

Regional outlook: Europe and Central Asia

The regional briefs in the *Outlook* highlight broad trends for the regions defined by the FAO in the implementation of its global workplan. Recognising regional diversity, the intention is not to compare results across regions. Instead, they illustrate some of the latest regional developments, highlighting responses to global challenges and emerging trends, and relating these to the main messages of the *Outlook*. The assessments generally compare the end point of the *Outlook's* projection (2032) to the base period of 2020-22. The large and diverse Asia Pacific region has been disaggregated into two separate parts: Developed and East Asia, and South and Southeast Asia.

Agriculture and food systems globally have faced multiple disruptions in recent years – first in the form of the COVID-19 pandemic, and subsequently the impact of Russia's war against Ukraine. The subsequent rise in food prices has impacted affordability and food security in multiple regions. These briefs do not present a quantitative assessment of the impacts of these disruptions, though they do account for the latest expectations with respect to macro-economic developments as the world emerges from these disruptions. The trends and issues presented are those expected to underpin the *Outlook* in the medium term. They assume that the adverse effects on food, feed and fuel production, consumption and trade will gradually moderate, recognising that several uncertainties remain.

This chapter contains seven sections, with text, tabular and graphic information for each region following a similar template. A background section provides the key regional characteristics and provides the setting from which the projection is described in the subsequent sections for production, consumption, and trade. Each regional brief contains an annex providing common charts and tables outlining the key aspects for the region.

Background

Increasing focus on sustainability amid ongoing risks from Russia's war against Ukraine

The Europe and Central Asian¹ region includes a diverse range of countries that span two continents and exhibit various stages of development. Considerable difference exists across countries in terms of agricultural resources, demographics and public policies. It also faces a multitude of risks, most pertinently Russia's war against Ukraine, which also contributes to persistently high food inflation, and the ever present risks associated with climatic fluctuations.

The region accounts for 12% of world population, but with growth of less than 1% by 2032, this share is set to decline. Population dynamics differ significantly across the region. In Western Europe, home to 55%

of the region's inhabitants, it remains almost unchanged by 2032, whereas in Eastern Europe, it is expected to decline by 0.7%. By contrast, in Central Asia, it is anticipated to expand by 11%, but by 2032, Central Asia will still only account for 11% of the region's people. The rate of urbanisation is high across the region and by 2032, 75% of its inhabitants are expected to reside in urban environments. In Central Asia, this share is lower than in Europe, and expected to reach 51% by 2032.

Average income in the region is over USD 26 600 per capita per year. This encompasses a range from almost USD 39 000 per capita per year in Western Europe's highly developed economies, to USD 12 700 per capita in the resource dependant eastern regions to merely USD 5020 per capita per year in central Asia. Having successfully navigated the economic challenges brought by the COVID-19 pandemic with a 5.7% rebound in per capita GDP in 2021, Russia's war against Ukraine unleashed a humanitarian crisis in 2022. The persistence of the war is also taking a growing toll on Europe's economies. The energy crisis had already hampered households' purchasing power, and with Central Banks acting to control obstinately high inflation, financial conditions have tightened substantially. Growth in per capita GDP is expected at just 0.2% in 2023, before improving to 1.6% p.a. in the medium term. Much of the medium-term prospects will depend on the duration of the war, but its current protracted nature suggests that there are significant downside risks to growth, while inflationary risks remain.

In line with different stages of development, the share of primary agriculture, forestry, and fish production in GDP ranges from less than 2% in the European Union, to 13% in Central Asia. Similarly, it is estimated that the share of food in household expenditures averaged about 11% in the region in 2020-2022, from around 6% for United Kingdom to around 17% in Türkiye and even higher in many Central Asian countries.² Consequently, the impact of current high food prices, amid elevated general inflation, will differ across countries, with a generally greater impact in regions that spend a larger share of total income on food. This is evident in the sharp increase in the prevalence of moderate to severe food insecurity in Central Asia, due to the pandemic in 2020 and again in 2021, despite the recovery in incomes. Particularly in Eastern Europe, this may increase further in 2022 and 2023 because of the ongoing war.

Major agricultural producers in the region include the European Union, United Kingdom, Russia, Ukraine, Türkiye, and Kazakhstan. It currently accounts for 12% of the global value of agriculture and fish production, a share which is set to decline to 11% by 2032, largely due to stagnation in Western Europe, with output set to expand by 1.2% p.a. and 1.8% p.a. respectively in Eastern Europe and Central Asia. This mirrors historic disparities in factor productivity within the region: in western Europe TFP growth was just 6% in the decade up to 2019, while it was almost 50% in eastern Europe, marked by a large increase in the productivity of labour, but starting from a low base.

