



European
Commission



EU AGRICULTURAL OUTLOOK

FOR MARKETS, INCOME AND ENVIRONMENT
2020 - 2030

Agriculture
and Rural
Development

EXECUTIVE SUMMARY

Main assumptions

This outlook covers the period from 2020 to 2030 and reflects on current agricultural and trade policies. Projections are based on the latest OECD-FAO Agricultural Outlook updated with the most recent global macroeconomic and market data.

According to macroeconomic assumptions, the **global economy** will rebound in 2021-2022 and level off at an annual average growth of 3% by 2030. The **EU economy** should recover to its pre-COVID-19 level by 2023. The **oil price**, after bottoming out at USD 41/bbl in 2020, is due to reach USD 83/bbl in 2030. A moderate appreciation of the **euro** is expected in the medium term, reaching USD 1.16/EUR by 2030. These assumptions are based on average economic trends, so they presume market developments to be relatively smooth. However, in reality markets tend to be much more volatile.

Recent **free trade agreements** (FTAs) are included if they have already been implemented (with Ukraine, Japan, Vietnam and Canada), while the ones only concluded are not (with Mercosur and the updated FTA with Mexico). Regarding the future relationship between the EU-27 and the UK, there is a purely technical assumption that duty-free/quota-free trading relations will continue.

As macroeconomic projections and crop yield expectations are by nature surrounded by uncertainty, a systemic **uncertainty analysis** has been carried out, which enables us to illustrate possible developments caused by the uncertain conditions in the economy and agricultural markets. This report presents possible price ranges around the expected baseline.

In addition, to address the implications of the uncertainties surrounding the post-pandemic recovery, specific **scenarios** look at alternative COVID-19 recovery pathways. Finally, a scenario about the use of food losses and food waste for insect farming to produce protein meal and oil for aquaculture is analysed and presented in the report.

Arable crops

The total EU agricultural area is projected to reduce slightly, mainly driven by reduced cereals and oilseed acreage. By contrast, the use of land for pasture, fodder and protein crops is expected to grow. The area dedicated to organic production should also increase and reach 10% of the total agricultural land by 2030 (in the absence of measures stemming from the CAP reform currently under negotiation and without reflecting the European Green Deal target of 25% of agricultural area under organic farming).

Total EU **cereal** production, thanks to increasing yields, is expected to remain stable at 277 million t. Better crop rotation systems, improved soil management and increased use of decision support tools should prop yields. The areas for barley and wheat are projected to decrease, while maize areas should compensate for this by meeting the demand for cereal feed. Domestic use, supported by higher food use, should also stabilise at 260 million t. In trade, the position of EU exports is due to strengthen thanks to converging EU and world prices and proximity to importing markets, primarily in the Mediterranean region and sub-Saharan Africa.

On **oilseeds**, the rapeseed area is expected to slow its decline, thanks to the value of rapeseed in crop rotation systems and a steady demand for its oil. Total EU production of oilseeds is projected to increase slightly thanks to rising sunflower and soy production. Coupled with a limited increase in oilseed imports, crushing volumes are expected to remain stable overall, driven by the sustained demand for EU oilseed oil. Consumption of vegetable oils (including palm oil) is projected to decline, driven by decreasing palm oil imports for non-food uses.

Strong growth is projected for EU **protein crops**. Production will be driven by a large increase in area and yield improvements, while the strong demand for innovative plant-protein products and for more locally-produced protein sources should result in a 30% growth in consumption.

The EU **sugar** area is due to stabilise in the medium term and EU production is expected to increase to 16.2 million t by 2030. The declining human consumption of sugar is expected to be only partially substituted by non-caloric sweeteners and a higher use of isoglucose in processed food. The increase in sugar exports for processed products should limit the decline in consumption, while competitive prices should allow the EU to become a net exporter of sugar.

Demand for **feed** from arable crops is projected to decrease slightly, mainly due to the decline in EU pigmeat production. Diversification of livestock and dairy production systems should increase demand for organic, non-GM and pasture-based feed and shorter supply chains. Feed prices are due to fall in the near term due to expected lower transportation costs.

Biofuels are also affected by the decrease in demand induced by the COVID-19 crisis. In the medium term, demand will be constrained by the decline in conventional fuel use, but increasing blending rates will mitigate the impact. Restrictions on the use of palm oil for biodiesel are expected to significantly reduce the supply of this feedstock. Ethanol production is projected to remain stable overall in the medium term, while the production of advanced biofuels is due to increase.

