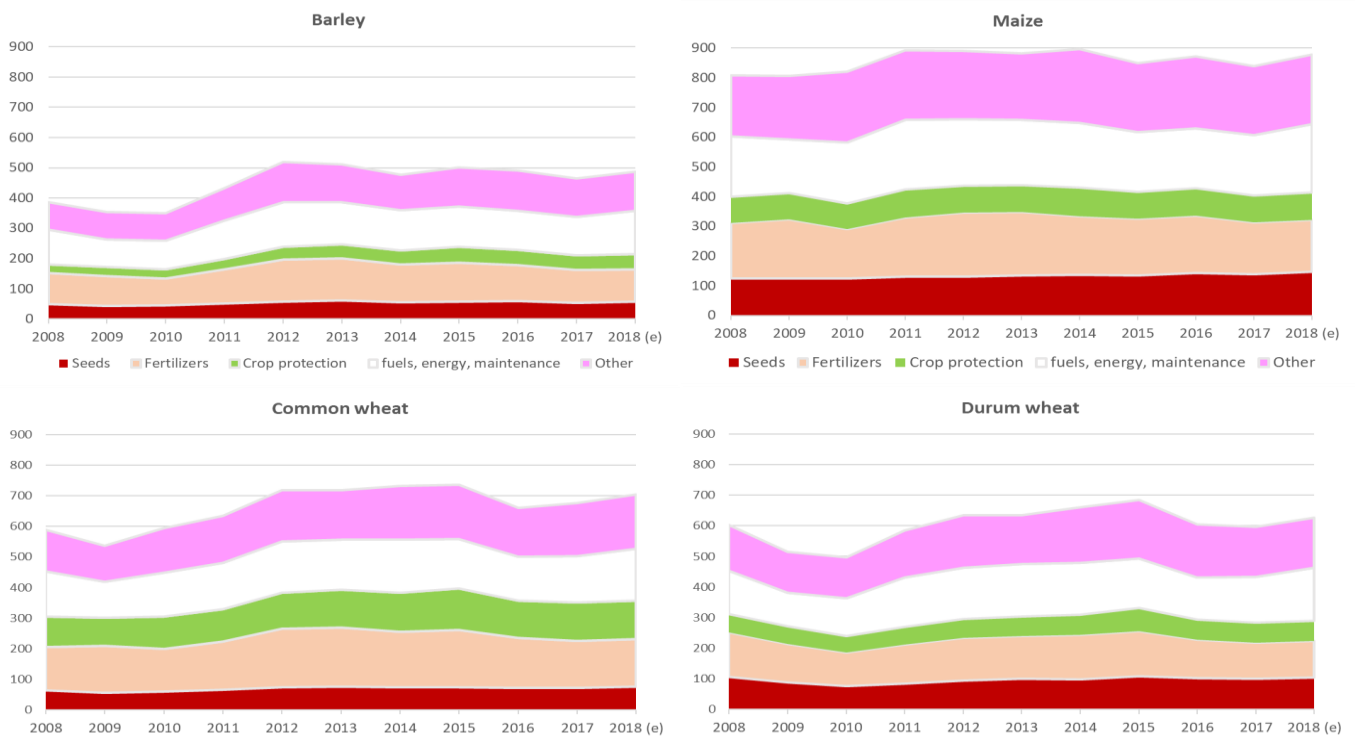
CHART 3: OPERATING COSTS OF PRODUCTION, EU-28 (€/HA)

Chart 3 above shows the average operating costs² per hectare for the EU, and Chart 4 (part a and b) overleaf illustrate the operating costs by Member States in 2017 (all four cereals).

The main cost headings shown in this charts are seed, fertilisers, crop protection inputs, and machinery/infrastructure-related expenditure. The annexed tables giving the margins by country give greater detail on the cost categories.

The data shows that maize production has the higher costs at all levels, except for crop protection, which is proportionally higher for common wheat production than for the three other crops. The fact that maize has a notably higher margin of benefits, despite higher production costs, clearly shows the higher level of revenue generated by maize production.