The region's agricultural sector overcame a multitude of challenges through the COVID-19 pandemic, including changes to demand, both in terms of quantity and composition, logistical bottlenecks, and workforce shortages, influenced by labour mobility challenges. Over the past year, it has dealt with a new layer of complexity due to the ongoing war. Historically, Russia was a major supplier of agricultural inputs to the rest of Europe and Central Asia, and to many other countries outside the region. After a sharp initial increase, input prices have started to soften and trade patterns have changed. Both Russia and Ukraine are also significant contributors to agricultural exports. The protracted nature of the war limits Ukraine's ability to engage in agricultural activities and destruction to infrastructure has reduced its productive capacity. By December 2022, after eight months of active war, the (FAO, 2022^[9]) estimated that damages to the agricultural sector, emanating from destruction of machinery and equipment, storage facilities, livestock, and perennial crops, as well as stolen inputs and output, already exceed USD 2.2 billion. With export volumes severely reduced, despite the enabling role of the Black Sea Grain Initiative, many countries have needed to find alternative sources of imports.

The Europe and Central Asia region's export growth has been striking in the past. Over the past decade, the region accounted for almost 13% of the total growth in the global net value of agriculture and fish, but

it constituted 38% of growth in global exports. This reflects improved productivity in both crop and livestock production, along with limited population growth and a relatively mature consumption base in the region. Eastern Europe's expansion was a major contributor to its growing export orientation, with central contributions from both Russia and Ukraine. Consequently, this trend is expected to moderate, particularly in the short term, due to the impacts of the war on Ukraine's production and subsequent ability to export. Many uncertainties remain with respect to possible resolutions to the conflict, and the time required to rebuild damaged infrastructure and fully restore productive capacity. Sanctions imposed on Russia will also influence trade. Although these sanctions do not directly affect trade in agriculture and food products, indirect effects are possible due to logistical challenges and financial constraints. A substantial share of trade occurs within the region, which implies that the evolution of preferential trade agreements, such as future arrangements between the United Kingdom and the European Union, will also play a role.

The European Union accounts for almost half of the value of the region's agriculture and fish production. Its priority afforded to sustainability and improved resilience is reflected in its Farm to Fork and Biodiversity strategies. The Farm to Fork strategy envisions a fair, healthy, environmentally friendly, and sustainable food system. It may influence demand trends, trade flows, competitiveness, and production growth in the region. Other objectives contained in its reforms to the Common Agricultural Policy (CAP), such as the reduction in energy dependency through increased renewable energy production, bolstered sector resilience and changing diets will also play a role.

Russia's war against Ukraine implies that, among the regions included in the *Outlook*, Europe and Central Asia face the most uncertainty. After more than a year of war, even when a resolution is found, the extensive destruction of infrastructure, loss of lives and displacement of labour will require considerable investments to restore productive capacity in the agro-food chain. The uncertainty with respect to production prospects from Eastern Europe comes at a time when policies in the European Union are increasingly focused on sustainability, which implies that the cost of increasing production will rise, particularly in the face of ongoing climate change impacts. Amid ongoing efforts to reduce energy dependence and bolster the resilience of the agricultural sector, achieving sustainable productivity gains will remain critical.

Production

Growth slows amid ongoing war in Ukraine

Compared to the 2020-22 base period, the net value of agriculture and fish production is only expected to grow 7% by 2032, less than half the rate observed in the past. This entails an expansion of 22% in Central Asia and 11% in Eastern Europe, whereas output from Western Europe rises by less than 2% in 2032 compared to current levels. While Ukraine is assumed to reach historic productive capacity by 2032, the recovery is slow. Output growth from Eastern Europe is expected to be led by Türkiye and Russia, at 26% and 9% respectively. Kazakhstan accounts for almost a third of the growth from Central Asia. In Russia, growth is underpinned by the crop sector, whereas in Türkiye and Kazakhstan, significant additional output is expected from both crops and livestock products.

Growth is mainly derived from productivity gains, as the long-term decline in agricultural land-use is expected to persist. The contraction in land used for crop production, at 128 Kha, is a fraction of pastureland, at 1.9 Mha. These aggregate shifts in land use mask some regional differences. For instance, in Central Asia, a minimal expansion is expected in total agricultural land-use, but this is much more substantial in pasture than in cropland. In Eastern Europe, land used for crop production could expand marginally, but a significant decline is expected in pastureland. In Western Europe, a contraction is foreseen in both pasture and land used for crop production.

In the total Europe and Central Asia region, 44% of the value generated by agriculture and fish production is attributed to the crop sector. An expansion of 0.9% p.a. is sufficient to push this share up marginally by 2032. This growth combines the effects of intensification, in both Western Europe and Central Asia, and yield improvements, underpinned by technological innovation. Yield gains are expected across all major crops, ranging from 0.7% p.a. for cereals to 0.9% p.a. for pulses. As fertiliser prices normalise, a 7% increase in fertiliser application per hectare of cropland is expected to contribute to these gains.