Milk and other dairy products

Sustainability objectives could translate into more moderate, annual growth in EU **milk** production (0.6%). The sector will also likely further improve farming practices, focusing notably on animal welfare through measures to prevent disease and injuries. Non-conventional production systems are expected to expand and prevent the dairy herd from being greatly reduced (-7% compared to the 2018-2020 average). Notably, the share of organic milk production is expected to reach 10% in 2030 (3.5% in 2018). Yields could continue to grow although at a lower rate than in the past with an increased segmentation of production systems. Longer lifespan of animals, higher carbon sequestration and better manure management are among the factors which are likely to reduce greenhouse gas (GHG) emissions per kg of milk produced by 2030.

At world level, population and income growth and expanding urbanisation could increase global import demand for **dairy products**, although less than before due to increasing self-sufficiency worldwide. The EU is projected to remain the World's largest dairy exporter.

The largest share of the increase in EU milk production is due to flow into **cheese** processing, driven by both domestic and global demand. **Whey** should benefit from the expansion in cheese production and be valorised more thanks to an ongoing shift to its use in the food industry. A slowing decline in EU **liquid milk** consumption should provide support for the production of fresh dairy products, including new products which are gaining interest among consumers. The EU **butter** market is due to be supported by stable prices projections, a shift from food service to retail sales and increasing exports. The production of **milk powders** should also gain support from being processed into both high value-added and basic products and, in the case of skimmed milk powder, from export demand in Asia and Africa.

Meat

Sustainability is expected to take a more prominent role in EU **meat markets**, among both producers and consumers. In the short term, the global disease situation, like the outbreaks and later recovery of African Swine Fever (ASF) in Asia or the current COVID-19 pandemic bring about a lot of uncertainty as regards the global demand for meat. As consumer dietary patterns, health considerations and convenience trends change, per capita EU meat consumption is projected to decline by 1.1 kg to 67.6 kg by 2030.

Environmental concerns, the risk of ASF and changes in consumers' preferences are likely to constrain EU **pigmeat** production. Strong international demand and high prices reduced domestic consumption recently, setting a trend for the medium term. On exports, the EU should continue to be a

dominant supplier, but is not expected to rebound to the record levels of 2019-2020.

Following the decline in the EU cattle herd, production of **beef** is also expected to continue to reduce, despite moderate export prospects and slightly decreasing feed prices. EU beef consumption is due to decline by 0.9 kg per capita, but export opportunities may improve in the medium term. Imports could also rise slowly, following the gradual increase of tariff rate quotas stemming from the entry into force of recent free trade agreements between the EU and certain trade partners.

The EU production and consumption of **sheep** and **goat** meat are projected to remain stable. Exports of live animals are due to decrease, while imports of sheep meat should remain stable and well below the total volume of tariff rate quotas opened by the EU.

The EU demand for **poultry** meat is projected to grow steadily as consumers see it as a healthy and sustainable product. Poultry production is expected to be the only meat category to grow. Exports should continue to benefit from the valorisation of specific bone-in cuts, while imports are expected to grow in line with the availability of tariff rate quotas.

Specialised crops

EU **olive oil** production is due to grow, driven by increasing yields. Domestic consumption is expected to be driven by sustainability and health awareness overall and by the non-producing countries in particular. At global level, strong demand fuelled by the post COVID-19 economic recovery should lead to an increase in EU exports.

The EU wine sector is adapting to changing lifestyles and preferences of consumers. These are expected to slow down the decline in consumption, while other uses (e.g. distillation) should slightly increase. EU exports should be driven by high demand for wine with a geographical indication (GI) and sparkling wines. These trends will result in a slight decline in EU wine production.

EU **apple** production is projected to remain stable thanks to increasing yields despite the size of its area shrinking. Health awareness among consumers and new apple varieties should help increase the consumption of fresh apples, while exports are due to stabilise after a decrease in the short term.

The EU consumption of **peaches** and **nectarines** should decline due to stable production and competition from other summer or tropical fruits. EU exports, in particular of processed peaches, are expected to increase, driven by growing global demand and the EU's competitiveness on the world market.

Driven by yield increases, EU **orange** production is due to slightly grow. Increasing consumer preferences for fresh oranges and fresh juices over concentrates should put pressure on the demand for oranges for processing. Net EU imports should increase to cover the demand gap.

The EU production of fresh **tomatoes** is projected to decline slightly because of strong foreign competition and an increasing demand for smaller, more profitable varieties. Consumption of processed tomatoes should remain stable, but with a similar shift towards higher value-added products.