The EU average total operating cost per hectare (next graph) is €635/ha. There appear to be broadly two big clusters of countries with average cost levels: countries with ‘medium average costs’, such as Hungary, Croatia or the Baltic region (around or slightly above €500/ha), and countries with a ‘higher average cost’ around €800/ha, where many of them are located. At the extremes, Spain and Romania have the lowest rates in the EU (below €400/ha), and Portugal has the highest figure (€1,200/ha). The main difference between these two neighbouring countries with similar weather conditions stems from the fact that Portugal has geared its production towards maize, a more cost-intensive crop (almost one third of its cereal area

² Operating costs include seed, fertilisers, crop protection, water, other specific costs, motor fuels and lubricants, machines and buildings upkeep, energy, contract work and other costs. They do not include depreciation, wages, rent and interests paid, nor opportunity costs for family labour and assets.

according to FSS 2016 data), whereas Spain has increased the area under soft wheat production.

The cost heading ‘other costs’ includes costs for contract work, water for irrigation, agricultural insurance, taxes and other specific crop-related costs such as soil analysis, purchase of standing crops, costs incurred in the market preparation, marketing and storage.

The share of the costs related to contract work is worth a particular mention (see Chart 4), and a look at how this cost varies across Europe. In a country like Belgium, contract work can account for around 25% of the total costs, but in Lithuania it drops to approximately 3%.