The bulk of crop production growth from the region is ascribed to cereals and oilseeds, mainly from Eastern Europe. Russia in particular is expected to sustain robust growth in maize (24%), wheat (14%), soybeans (32%) and other oilseeds (19%) over the coming decade. By 2032, Russia is expected to account for 44% of the region's soybean production, as well as 28% of other oilseeds and 29% of wheat. Growth arises from a combination of yield gains and area expansion, with these four crops accounting for an additional 2.7 Mha by 2032 relative to 2020-22. At the same time, yield gains are expected to exceed 1% p.a. for wheat and maize, and only marginally below 1% for oilseeds. Beyond Russia, notable wheat production growth is also expected in Türkiye and Kazakhstan, at 19% and 29% respectively by 2032. In Ukraine, a major contributor to historic increases, the prolonged recovery from ongoing war limits future growth prospects.

Livestock production accounts for 46% of total agriculture and fish output in the region. Production growth is expected to be slower than that of crops, at just 0.4% p.a. Western Europe still accounts for 63% of the region's livestock, but a modest contraction over the coming decade, amid its ongoing transition to environmental sustainability, will see this share diminish to 59% by 2032. Stronger growth in Eastern Europe and Central Asia will enable these regions to expand their contribution to total livestock production in the region to 39% and 12% respectively. Poultry accounts for the bulk of additional meat produced by 2032 and while growth is robust across most of the region, the bulk of additional production emanates from Eastern Europe, as Türkiye accounts for almost 40% of additional output. Pigmeat production is expected to contract, mainly due to reduced output from Western Europe.

Almost half of the region's dairy products are produced in Western Europe, but this share is expected to decline by 2032 to 44%. This follows an anticipated reduction in output from Western Europe of 5%, combined with growth of 7% and 35% respectively in Eastern Europe and Central Asia, which yields a net gain of 5% across the region. While cow inventories are rising in Eastern Europe and Central Asia, a contraction of 9% is foreseen in Western Europe, mainly from intensive systems. This reduction is shaped by the European Union's ongoing prioritisation of sustainability, which is expected to reduce its share in global production to less than 15% by 2032, down from 17% in the 2020-22 base period.

Fish production constitutes 10% of total agricultural output and growth of 10.5% by 2032 is sufficient to sustain this share. Aquaculture's share in total production is expected to reach 25% by 2032, thanks to growth of 1.6% p.a., compared to a mere 0.5% p.a. for captured fisheries.

Direct agricultural GHG emissions are projected to remain almost unchanged at regional level, rising by only 0.6% by 2032. This encompasses a decline of 5% in Western Europe and 4% in the European Union, mainly from reductions in the livestock sectors. At the same time, emissions are expected to rise in Eastern Europe and Central Asia, where livestock herds are still expanding. Amid ongoing productivity gains, GHG emissions expressed relative to the value of agricultural production are projected to decline by 6% compared to its level in the 2020-22 base period. The decline in emissions relative to output is highest in Western Europe at 7%.

Consumption

Diverging trends in animal sourced foods with reductions in Western Europe and increases in Central Asia

Despite the relative maturity of most of the region's consumer base, the impact of disruptions such as the COVID-19 pandemic, Russia's war against Ukraine and growing inflationary pressure, particularly for food, are widespread. Affordability concerns are greatest in regions with less comprehensive income support measures and a higher share of total income spent on food. Furthermore, in Eastern Europe, the ongoing war brought a whole new set of food security concerns and supply chain disruptions, with millions of people displaced, infrastructure and distribution channels damaged and significant price volatility. Beyond the war-affected region, most of the disruptions associated with the pandemic have eased, but many of the consumer trends that accompanied it, such as shifts in procurement channels, increased local sourcing and a heightened focus on "healthy eating" are expected to persist, influencing demand preferences.

The region's average daily calorie availability per capita is well above the global average and is projected to increase by only 2%, or 54 kcal/day to exceed 3 430 kcal/day by 2032. However, this is not uniform across the region. In Western Europe, and particularly the European Union, total calorie availability is expected to decline, as heightened health consciousness and growing awareness of sustainability (particularly from an environmental perspective) amongst its mature consumer base lead to reduced consumption of vegetable oils and animal-based products. Conversely, calorie availability is expected to rise in Eastern Europe and Central Asia, by 163 kcal/day and 222 kcal/day respectively. These gains are spread across most food groups, with significant contributions from cereals, vegetable oils, meat, and dairy.

Protein availability, expressed in per capita terms, was almost 23% above the global average in 2020-22. By 2032, it is only expected to increase by 4%, to reach 107g/day. While gains are expected across the region, they are smaller in Western Europe than elsewhere. More than half of the additional protein consumption is anticipated to come from plant-based sources, which are often perceived as healthy alternatives. Growth in meat and dairy product consumption is also notable, at 0.2% and 0.6% p.a. respectively, though it will be concentrated in Eastern Europe and Central Asia. Meat consumption is expected to approach 50kg per capita by 2032, more than 67% above the global average.