Agricultural income and labour

EU **farm income** is expected to increase due to a rising volume of production and appreciating prices. Crop production is expected to grow faster (1.9% per year) than animal production (0.9% per year). Nevertheless, costs are projected to rise at a similar pace, and the increase in nominal income should be limited to 1% per year.

The decline of the farm **workforce** due to structural changes at EU level is expected to slow down to 1% per year and should result primarily from technological progress in machinery and equipment. The real income per worker is due to increase by 0.5% per year, slowing down from 1.9% in the past decade.

Environmental and climate aspects

This report presents an environmental analysis of the medium-term developments of EU agricultural markets based on environmental and climate indicators, with a focus on GHG emissions and CO₂ removal from the atmosphere.

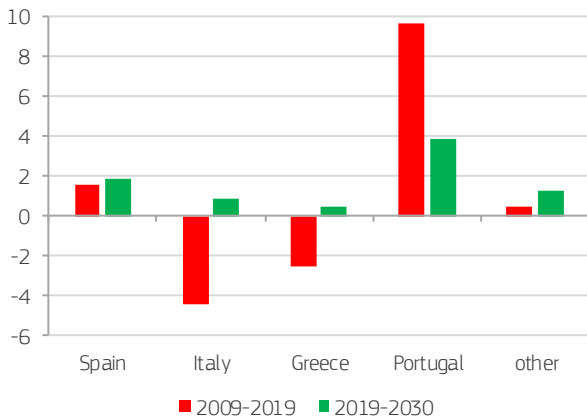
From 1990 to 2018, **GHG emissions** from the EU agricultural sector decreased by 21%. However, almost all of that change happened in the first half of this period. Emissions from land use, land use change and the forestry sector, which are negative because they are offset by CO₂ removal, have followed a similar trend.

Modelling projections for 2030 show that GHG emissions from EU agriculture would remain largely unchanged from current levels: the projected decrease in livestock herd is going to be balanced out by an increase in nitrous oxide emissions due to higher crop yields. For soil organic carbon budget, projections show a net increase corresponding to up to 2% of agricultural GHG emissions. Finally, the potential for different farming practices to sequester carbon is analysed, the most promising of which are to be found following organic soils, producing winter cover crops and increasing the share of leguminous plants on temporary grasslands.

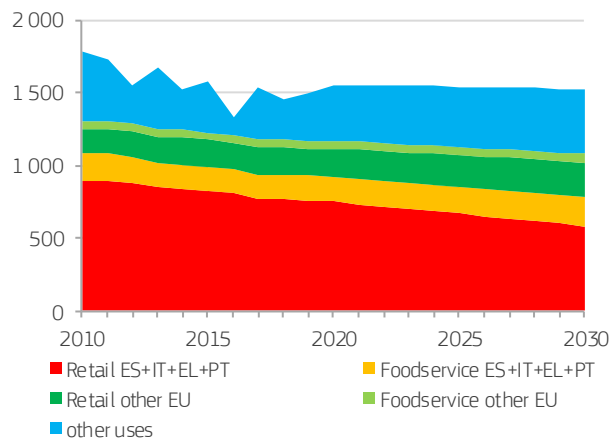


OLIVE OIL

GRAPH 5.1 Olive oil production annual growth rates in main EU producing countries (%)

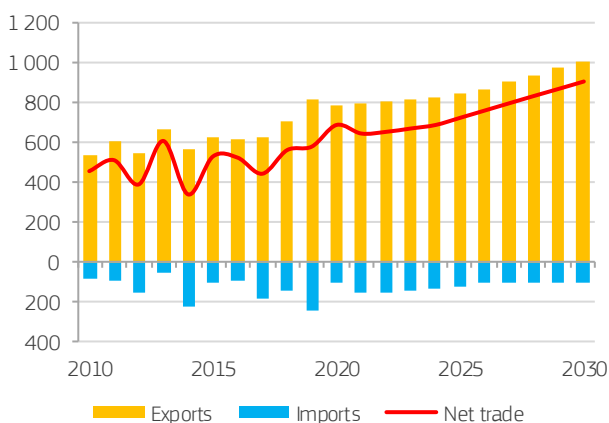


GRAPH 5.2 EU olive oil consumption by channels (1 000 t)



Source: DG Agriculture and Rural Development, based on Euromonitor (until 2020).