CHART 4: CEREAL FARM OPERATING COSTS BY MEMBER STATE IN 2017

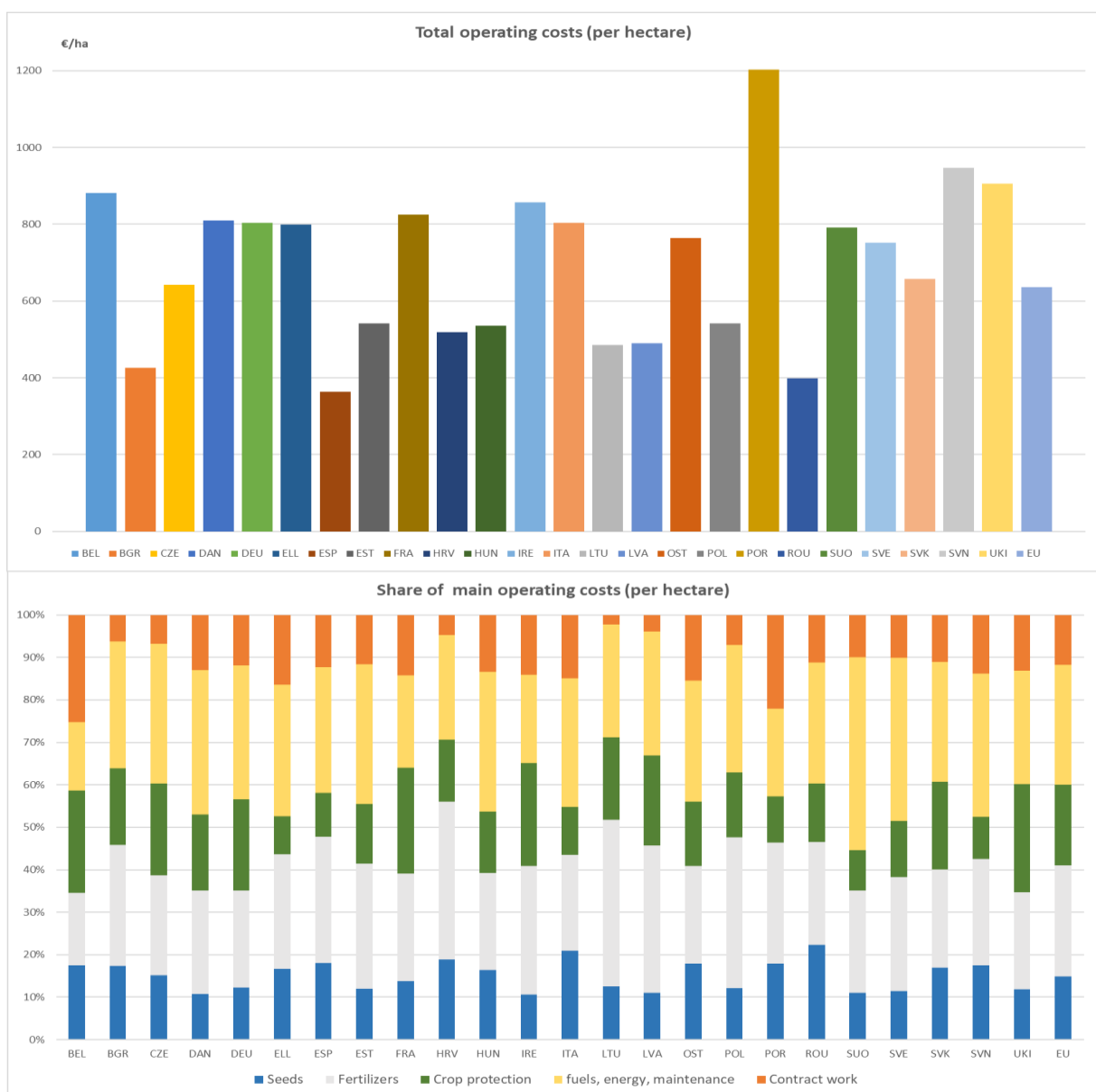
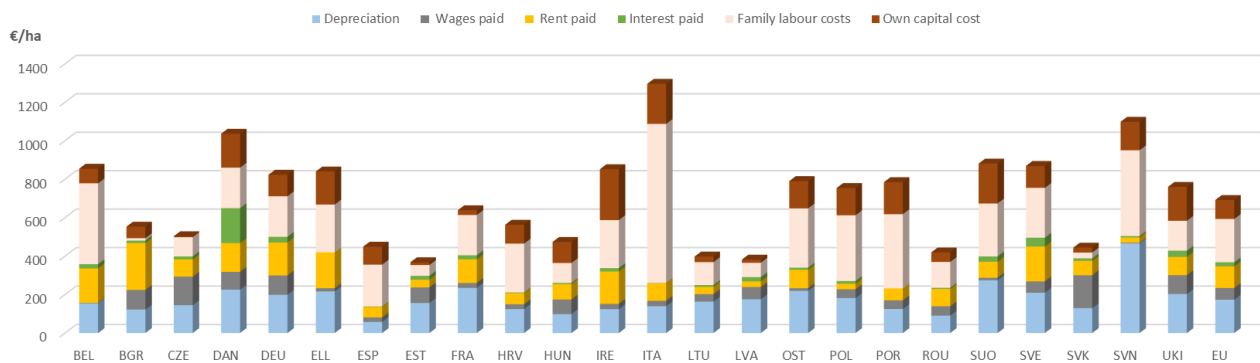


