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联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura | منظمة الأغذية والزراعة للأمم المتحدة

COMMITTEE ON COMMODITY PROBLEMS

Seventy-fourth Session

10-12 March 2021

MEDIUM-TERM OUTLOOK: TRENDS AND EMERGING ISSUES

Executive Summary

This document provides an overview of the latest set of medium-term projections for global and national agricultural markets. The projections cover consumption, production, trade, and prices for 25 agricultural products for the period from 2020 to 2029. The weakening of demand growth is expected to persist over the coming decade. Population would be the main driver of consumption growth for most commodities, even though the rate of population growth is predicted to decline. Per capita consumption of many commodities is foreseen to be flat at the global level. The slower demand growth for agricultural commodities is projected to be matched by efficiency gains in crop and livestock production, which would keep agricultural prices in real terms relatively flat. International trade will remain essential for food security particularly in food-importing countries, and for rural livelihoods in food-exporting countries. World agricultural markets face a range of new uncertainties that add to the traditionally high risks faced by agriculture. The most significant source of uncertainties relates to the COVID-19 pandemic and its impacts on consumption, production, trade and prices for agricultural commodities.

Suggested action by the Committee

The Committee is invited to:

- Review the medium-term projections and discuss their likely implications for global food security and nutrition, especially in the context of the COVID-19 pandemic;
- Advise on the usefulness of the projections for governments and policy-makers, and provide guidance and recommendations regarding future work in this regard, including on scenarios.

Queries on the substantive content of the document may be addressed to:

Secretariat of the Committee on Commodity Problems (CCP)
Markets and Trade Division
Email: FAO-CCP@fao.org

I. Introduction

1. The medium-term outlook provides a plausible scenario based on specific assumptions regarding the macroeconomic conditions, the agriculture and trade policy settings, weather conditions, longer-term productivity trends and international market developments. The projections presented in this document are an update of the OECD-FAO Agricultural Outlook 2020-2029, which was launched in July 2020. The Outlook exercise brings together commodity, policy and country expertise of FAO and the Organisation for Economic Co-operation and Development (OECD), and collaborating Members of both organizations.

2. The medium-term outlook presents a consistent baseline scenario for the evolution of agricultural and fish commodity markets at national, regional and global levels over the coming decade (2020-2029). These are projections, not forecasts, presenting a plausible and consistent scenario of the medium-term outlook for agricultural commodities over the next ten years.

3. This report was finalised under the unique circumstances generated by the COVID-19 pandemic. While the full impact of the shock due to the pandemic on agricultural and fish markets remains uncertain, its emerging supply and demand impacts were incorporated into the projections.

II. Starting situation and macroeconomic assumptions

4. Cereals and oilseeds markets were generally well supplied and balanced during the 2017-2019 base period of this report. With demand remaining subdued, international prices stayed below the 2010-2019 average. Meat markets were shaped by the African swine fever (ASF) outbreaks in East Asia, especially China, leading to a fall in global meat production and marking a departure from the stable growth trend of recent decades. World milk and processed dairy production continued their steady growth, especially in Asia, although unusually high temperatures and droughts in Europe and Oceania limited the expansion in some countries. World trade in dairy products increased on account of high imports by Asian countries, especially China. Aquaculture expanded and gained share in global aquatic food production, keeping pace with the rising demand, which resulted in prices to remain relatively stable.

5. World population will grow from an average of 7.6 billion people in 2017-2019 to 8.4 billion people in 2029. Population growth is concentrated in developing regions, particularly Sub-Saharan Africa, which is expected to have the fastest growth rate at 2.5 percent per annum.

6. Economic prospects over the entire projection period remain positive, despite the deep recession in 2020, which is projected to shrink global gross domestic product (GDP) by 4.4 percent. Additionally, shortages of labour in commodity processing, constraints to trade and reductions in transport fuel consumption due to COVID-19 related restrictions were taken into account for 2020. For 2021 an above-trend global GDP growth of 5.2 percent is expected to partially recover the economic losses.