GRAPH 5.3 EU olive oil trade (1 000 t)



EU production to grow in a sustainable way

The EU olive oil sector provides economic, environmental and social benefits to communities and has the potential to improve agriculture’s carbon footprint by absorbing CO₂. Thus, it delivers on all sustainability objectives. However, fluctuations in production and prices, damage to olive groves caused by diseases in certain regions and different farm structures create challenges for its expansion.

By 2030, the EU olive oil production is expected to grow by 1.3% per year, driven by increasing yields (+0.5% per year). The area under development is expected to remain stable, although further investment in intensive and superintensive systems is expected. Production in Spain could continue growing, whereas production growth in Portugal could slow down compared to the very strong growth of the recent years. The olive oil sector in Italy should re-start the growth, thanks to new plantations of better disease-resistant cultivars. However, smaller farms and the higher average age of farmers in Italy and Greece could limit growth there compared to Spain and Portugal (characterised by larger farms and a higher capacity to adapt). Cooperation and development of services that enable small farmers to benefit from economies of scale will be crucial.

Differentiation of EU consumption trends to continue

Sustainability and health concerns help to increase EU olive oil consumption, with higher growth rates in the EU non-producing countries. In addition, quality ready meals using olive oil are expected to increase, keeping annual growth in EU consumption stable at +0.2% by 2030 (compared to -2% in 2009-2019²⁹). By 2030, EU non-producing countries could account for 26% of EU consumption (compared to 20% in 2019). In the main producing countries, sustainability and health concerns could slow the declining trend to -0.5% per year between 2019 and 2030 (compared to almost -3% in 2009-2019).

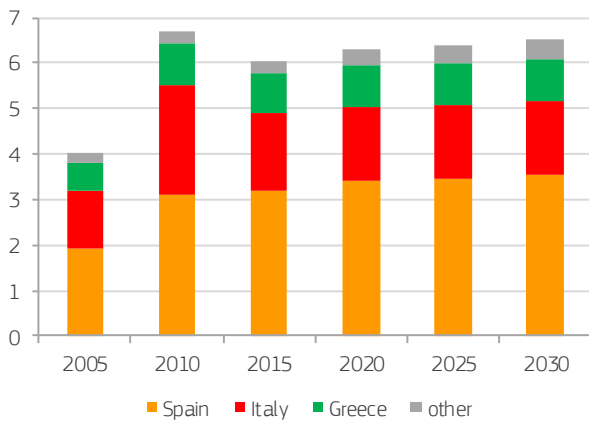
EU exports to gain from an economic recovery

Rising incomes, the popularity of Mediterranean cuisine and prices that are competitive with other vegetable oils support EU olive oil exports, notably to China, South-East Asia and Russia. These regions contributed to 13% of EU export growth in last 10 years. Given the expected pace of economic recovery after COVID-19, growth could slow down in the coming years but accelerate afterwards to reach more than 1 million t in 2030. At the same time, EU imports could decline in the short term and stabilise in the medium term, as EU production grows. As a result, the EU net exports could gain 5% per year by 2030.

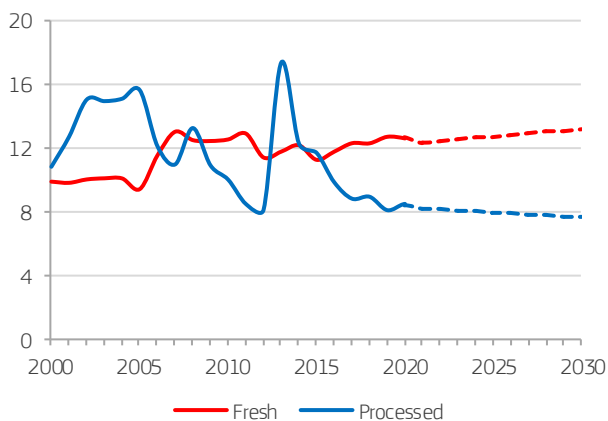
²⁹ 2009 and 2019 represent the 2005-2009 and 2015-2019 trimmed averages.