CHART 5: CEREAL FARM EXTERNAL FACTORS AND NON-OPERATING COSTS BY MEMBER STATE IN 2017



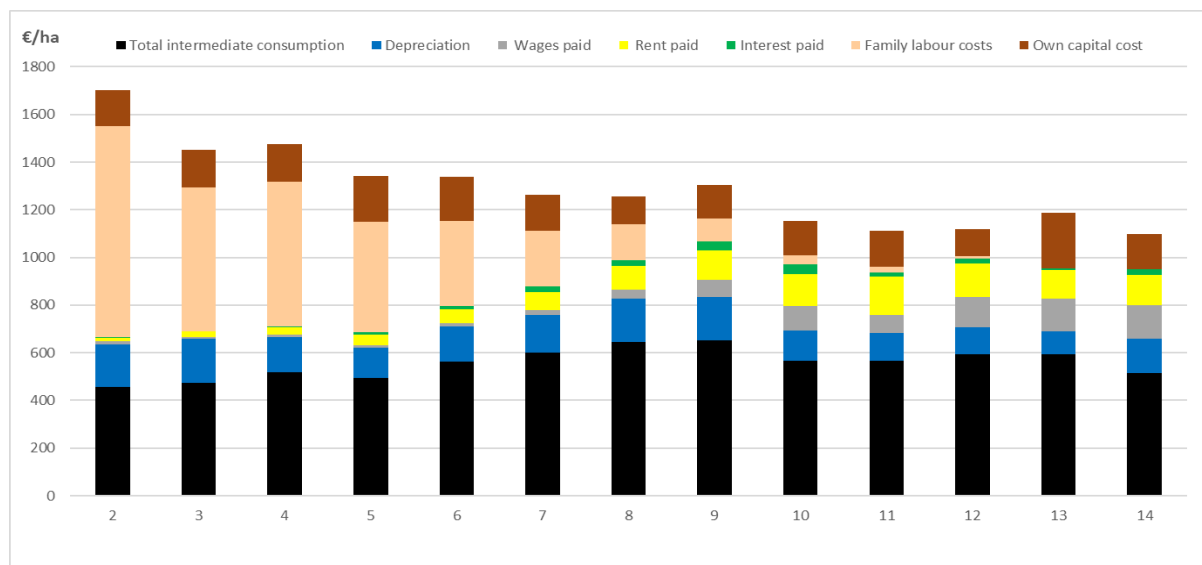
As regards ‘other costs’, chart 5 gives an overview of the costs incurred by cereal farms in 2017 by Member State.

External factors tend to be components of the cost structure that are very closely linked to the national and regional economy where the farm is located. Furthermore, depending on the market focus of the holding, the difference in cost per hectare could be relevant.

The data in the annexed tables show that, at EU level from 2008 to 2015, depreciation costs rose by almost 33% and external factors (wages, rents, interest payments) rose by approximately 30% before slightly decreasing in 2016 and 2017.

Typically, the level of these costs depend also on the farms’ economic size, as it can be seen below in Chart 6, which also includes the total intermediate consumption. We can see the most evident inverse impact of the size on both family labour costs and wages, as well as in the rent paid.

CHART 6: CEREAL FARM EXTERNAL FACTORS AND NON-OPERATING COSTS BY ECONOMIC SIZE IN 2017



3. GROSS MARGINS

CHART 7: REVENUE, GROSS MARGIN AND COUPLED PAYMENTS, EU-28



Chart 7 shows the trends in gross margins and the revenue, costs and subsidies that yield the margins. All values are given in euro per hectare. Revenue is made up of grain and straw, with subsidies stacked to show the proportion of ‘top-up’ revenue that they represent. Costs are juxtaposed to compare the difference (always positive), which is the gross margin, represented by the red line.

