

OECD-FAO Agricultural Outlook 2021-2030

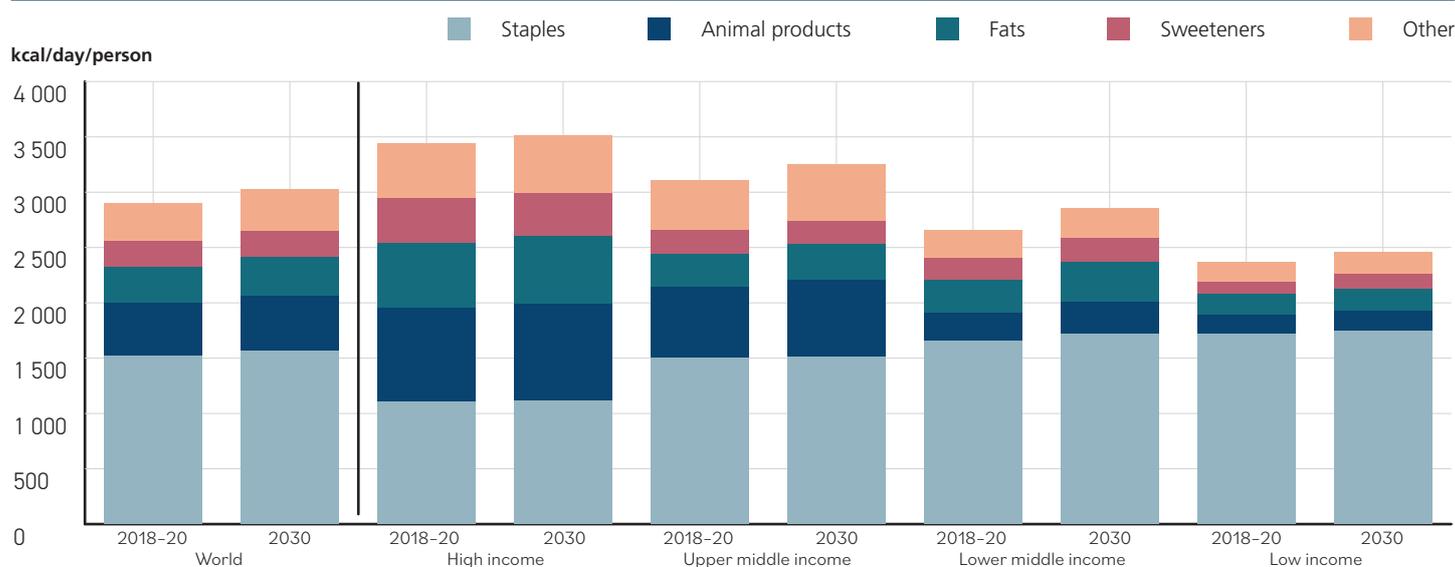
Executive Summary

The *OECD-FAO Agricultural Outlook 2021-2030* provides a consensus assessment of prospects over the next 10 years for agricultural commodity and fish markets at national, regional and global levels, and serves as a reference for forward-looking policy analysis and planning. The report is a collaborative effort of the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO), prepared with input from Member governments and international commodity organisations. It highlights fundamental economic and social trends that will drive the global agri-food sector, assuming no major changes to weather conditions or policies. Since this year's Outlook period ends in 2030, the report's projections also suggest areas where more attention is needed to achieve the Sustainable Development Goals (SDGs).

The global agri-food sector has shown resilience during the pandemic, but income losses and food price spikes caused undernourishment to rise

At the time of preparation of this publication, the agricultural and food sector has demonstrated high resilience in face of the global COVID-19 pandemic compared to other sectors of the economy, but the compounding effect of income losses and inflation in consumer food prices have made access to healthy diets more difficult for many people. After an initial economic contraction from the COVID-19 shock, the *Outlook* projections are based on a widespread economic recovery beginning in 2021. However, the level of global Global Domestic Product (GDP) in 2030 is projected to remain below the pre-pandemic projections for 2030 as the lost GDP during the pandemic is not expected to be fully recovered. The *Outlook* projects that, following a business as usual path, achieving SDG 2 on zero hunger by 2030 will be particularly challenging.