ORANGES

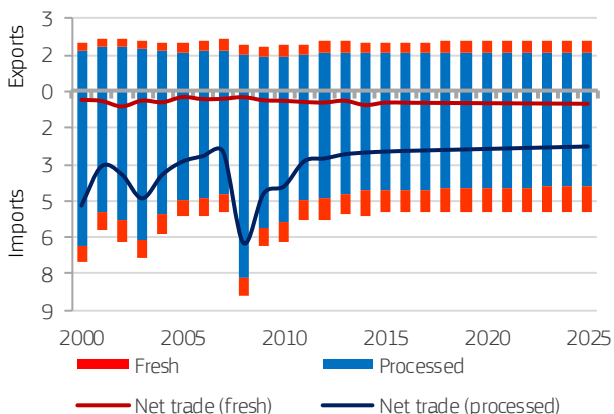
GRAPH 5.16 Orange production by main EU producing countries (million t of fresh equivalent)



GRAPH 5.17 EU orange consumption (kg per capita of fresh equivalent)



GRAPHS.18 EU orange trade (million t of fresh equivalent)



EU orange production to grow slightly

By 2030, EU orange production is expected to increase to 6.5 million t (+0.4% per year), driven by a slight yield increase. The area of orange orchards is projected to remain stable after a steady decline in recent years. Spain and Italy, with respective shares of 52% and 28% of the EU orchard area in 2019, are set to remain the two main producing countries.

Around 80% of EU orange production is for fresh consumption. By 2030, production of oranges for fresh consumption is set to increase to 5.4 million t (+0.6% per year). In contrast, the share of production that is directed to the processing sector, mainly to produce juices, is expected to decline. The share of oranges for processing could drop from 20% in 2019³³ to 17% by 2030.

Increasing EU demand for fresh oranges

EU per capita consumption of fresh oranges is expected to grow to 13.2 kg by 2030, driven by increasing health awareness and the positive health image of oranges. Consumption of freshly squeezed orange juice in supermarkets, cafes and restaurants also boosts their consumption. In contrast, EU per capita consumption of processed oranges is expected to continue declining to 7.7 kg by 2030, mainly driven by health concerns (over the high sugar content of juices). This is a slower rate (-1.6% per year) than in 2009-2019 (-2.7%) thanks to expected product innovations such as low sugar juices.

EU imports of fresh oranges to increase

As the EU only produces 70% of the oranges it consumes, it is highly dependent on imports. EU self-sufficiency is particularly low for processed oranges (30%), but the EU also only produces 90% of the fresh oranges it consumes, due to their seasonality and demand for fresh orange juice in summer.

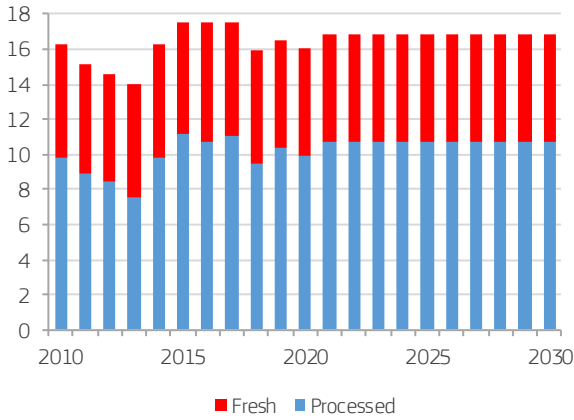
Driven by a strong increase in EU demand, imports of fresh oranges are projected to increase by 1.4% per year up to 2030. Although EU exports of fresh oranges, particularly to neighbouring countries, are projected to increase, the quantities involved will remain low. Therefore, the EU net trade balance for fresh oranges will become more negative.

With the declining EU consumption of processed oranges, imports are projected to continue falling up to 2030 (-1% per year). This will be driven by a sharp fall in imports of orange juice concentrates as consumers increasingly avoid orange juice from concentrate, which is perceived as less healthy than other types of orange juice.

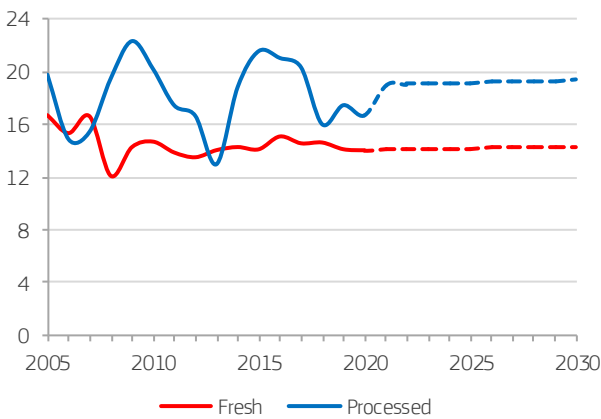
³³ 2009 and 2019 represent the 2005-2009 and 2015-2019 trimmed averages.