In the European Union, protein consumption is already high and consumers are increasingly aware of health and environmental considerations. Consequently, dairy product consumption is expected to decline by 5%, but it remains an important product group and by 2032 is still expected to contribute 13% of total calories and 21% of total protein. Per capita consumption of cheese and butter remain more than six times and double the global average level respectively. Similarly, meat products constitute 24% of total protein availability by 2032, despite the modest decline in total per capita consumption. Minor declines in pigmeat, bovine and ovine meat consumption is expected to be partly negated by rising poultry intake, thereby increasing the share of poultry in total meat consumption to almost 30% by 2032.

Overall, across the region, fish consumption is expected to rise by 5%, with faster growth expected in Central Asia, and the European Union. In Western Europe, consumption levels are already high, and by 2032 are expected to exceed the global average by almost 10%, or 2kg per capita. Conversely, growth in Central Asia, from a small base, is only sufficient for consumption to reach 22% of the global average level by 2032.

The relative importance of animal products in terms of both consumption and production is also reflected in feed, where the region accounts for almost a quarter of global use. Growth prospects mirror those of livestock production, with a distinct slowdown in the coming decade. Total feed use is only expected to expand by 2.6% by 2032, with a 4% reduction in Western Europe offset by gains of 12% and 25% respectively in Eastern Europe and Central Asia. Almost half of the additional feed used in Eastern Europe

is attributed to Türkiye. The concentration of growth in Eastern Europe also underpins the faster rate of growth in maize feed use relative to wheat.

The European Union's drive to increase renewable energy production is enshrined in its new overall renewable energy target of 32% by 2030. Despite expected reductions in both gasoline and diesel use, ethanol use is expected to expand by almost 8% over the coming decade, while biodiesel use remains stable. Considering sustainability concerns around palm oil, which is classified as high risk under the new Renewable Energy Directive, its use for biodiesel production is expected to decline by almost 11%.

Trade

Slow recovery in Ukraine exports depends on resolution of the war

Trade in Europe and Central Asia has been amongst the most dynamic of the regions covered in this chapter. Historically a major net importer, this deficit has shrunk to merely a third of the level ten years ago. The primary driver of this shift was Eastern Europe, mainly Russia and Ukraine, where the exportable surplus in 2020-22 was bigger than the deficit a decade ago (Figure 1). In light of ongoing war in the region, this trend is also set to change, at least in the short term. Over the past decade, Ukraine accounted for almost 40% of the growth in net exports from Eastern Europe. While the grain deal, signed mid-2022 under the Black Sea Grain Initiative was a critical in enabling continued exports from Ukraine, volumes were significantly reduced and with production set to decline as a result of the war, exports are expected to contract further in the short term. The continued extension of the grain deal also remains uncertain. While a resolution to the ongoing war would enable both production and export growth to resume in the medium term, restoration of its productive and trade capacity would likely require substantial investment and time. Under the baseline assumptions, Ukraine's exports are only expected to recover to 2021 levels by 2031. Consequently, while net exports from Eastern Europe are expected to rise by just over 22% compared to the 2020-22 base period, the absolute growth in net exports is less than half of the level achieved in the past decade. Growth is expected to be concentrated in Russia and Türkiye, where exports are set to expand by 1.9% p.a. and 2.4% p.a. respectively. Combined with growth of 1.8% p.a. in exports from Western Europe, this is sufficient for the total Europe and Central Asian region to reach a small net trade surplus by 2032.

Total exports from the region could expand 19% by 2032, due in large to a 23% expansion in crop product exports, with more subdued growth of 12% in animal-based products. Cereal exports are expected to rise by 20%, or 32 Mt by 2032, with Russia accounting for more than half of additional volumes. By 2032, the Europe and Central Asian region will account for 36% of global cereal exports, with both the Near East and North Africa and Sub-Saharan Africa being significant importers. In line with the concentration in Russia, more than half of additional cereal exports by 2032 will be wheat, resulting in its increased share in total cereal exports from the region. Maize exports are also expected to rise and by 2032, the region is set to contribute 22% of global maize trade.

Europe and Central Asia contribute more than 40% of livestock product exports globally and almost 90% of these volumes come from the European Union. While growth in the European Union's exports of animal-based products is expected to slow compared to the past decade, the region still constitutes 46% of global trade in such products by 2032. Its share is significant in both meat and dairy products. In line with reduced production, meat exports from the European Union are expected to decline by 16%, but most of this emanates from the pigmeat sector, as poultry and bovine meat exports are anticipated to remain fairly stable. The reduction in pigmeat exports implies that its share in global pigmeat trade will decline to 31%.