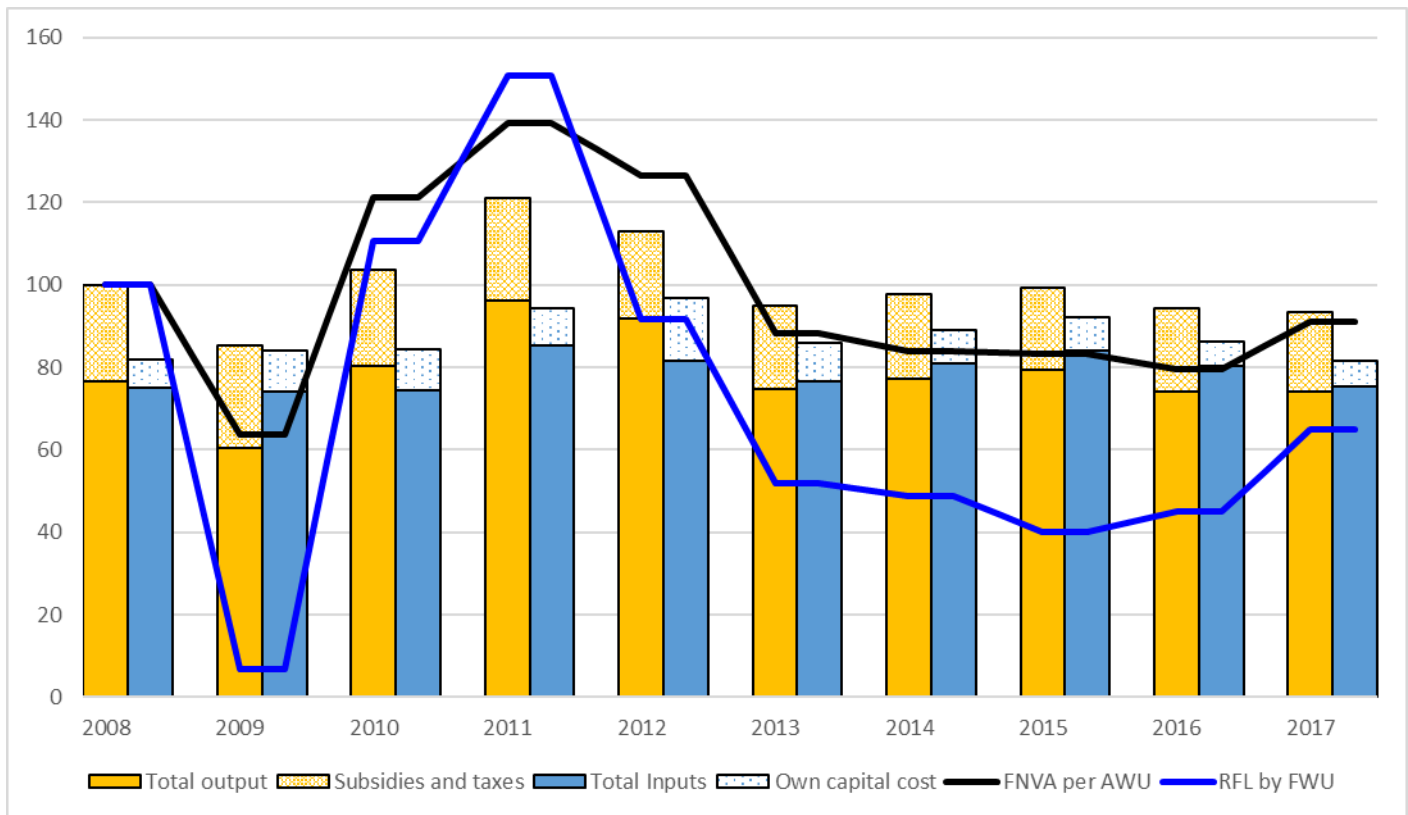
The direct effect of the 2009 crisis is clear for the four type of cereals, with a considerable drop in gross margins. After a short recovery, 2013 and 2014 also saw a further drop in margins. The estimates of gross margins in 2018 are quite steady, with the sole exception of durum wheat, which is estimated to fall visibly. These fluctuations mainly stem from changes to revenue, rather than to the cost structure, which has kept quite steady throughout the 10-year period. The overall impact of direct coupled payments on the profitability of these products is also quite low, if not negligible, only making a visible difference to durum wheat.

Maize production has much higher costs for seed, fertilisers, water, fuel and contract work. Nevertheless, the higher costs are clearly compensated by higher revenues. Maize remains the most profitable crop in this group of cereals, followed by wheat (the two types being broadly similar) and then barley.

In general, the main elements of operating cost structure are the cost of seed, fertilisers and crop protection, fuel and contract work. Other costs such as water (only significant for maize production) and energy account for a lower share of the total operating costs.

4. INCOME OF FARMS SPECIALISED IN CEREAL PRODUCTION

CHART 8: INCOME AND SELECTED DRIVERS (2008=100) FOR CEREAL FARMS, EU-28



Farm net value added per annual work unit (FNVA/AWU) is an indicator of income calculated as the sum of total production value plus current subsidies minus intermediate consumption and depreciation. It represents the amount available to remunerate all fixed production factors (work, land, capital), whether owned by the farm or external.