TOMATOES

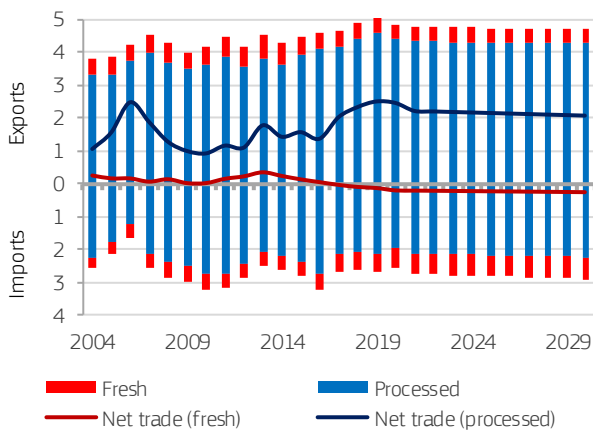
GRAPH 5.19 EU tomato production (million t of fresh equivalent)



GRAPH 5.20 EU tomato consumption (kg per capita of fresh equivalent)



GRAPH 5.21 EU trade of fresh and processed tomatoes, including inward processing (million t of fresh equivalent)



Increasing share of higher value-added tomato products

By 2030, EU fresh tomato production is expected to amount to 6.2 million t, (-4% compared to 2019³⁴). This decline is driven by a strong reduction in winter production in Spain and a shift to small-sized tomatoes. Spanish producers are switching to other, more profitable, crops in winter due to strong competition from Moroccan tomatoes and demand in other glasshouse vegetables. In addition, the production of small-sized tomatoes (e.g. cherry and cocktail tomatoes) is rising in all producing countries at the expense of round tomatoes, thanks to the continuous growing demand and the higher value added to producers. This shift is leading to an increase in the value of EU production but to a decline in its volume.

By 2030, EU production of tomatoes for processing is expected to stabilise at around 10.7 million t. Production is shifting from highly concentrated products, such as tomato paste, to less concentrated and higher value-added products, such as canned tomatoes, passata, tomato sauce, and to organic products.

Stabilisation of EU demand for tomatoes

By 2030, EU per capita consumption of fresh tomatoes is expected to be stable compared to 2019, but with an increasing share of small-sized tomatoes and other varieties. Also the EU per capita consumption of processed tomatoes is projected to be stable by 2030. Despite increasing demand for processed food, consumption (in fresh equivalent) is projected to remain even as the concentration of raw tomatoes in processed food will decline due to more use of other vegetables.

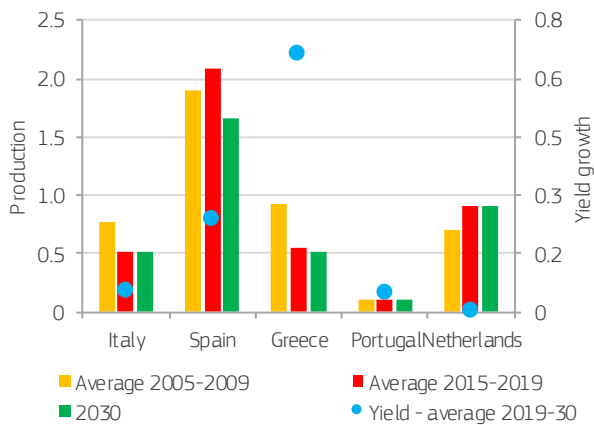
EU imports of fresh tomatoes are due to continue to grow by 2030 (+2% per year). Growth will come in particular from Morocco, which already accounted for almost 80% of total EU imports in 2019, driven by the expected production growth. The significant out-of-quota imports show that Morocco has the potential to strongly compete on the EU market. By contrast, EU exports of fresh tomatoes are projected to be stable towards 2030 due to the increase of self-sufficiency in Russia and the limited alternative markets. As a result, the net import position of the EU is expected to further grow.

Between 2019 and 2030, the EU is projected to remain a net exporter of processed tomatoes, despite the projection of stable exports and increasing imports (+1% per year), mainly from Ukraine. The export value should increase thanks to the growth of high value-added exports.

³⁴ 2009 and 2019 represent the 2005-2009 and 2015-2019 trimmed averages.