The European Union constitutes 28% of global dairy exports and growth of 1.6% p.a. is sufficient to sustain this share by 2032. Its relative contribution and growth prospects differ across the various dairy products. An increasing share of its smaller milk production pool will be processed into cheese and butter, enabling

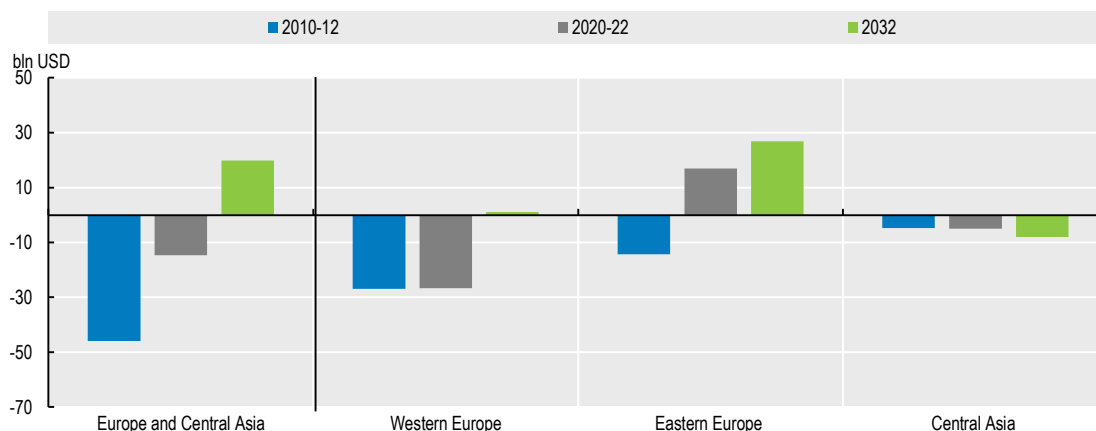
cheese exports to rise by almost 28% over the next ten years, while butter exports grow by 17%. This enhances its share in the global market to 43% by 2032. On the other hand, its share in the global trade of SMP and WMP is expected to decline.

The region is also an important exporter of fish products, with Russia and Norway the major contributors. The region's 26% share in global fish exports is the highest amongst those covered in this chapter. With growth set to slow to 0.3% p.a., the Developed and East Asia region will capture a bigger market share by 2032.

Despite the shift to export orientation, the region also remains a significant importer of many agricultural products. By 2032, imports are anticipated to increase by 13%, though growth from Central Asia is much faster at almost 39%, from a smaller base. The growing export orientation in Europe, combined with rising imports from Central Asia implies that a substantial share of additional imports could be supplied from within the region. Around 15% of Central Asia's additional imports is expected to be animal products, of which the European Union is a major supplier.

Further to animal products, the region is a significant importer of rice and vegetable oil, as well as maize and protein meal for use in animal feed. For both protein meal, and to a lesser extent wheat, its share in global imports is expected to decline by 2032, due to its projected slowdown in livestock production growth and thus feed use.

Figure 1. Net exports of agriculture and fish products from Europe and Central Asia (including processed products)