Remuneration of family labour per family work unit (RFL/FWU) is an indicator of family income obtained by subtracting own capital costs from farm net income (FNI). FNI is calculated by subtracting external factors (wages, rent, interests) from the FNVA and adding the balance of subsidies and taxes on investments.

The lines in Chart 8 illustrate trends in farm net value added per annual work unit (FNVA/AWU) in farms specialised in cereal production³ and remuneration of family labour per family work unit (RFL/FWU) as an EU average.

The columns show in 'stacked values' both (a) output plus total direct payments and other subsidies (net value of subsidies and taxes), and (b) input plus own capital costs in relation to the 'output/subsidy' column for each year. So it clearly shows the portion of costs fully covered by farm output, and what needs to be complemented by top-up subsidies. All four values are expressed as an index, with 2008 as the baseline year.

The actual values in 2017 were 18,437 €/AWU for FNVA and 8,370 €/AWU for RFL.

³ Farms specialised in cereal production are those that generate 66% or more of farm output from cereal production.

As in previous charts, the impact of the 2009 crisis is clear. The slump is followed by a period of recovery peaking between 2011 and 2012, before falling again in 2013 to levels that mostly stabilised for the rest of the period. Figures for 2017 show a slight improvement again.

It should be highlighted that, since 2013, total cereal farm output has remained systematically below the value of total input, hence the only factor producing a positive economic outcome is the receipt of subsidies under the EU's common agricultural policy.

Chart 3 on page 7 details the trend in production costs.

Remuneration of family labour typically fluctuates much more than farm net value added per annual work unit because it does not include external factors (rent, wages and interest), which are less prone to significant year-on-year changes in developed economies.