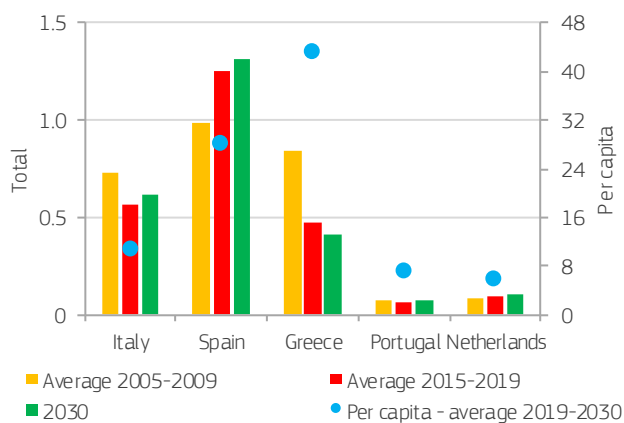
TOMATOES - DEVELOPMENTS IN EU MEMBER STATES

GRAPH 5.22 Tomato production (million t) and annual yield growth (%) in main EU producing countries



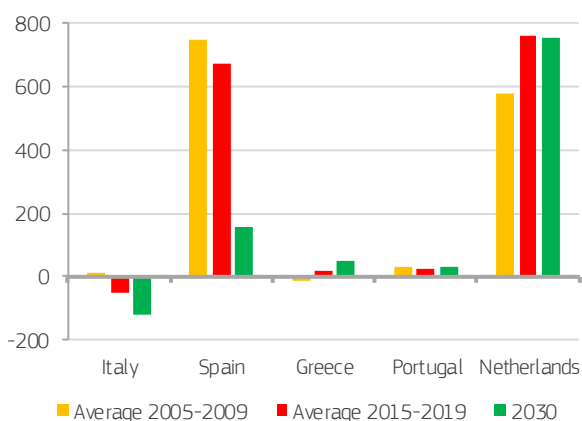
Source: AGMEMOD simulation.

GRAPH 5.23 Tomato consumption (million t and kg per capita)



Source: AGMEMOD simulation.

GRAPH 5.24 Tomato net trade (1000 t)



Source: AGMEMOD simulation.

Declining harvested area and moderate yield growth

The EU tomato sector will face a challenging environment in the coming years, in which the main EU producing countries will need to cope with climate change, pest diseases, fierce competition and changing consumer preferences. By 2030, production in most of the main producing countries is expected to remain around the average levels for 2015-2019. Production in Spain, the biggest EU producer of tomatoes, is however expected to decline by more than 20% by 2030. This reflects a smaller harvested area due to increasing competition from non-EU countries, water shortages and the low profitability of the crop compared to alternative glasshouse vegetables.

Moderate yield growth is expected for most of the main producing countries, with the exception of the Netherlands, in which production already takes place in a highly controlled and optimal environment. In addition, the share of small-sized tomatoes within total Dutch production (and that of other EU Member States) is expected to increase, which negatively impacts yields.

Fresh tomato consumption expected to increase

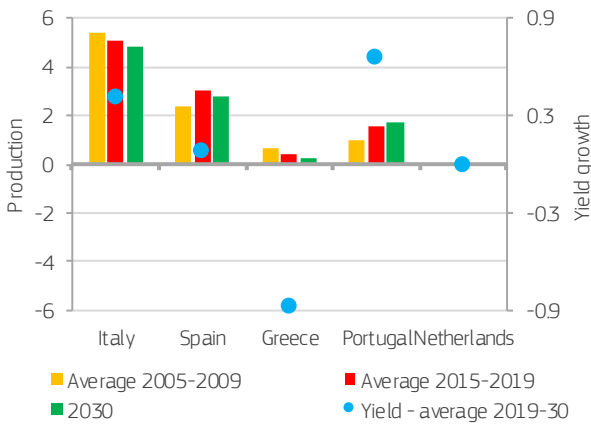
Total tomato consumption is expected to increase by 2030 in the main producing EU Member States, irrespective of differences in current per capita consumption. The lower per capita consumption of a country like the Netherlands reflects differences in preferences, eating patterns (lunches without vegetables) and the consumption of a larger variety of vegetables compared to other EU Member States (e.g. Spain, Greece) where the tomato is still the most consumed vegetable. Overall, increasing health concerns and changes in dietary habits, involving more 'snacking moments', could further increase future consumption.