Figure 1. Per capita availability of main food groups (calorie equivalent), by country income group



Note: Estimates are based on historical time series from the FAOSTAT Food Balance Sheets database which are extended with the Outlook database. Products not covered in the Outlook are extended by trends. The 38 individual countries and 11 regional aggregates in the baseline are classified into the four income groups according to their respective per-capita income in 2018. The applied thresholds are: low: < USD 1 550, lower-middle: < USD 3 895, upper-middle: < USD 13 000, high: > USD 13 000. Staples includes cereals, roots and tubers and pulses. Animal products include meat, dairy products (excluding butter), eggs and fish. Fats include butter and vegetable oil. Sweeteners include sugar and HFCS. The category others include fruits, vegetables, and other crop and animal products.

Source: OECD/FAO (2021), FAOSTAT Food Balances Database, www.fao.org/faostat/en/#data/FBS; OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

Consumers in middle-income countries to increase their food intake most significantly, while diets in low-income countries to remain largely unchanged

Consumption of animal protein to level off in high-income countries, while demand to remain strong in middle-income countries

Slow transition towards healthier diets, fat and staples to still dominate food consumption growth

Global feed demand boosted by growing livestock numbers and higher feeding intensity - dampened by improved feeding efficiency

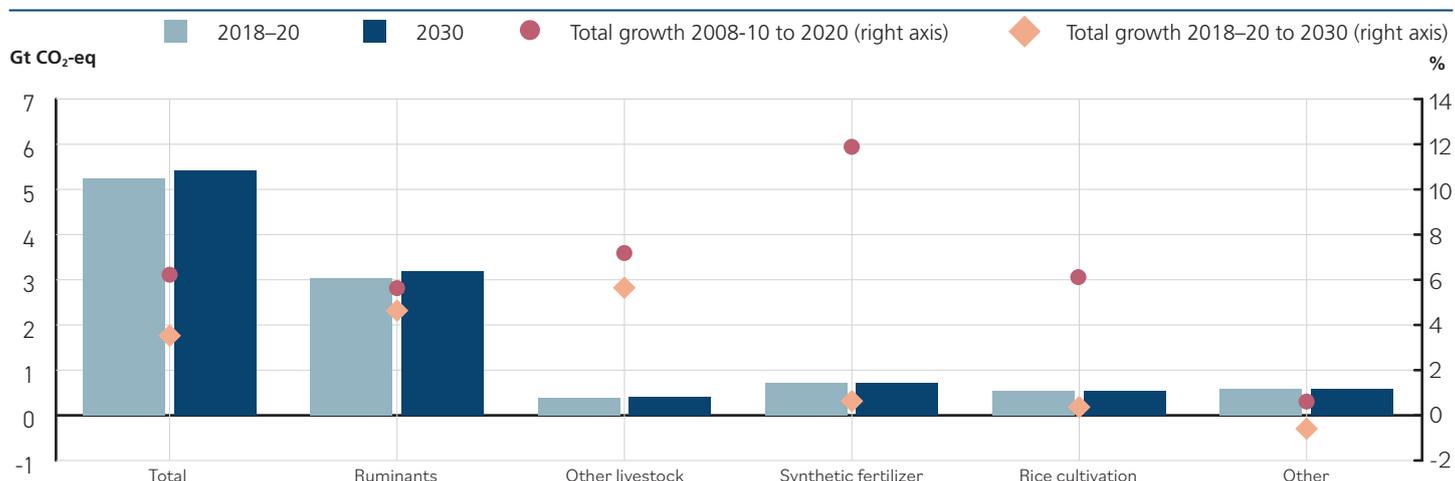
The challenges of eradicating hunger will vary among countries. According to the *Outlook*, average global food availability per person is projected to grow by 4% over the next ten years, reaching just over 3 025 kcal/day in 2030. However, this global average masks differences among regions. Consumers in middle-income countries are projected to increase their food intake most significantly, while diets in low-income countries will remain largely unchanged. In Sub-Saharan Africa, where 224.3 million people were undernourished in 2017-19, daily per capita calorie availability is projected to increase by only 2.5% over the next decade to 2500 kcal in 2030.

Some dietary changes are anticipated in the coming decade. In high-income countries, per capita consumption of animal protein is expected to level off. Due to growing health and environmental concerns, per capita meat consumption is not expected to increase and consumers will increasingly replace red meat by poultry and dairy products. In middle-income countries, the preference for livestock products and fish is expected to remain strong and per capita availability of animal protein is projected to increase by 11%, narrowing the consumption gap with high-income countries by 4% to 30 g/person/day in 2030.