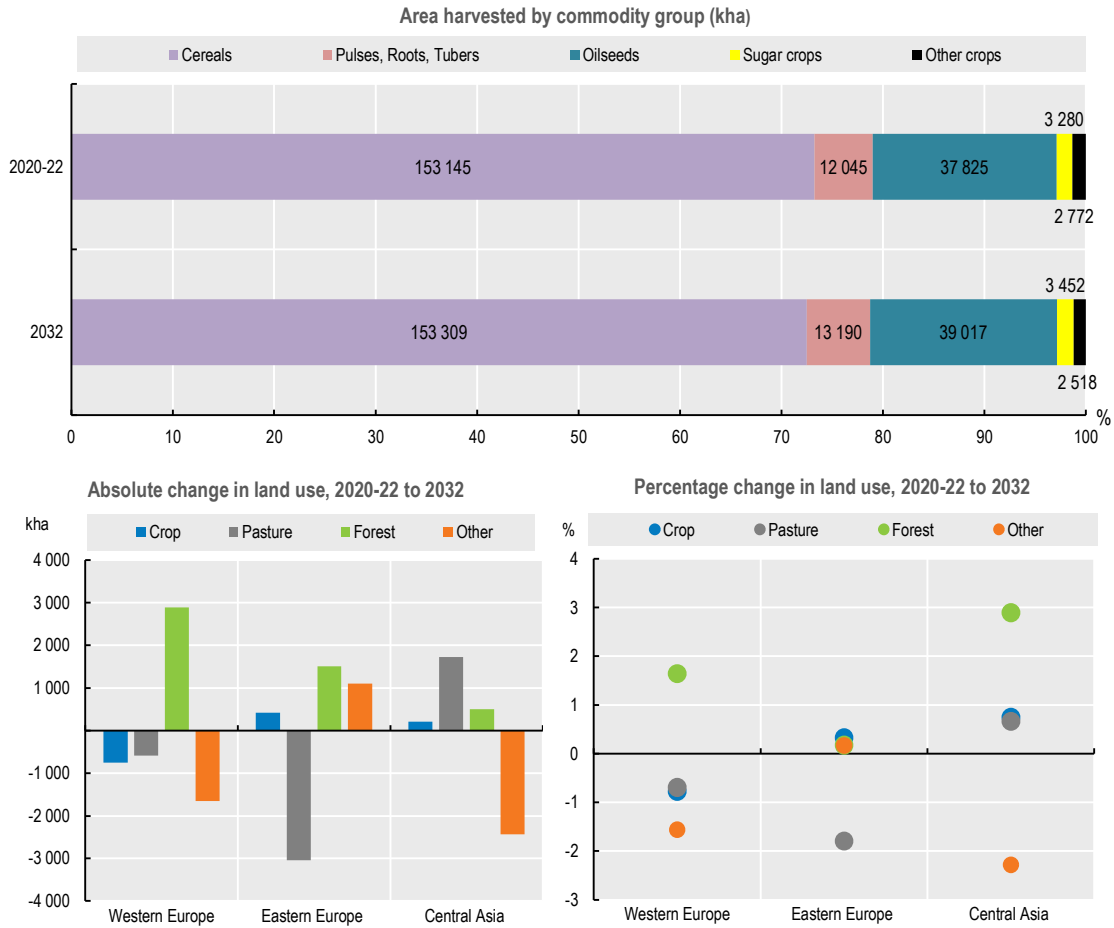


Note: Estimates are based on historical time series from the FAOSTAT Trade indices domain which are extended with the Outlook database. Products not covered by the *Outlook* are extended by trends. Total trade values include also processed products, usually not covered by the Outlook variables. Trade values are measured in constant 2014-2016 USD.

Source: FAO (2023). FAOSTAT Trade Indices Database, <http://www.fao.org/faostat/en/#data/TI>; OECD/FAO (2023) "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

StatLink 2 <https://stat.link/f9mvkt>

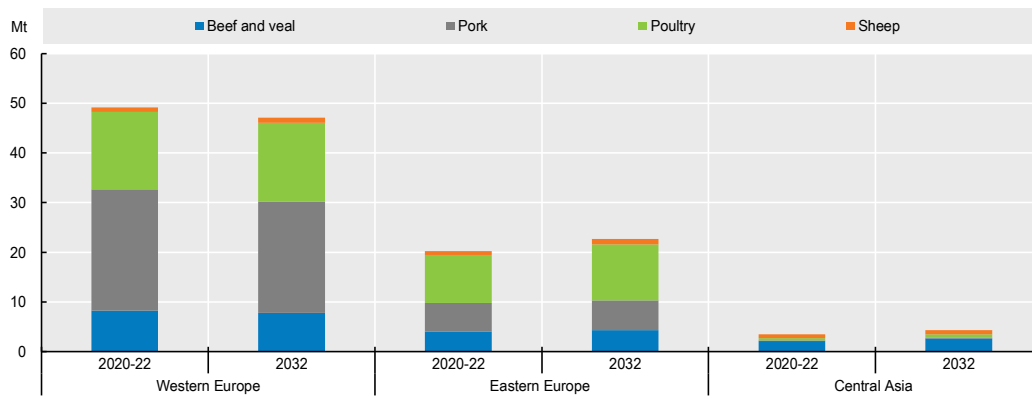
Figure 2. Change in area harvested and land use in Europe and Central Asia