CHART 9: INCOME TRENDS IN DIFFERENT SECTORS 2008-2017, EU-28

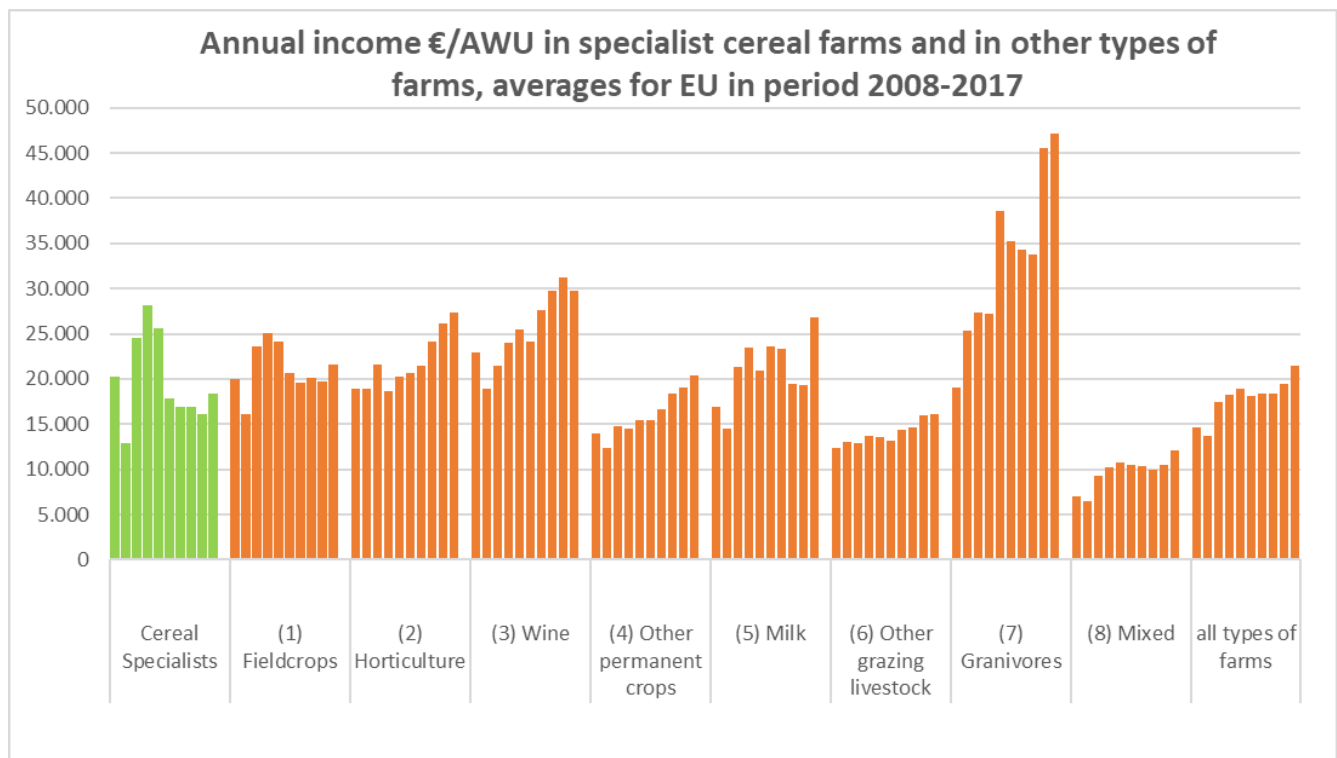


Chart 9 shows the trend in income (per annual working unit) in the main categories of farm activity over the period covered. The 10 consecutive segments (bars) correspond to years, starting in 2008 and finishing in 2017. Logically, the trend seen by the population of cereal producers is very similar to that of field crop farms, to which it belongs.

The impact of the 2009 crisis, followed by a quick recovery and stabilisation of income, is very much in line with the situation illustrated by the previous charts in this report.

CHART 10: INCOME LEVELS ACROSS EUROPE BY FADN REGIONS FOR CEREAL FARMS

The following map shows the average farm net value added per annual working unit at FADN regional level in the EU.

The data is calculated as an average of the last three available years: 2015, 2016 and 2017.