The composition of diets also influences global health outcomes. At the global level, fats and staples are expected to account for about 60% of the additional calories over the next decade and provide 63% of the available calories by 2030, whereas fruits and vegetables would continue to provide only 7% of the available calories. Additional efforts are needed to achieve the World Health Organisation (WHO) recommended net intake of 400g of fruits and vegetables per person per day. This includes efforts to reduce food loss and waste, which are particularly high for perishable products.

The *Outlook* highlights the important influence of feed efficiency and disease outbreaks on future trends in animal production and agricultural markets. Lower projected growth in livestock production and improved feeding efficiency in high-income countries and some emerging economies should result in slower growth in feed demand compared to last decade. By contrast, several low and middle-income countries will experience strong growth in feed demand over the coming decade, as their livestock sectors expand and intensify. The development of animal husbandry in the People's Republic of China (China), the world largest feed consumer, will be central to the development of the global feed markets. Following the outbreak of the African swine fever (ASF), China started to rebuild and restructure its pig herd in 2020, which is assumed to have little net effect on the average feed use per unit of livestock product.

Figure 2. Direct GHG emission from crop and livestock production, by activity



Note: Estimates are based on historical time series from the FAOSTAT Emissions Agriculture databases which are extended with the Outlook database. Emission types that are not related to any Outlook variable (organic soil cultivation and burning Savannahs) are kept constant at their latest available value. The category "other" includes direct GHG emissions from burning crop residues, burning savanna, crop residues, and cultivation of organic soils.

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

Global biofuel production growth to slow, causing biofuel share of main feedstock commodities to fall

The *Outlook* suggests that the biofuel sector would expand at a much slower pace over the next 10 years compared to the past two decades. Biofuel production is expected to use a falling share of the main feedstock commodities, except for sugarcane. In the European Union and the United States of America, policies increasingly support the transition to electric vehicles and favour waste products and residues as feedstock for biofuel production. Main producers of sugarcane and vegetable oil (e.g. Brazil, India, Indonesia), however, will continue to expand their biofuel production driven by increasing transport fuels use, environmental targets and efforts to strengthen their domestic farm sector.

Productivity-enhancing investments are key to achieving agricultural production growth

The year's *Outlook* highlights the important role that public and private investments have in enhancing productivity. Over the coming decade, global agricultural production is projected to increase by 1.4% p.a., with the additional output to be predominantly produced in emerging economies and low-income countries. The *Outlook* assumes wider access to inputs as well as productivity-enhancing investments in technology, infrastructure and agricultural training as critical drivers of agricultural development. Prioritizing agriculture and well-targeted public and private spending are especially critical for improving agricultural productivity, particularly for countries with limited public resources and strong economic reliance on the agricultural sector.

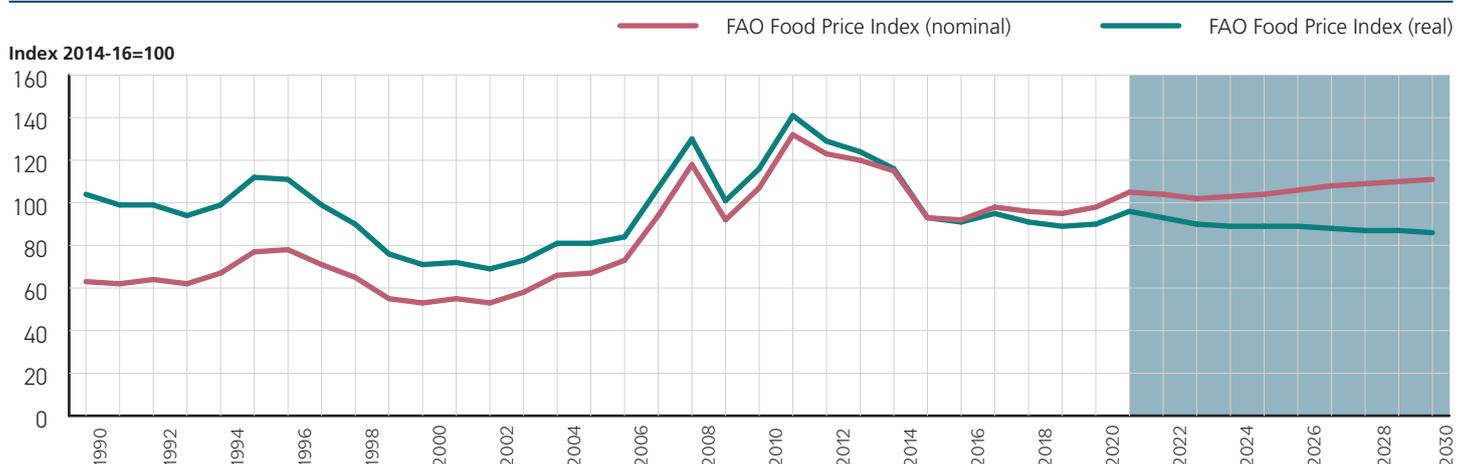
Yield improvements are expected to account for the majority of crop production growth