Source: OECD/FAO (2023), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

StatLink 2 <https://stat.link/o4g3au>

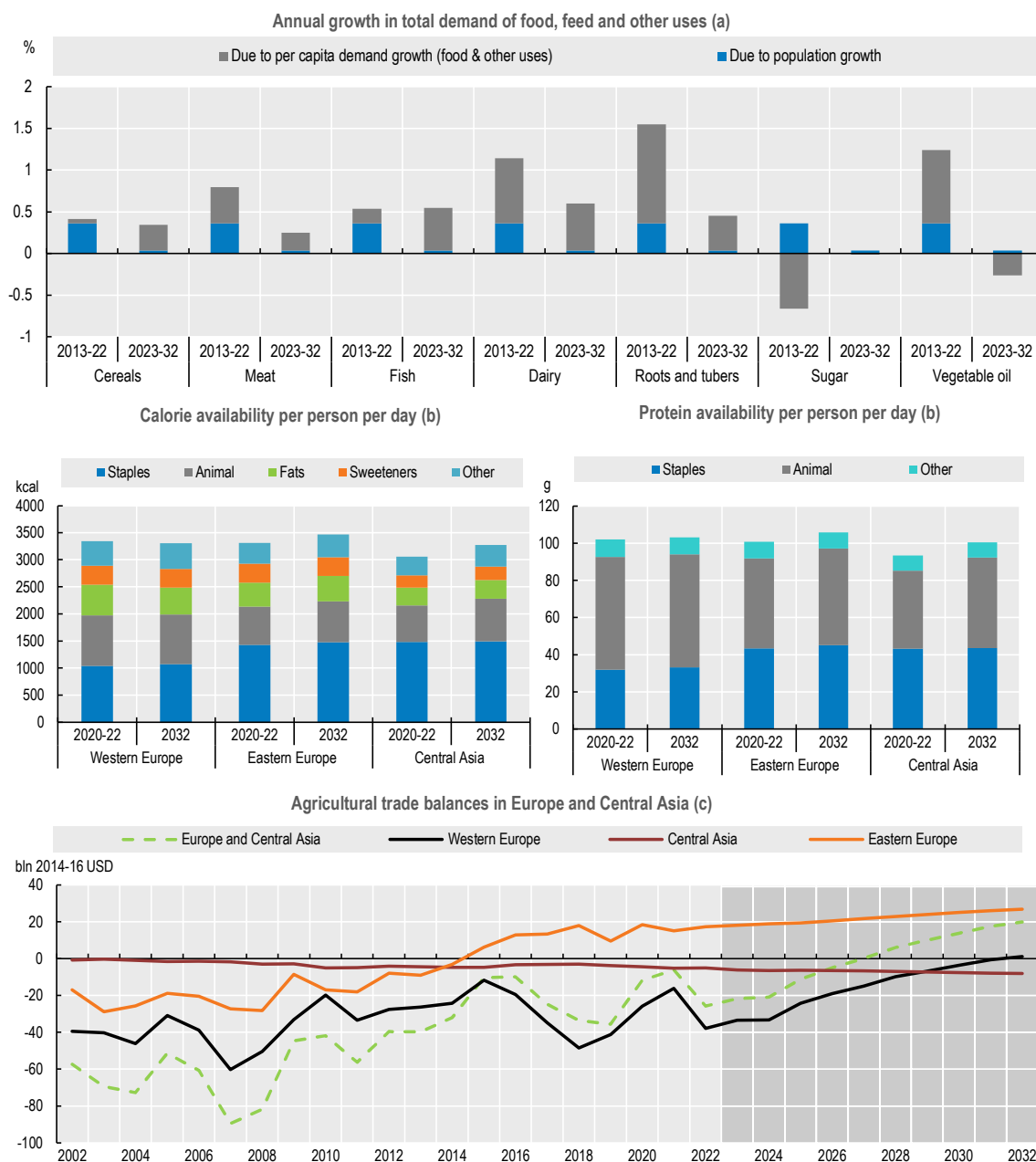
Figure 3. Livestock production in Europe and Central Asia



Source: OECD/FAO (2023), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

StatLink 2 <https://stat.link/b95lqh>

Figure 4. Demand for key commodities, food availability and agricultural trade balance in Europe and Central Asia



Notes: Estimates are based on historical time series from the FAOSTAT Food Balance Sheets and trade indices databases and include products not covered by the *Outlook*. a) Population growth is calculated by assuming per capita demand constant at the level of the year preceding the decade. b) Fats: butter and oils; Animal: egg, fish, meat and dairy except for butter; Staples: cereals, oilseeds, pulses and roots. c) Include processed products, fisheries (not covered in the FAOSTAT trade index) based on outlook data.

Source: FAO (2023). FAOSTAT Value of Agricultural Production Database, <http://www.fao.org/faostat/en/#data/QV>; OECD/FAO (2023) "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