Stronger competition from outside the EU

The Netherlands and Spain are and will remain key net exporters of tomatoes in the EU. Net exports by the Netherlands will remain more or less stable, reflecting its stabilising consumption and production of tomatoes. The most significant development in the net trade position of the main producing countries is the expected decline in Spanish net exports by 80% by 2030 (by more than 500 000 t); this is due to a combination of factors, including severe competition from outside the EU and increased domestic consumption. Due to this decline, the net exports of the five main producing countries as a whole will drop by about 40% by 2030. This will be only partially offset by developments in the rest of the EU, where Poland, for example, has the potential to increase acreages and yields, replacing imports from the main EU producing countries with local production.

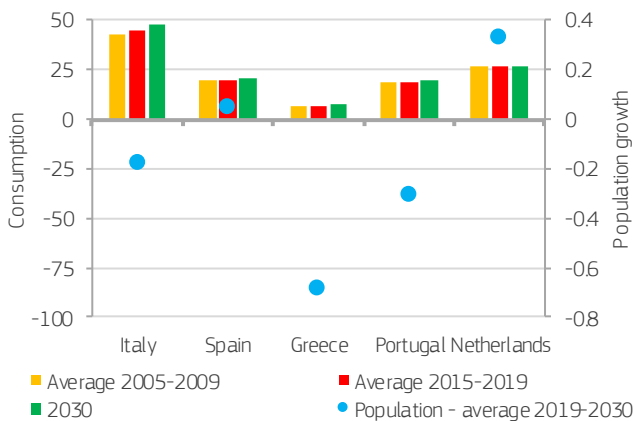
TOMATOES FOR PROCESSING - DEVELOPMENTS IN EU MEMBER STATES

GRAPH 5.25 Production of tomatoes for processing (million t) and annual yield growth (%) in main EU producing countries



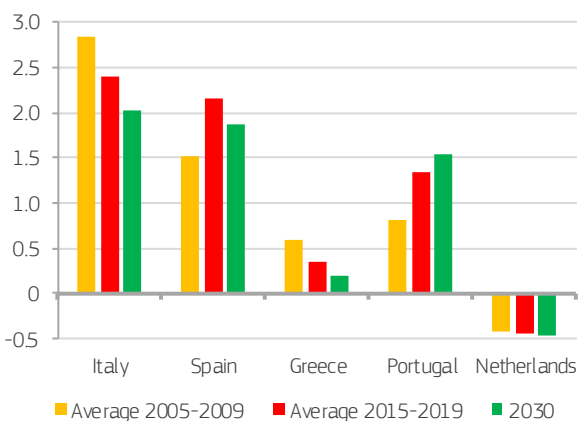
Source: AGMEMOD simulation.

GRAPH 5.26 Processed tomato consumption (kg per capita) and population annual growth (%)



Source: AGMEMOD simulation.

GRAPH 5.27 Processed tomato net trade (1 000 t)



Source: AGMEMOD simulation.

Production differences in EU Member States

The production of tomatoes for the processing sector is expected to differ between EU Member States. For Italy, the largest producer of tomatoes for processing, a reduction in the cultivated area is expected to lead to a decline in production by 2030 (by -5%). Similarly, the combination of a smaller cultivated area and slightly increasing yields is expected to lead to a 7% production decline in Spain. Both acreage and yields are expected to increase in Portugal, leading to a 14% rise in production. For Greece, production is set to decline due to loss of cultivated area.

Tomatoes for processing are produced on relatively large farms that specialise in extensive production of arable crops and vegetables. The Netherlands does not produce these tomato varieties, but is an important processor and trader.

Limited increase in consumption in a mature market

The substantial differences in consumption per capita of processed tomatoes between EU Member States are expected to remain. By 2030, per capita consumption is projected to increase in Italy, Spain, Portugal and Greece, in the range of 4.5-8.5% compared to 2015-2019. Higher consumption of processed tomatoes is mainly driven by factors such as their long shelf-life and usefulness in home cooking, which has become evident during the pandemic. This product also has a positive image from a health perspective, which could improve with new formulations (e.g. no added sugar and salt).

Differing trade developments

It is projected that Portugal will increase its net exports by 2030 (compared to the 2015-2019 average) while Italy, Spain and Greece will remain net exporters but with lower volumes. In addition, the export profiles of EU Member States differ. For example, Italy is a major exporter of canned tomatoes, while Italy, Spain and Portugal are all key exporters of tomato pastes.

The Netherlands is a big net importer, as it has no primary production of its own. Behind this stable number is an increase in the volume of imports and exports of processed tomatoes due to the current expansion of processing capacity in the Netherlands. Within the EU, the Netherlands is a key exporter of tomato ketchup and sauces.

The net exports of the group of main producers as a whole is expected to decline by about 10% over the next decade.