Investments in improving yields and improved farm management will drive growth in global crop production. Assuming continuing transition to more intensive production systems over the next decade, 87% of the projected global crop production growth are expected to come from yield improvements, 7% from increased cropping intensity and only 6% from the expansion of cropland. Regional yield gaps are expected to narrow over the coming decade, as yields of the main crops are projected to increase in India and Sub-Saharan Africa through better adapted seeds and improved crop management.

Livestock production growth based on productivity growth and herd enlargement

Similar to trends in crop production, a large share of the projected 14% production growth in livestock and fish production will come from productivity improvements. However, herd enlargements are also expected to significantly contribute to livestock production growth in emerging economies and low-income countries. Productivity improvements in the livestock sector will be mainly achieved through more intensive feeding methods, improved genetics and better herd management practices. Aquaculture production is expected to overtake capture fisheries production in 2027 and account for 52% of all fish production by 2030.

Figure 3. FAO Food Price Index (projected evolution as of January 2021)



Note: Historical data is based on the FAO Food Price Index, which collects information on nominal agricultural commodity prices; these are projected forward using the OECD-FAO Agricultural Outlook baseline. Real values are obtained by deflating the FAO Food Price Index by the US GDP deflator (2014-16=1).

Source: OECD/FAO (2021), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

Carbon intensity of agricultural production is declining, but total GHG emissions to increase further to 2030

Agricultural commodity trade is becoming increasingly important for food security and rural livelihoods

Current price increases projected to be temporary, fundamental trends point to falling real prices in the medium term

Concerted actions and additional efforts are needed at all levels in order to realize the 2030 Agenda

The *Outlook* highlights the significant contribution of agriculture to climate change. The carbon intensity of agricultural production is expected to decline over the coming decade as direct agricultural greenhouse gas (GHG) emissions are projected to grow at a lower rate than agricultural production. Nevertheless, global GHG emissions from agriculture are projected to increase by 4% over the next ten years, with livestock accounting for more than 80% of this increase. Thus, additional policy effort will be needed for the agricultural sector to effectively contribute to the global reduction in GHG emissions as set in the Paris Agreement. This includes large-scale implementation of climate smart production processes to mitigate GHG emissions, especially in the livestock sector.

Trade remains particularly important for resource-constrained countries, which are highly dependent on the import of basic and high-value food commodities. Globally, the share of imported calories in total consumption is expected to stabilise at about 20%, however, with regional differences. For instance, it is projected to reach as much as 64% in the Near East and North Africa region. Exports, in turn, play an important role in the development of agricultural production in many countries and regions. By 2030, 34% of the agricultural production of Latin America and the Caribbean is projected to be exported. Given growing regional imbalances, the use of trade restrictive policies (e.g. export and import restrictions) could have detrimental effects on global food security and nutrition and on farm livelihoods.

The *Outlook* price projections bring together global consumption and production developments for agricultural commodities based on expected market conditions. International prices of most commodities increased in the second half of 2020 into 2021, fuelled by robust global demand driven by strong feed demand in China and constraints on global production growth, as well as other factors. Consequently, an adjustment is assumed over the first years of the projection period. Thereafter, market fundamentals are expected to lead to slightly declining real prices driven by productivity improvements and slowing demand growth. Declining real prices can put pressure on the income of farmers, especially smallholders and family farmers, who are not able to lower their costs sufficiently by improving productivity. Over the coming decade, weather variability, animal and plant pests and diseases, changing input prices, macro-economic developments and other uncertainties will result in variations around the projected prices.

Assuming a fast recovery from the global COVID-19 pandemic and no major changes to weather conditions or the policy environment, the *Agricultural Outlook 2021-30* presents the major trends expected in food and agricultural markets over the coming decade. While it is expected that progress will be made in many respects, in order to realize the 2030 Agenda and achieve the SDGs by 2030, concerted actions and additional improvements are needed at all levels, requiring also more efforts by the agricultural sector.

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