StatLink 2 <https://stat.link/p65kns>

Table 1. Regional indicators: Europe and Central Asia

| | Average | | | % | Growth ² | |
|---------------------------------------------------------------|---------|-------------------|---------|---------|---------------------|---------|
| | 2010-12 | 2020-22 (base) | 2032 | | Base to 2032 | 2013-22 |
| Macro assumptions | | | | | | |
| Population ('000) | 898 949 | 933 612 | 941 640 | 0.86 | 0.36 | 0.04 |
| Per capita GDP ¹ (kUSD) | 24.14 | 26.67 | 31.98 | 19.89 | 1.17 | 1.62 |
| Production (bln 2014-16 USD) | | | | | | |
| Net value of agricultural and fisheries ³ | 446.1 | 510.2 | 544.4 | 6.71 | 0.90 | 0.67 |
| Net value of crop production ³ | 192.3 | 223.7 | 243.5 | 8.85 | 0.52 | 0.88 |
| Net value of livestock production ³ | 205.7 | 234.3 | 243.2 | 3.82 | 1.32 | 0.44 |
| Net value of fish production ³ | 48.1 | 52.2 | 57.7 | 10.51 | 0.75 | 0.80 |
| Quantity produced (kt) | | | | | | |
| Cereals | 493 164 | 597 565 | 638 602 | 6.87 | 0.61 | 0.74 |
| Pulses | 8 450 | 12 888 | 16 742 | 29.90 | 4.63 | 2.47 |
| Roots and tubers | 28 705 | 31 318 | 33 355 | 6.50 | 1.52 | 0.54 |
| Oilseeds ⁴ | 49 460 | 69 540 | 76 464 | 9.96 | 2.19 | 1.08 |
| Meat | 61 798 | 72 875 | 74 075 | 1.65 | 1.66 | 0.26 |
| Dairy ⁵ | 25 684 | 29 588 | 31 628 | 6.90 | 1.25 | 0.69 |
| Fish | 17 177 | 18 767 | 20 699 | 10.30 | 0.87 | 0.79 |
| Sugar | 26 768 | 27 232 | 28 733 | 5.51 | 0.74 | 0.42 |
| Vegetable oil | 24 391 | 34 422 | 36 854 | 7.06 | 2.74 | 0.76 |
| Biofuel production (mln L) | | | | | | |
| Biodiesel | 11322 | 17877 | 18071 | 1.09 | 4.34 | 0.12 |
| Ethanol | 7 028 | 8 402 | 9 266 | 10.28 | 1.46 | 1.03 |
| Land use (kha) | | | | | | |
| Total agricultural land use | 774 111 | 767 890 | 765 863 | -0.26 | -0.05 | 0.01 |
| Total land use for crop production ⁶ | 254 143 | 254 015 | 253 887 | -0.05 | -0.03 | 0.09 |
| Total pasture land use ⁷ | 519 968 | 513 876 | 511 977 | -0.37 | -0.06 | -0.03 |
| GHG Emissions (Mt CO ₂ -eq) | | | | | | |
| Total | 757 | 787 | 792 | 0.63 | 0.19 | 0.07 |
| Crop | 190 | 204 | 207 | 1.32 | 0.43 | 0.25 |
| Animal | 555 | 567 | 568 | 0.18 | 0.06 | -0.03 |
| Demand and food security | | | | | | |
| Daily per capita caloric food consumption ⁸ (kcal) | 3 269 | 3 307 | 3 359 | 1.57 | 0.05 | 0.32 |
| Daily per capita protein food consumption ⁸ (g) | 99.0 | 100.8 | 104.6 | 3.8 | 0.2 | 0.4 |
| Per capita food consumption (kg/year) | | | | | | |
| Staples ⁹ | 160.3 | 160.3 | 166.7 | 4.01 | -0.15 | 0.39 |
| Meat | 46.2 | 47.8 | 48.7 | 1.85 | 0.20 | 0.16 |
| Dairy ⁵ | 27.3 | 29.4 | 31.1 | 5.71 | 0.58 | 0.56 |
| Fish | 18.5 | 18.1 | 18.7 | 3.33 | -0.07 | 0.43 |
| Sugar | 35.9 | 33.2 | 33.1 | -0.52 | -0.57 | -0.02 |
| Vegetable oil | 18.1 | 20.5 | 20.2 | -1.45 | 0.18 | 0.02 |
| Trade (bln 2014-16 USD) | | | | | | |
| Net trade ³ | - 46 | - 15 | 20 | -235.86 | .. | .. |
| Value of exports ³ | 435 | 573 | 684 | 19.35 | 2.45 | 1.84 |
| Value of imports ³ | 481 | 588 | 664 | 13.00 | 2.09 | 1.04 |
| Self-sufficiency ratio ¹⁰ | | | | | | |
| Cereals | 112.0 | 118.9 | 124.1 | 4.38 | 0.19 | 0.30 |
| Meat | 99.6 | 107.0 | 106.2 | -0.80 | 0.86 | 0.01 |
| Sugar | 81.9 | 87.6 | 91.7 | 4.70 | 0.96 | 0.53 |
| Vegetable oil | 84.2 | 95.7 | 105.2 | 9.90 | 1.5 | 1.0 |

Notes: 1. Per capita GDP in constant 2010 US dollars. 2. Least square growth rates (see glossary). 3. Net value of agricultural and fisheries data follows FAOSTAT methodology, based on the set of commodities represented in the Aglink-Cosimo model valued at average international reference prices for 2004-06. 4. Oilseeds represent soybeans and other oilseeds. 5. Dairy includes butter, cheese, milk powders and fresh dairy products, expressed in milk solid equivalent units. 6. Crop Land use area accounts for multiple harvests of arable crops. 7. Pasture land use represents land available for grazing by ruminant animals. 8. Daily per capita calories/protein represent food consumption per capita per day, not intake. 9. Staples represent cereals, oilseeds, pulses, roots and tubers. 10. Self-sufficiency ratio calculated as $\text{Production} / (\text{Production} + \text{Imports} - \text{Exports}) * 100$.

Sources: FAO (2023). FAOSTAT Food Balance Sheets and trade indices databases, <http://www.fao.org/faostat/en/#data> ; OECD/FAO (2023), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

Notes

¹ For mentioned regions, see summary table for regional grouping of countries.

² Source: OECD-FAO interpolated for 2018-20 from the database of the Global Trade Analysis Project (GTAP) 2011, using food expenditure and GDP data used in this *Outlook*.