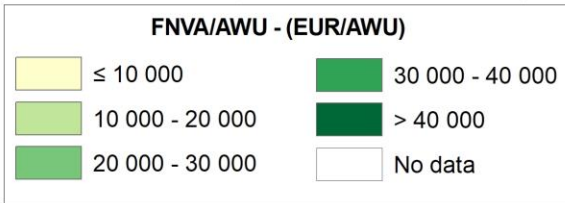
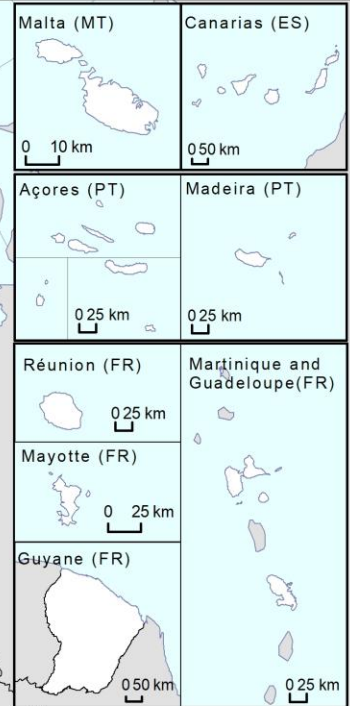
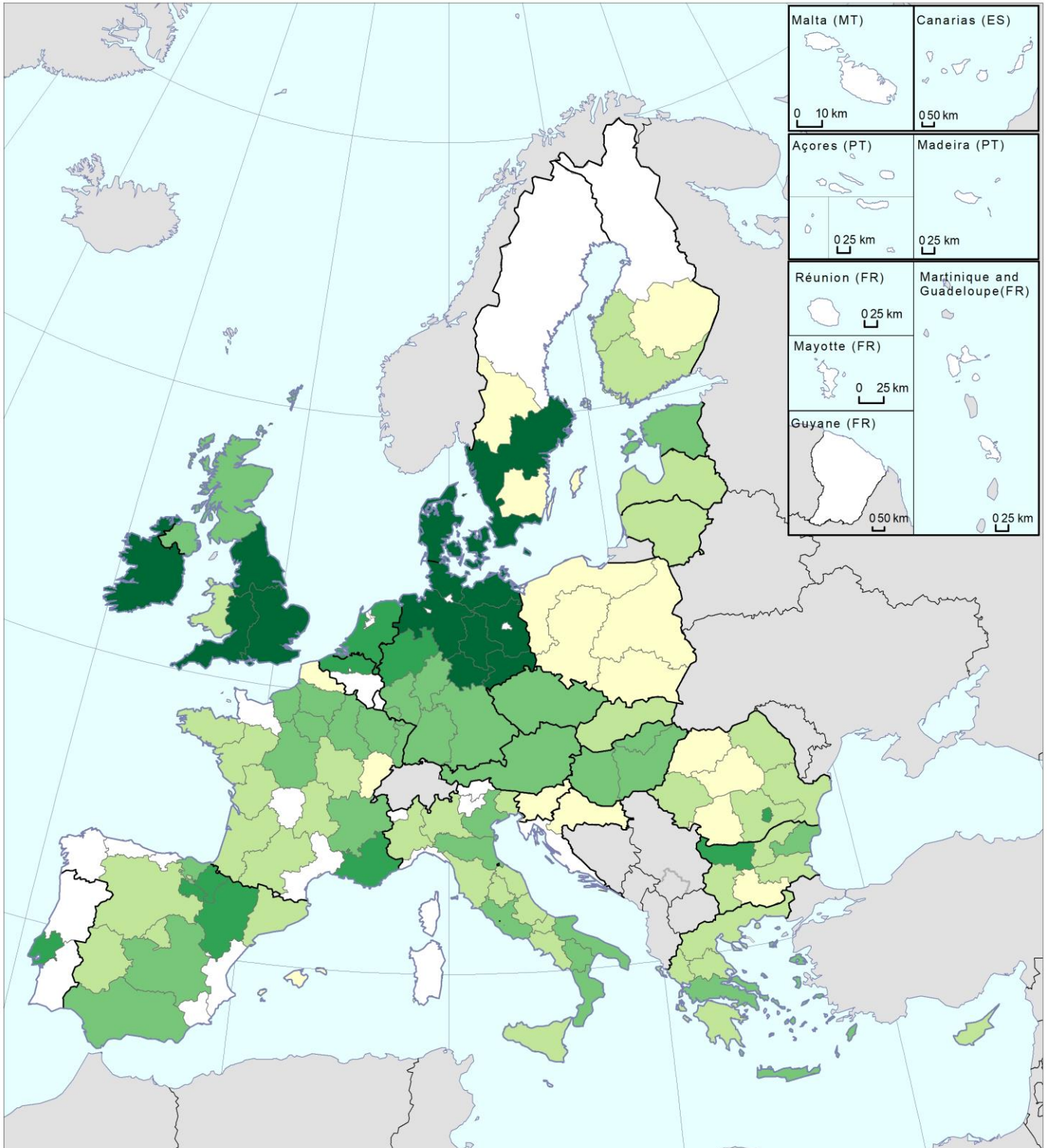
The map shows a few clusters or areas grouping similar categories. Farms with a higher added value for producers (above €40,000/AWU) are mainly located in the east and north of Germany, Denmark, England, Ireland, and southern Sweden.

Some 'medium value added' regions (€30,000-€40,000) are located more in the south of Europe (Portugal, Spain, France or Bulgaria) and in the Benelux area to the north.

There are significant differences between regions, with farms having a much lower income (below €20,000 or even €10,000) mainly located in France, Italy, Poland, Finland and Spain.



Income in specialist cereal farms, average Farm Net Value Added/Annual WorkUnit (FNVA/AWU) for years 2015, 2016 and 2017



Source:
DG AGRI - EU-FADN
Years:
2015, 2016, 2017
Calculations:
DG AGRI - C3
Cartography:
DG AGRI GIS TEAM 11/2019

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