III. Projection highlights

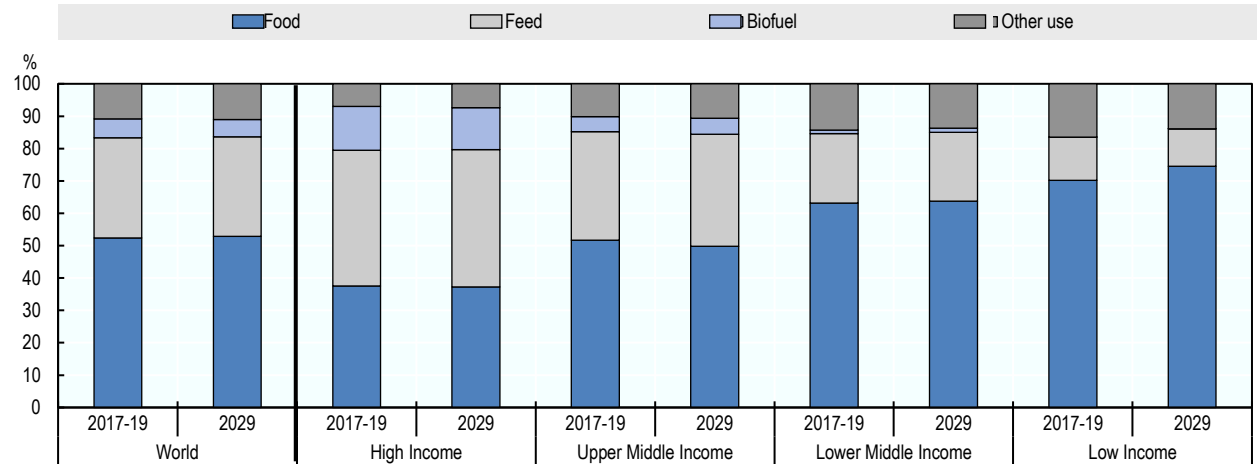
A. Consumption

7. Food is the primary use of agricultural commodities, currently accounting for 52 percent of calories produced by global agriculture. Feed takes up about 31 percent of calories produced, while the remaining 17 percent are used as either biofuel, seed, or raw products in industrial applications. No significant structural shifts in consumption are expected over the coming decade.

8. The use patterns of agricultural commodities vary depending on the development status of countries (Figure 1). The food share in low-income countries is projected to rise to 75 percent by the

end of the outlook period, as growth in domestic food demand outpaces the increase in domestic demand for feed and renewable industrial raw products. By contrast, the structure of demand for agricultural commodities in high-income countries favours further processing and direct food use accounts for only 38 percent of total consumption in 2029.

Figure 1. Uses of agricultural commodities: share of calories, by income group



Note: 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.
Source: FAO, 2021.

9. The feed use share is expected to expand particularly in upper-middle income countries. Main growth factors are the increasing Chinese feed demand and export-driven growth in the Latin American meat sector, where countries are projected to further capitalise on their resources and competitiveness to capture the additional value of the livestock sector.

Food

10. Globally, per-capita food consumption[1] is projected to grow by about 4 percent over the projection period, reaching just over 3 000 kcal/capita/day in 2029 (Figure 2). Fats and staples account for about 52 percent of the additional calories. Staples will remain the most significant food crop, maintaining their overall share in the food basket. In line with past developments, total per capita availability of protein is expected to rise to 85 g/capita/day in 2029, from 83 g/capita/day in the base period (Figure 3).

11. The severe income losses caused by the COVID-19 pandemic are expected to interrupt the growth of food consumption in 2020. In particular, the consumption of vegetable oil and livestock products is projected to be affected, most severely in low-income countries. The use of staple foods will be impacted less, due to their much lower responsiveness to income fluctuations. The pandemic is estimated to cause a decline in the quality of nutrition rather than a reduction in overall food consumption.

12. In high-income countries, ongoing income growth and changing consumer preferences will lead to further substitution of staples, sweeteners and fats for higher-value foods, most importantly foods dense in micronutrient content such as fruits, vegetables, seeds and nuts and, to a lesser extent, livestock products. As many of these fruits, nuts and vegetables have to be imported by high-income countries; this offers market opportunities for countries with export potential in these commodities. Near-saturation consumption levels of meat and dairy products constrain further demand growth for

[1] Food consumption is expressed as availability of total calories per person per day. It does not represent actual intake, as losses and waste are not deducted.

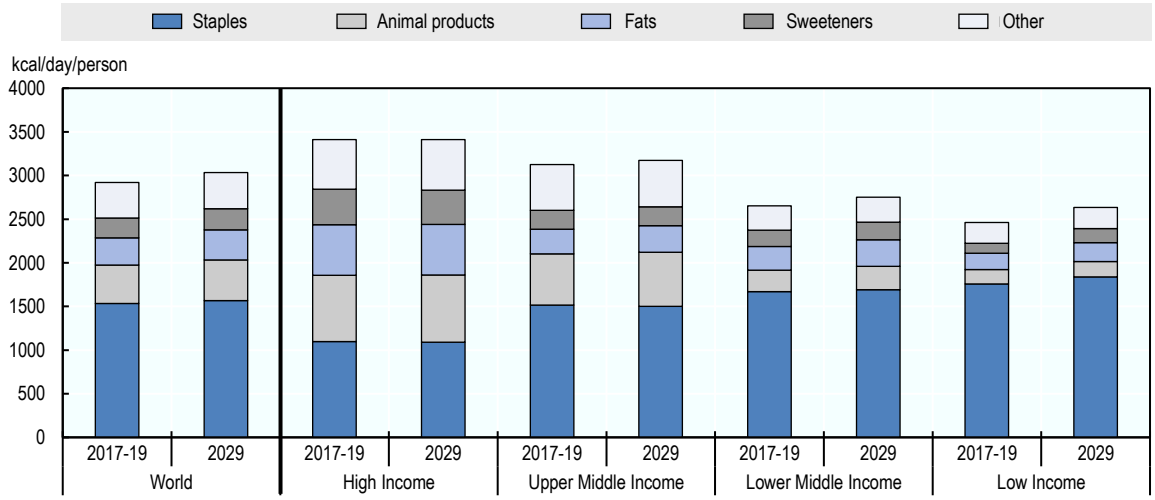
livestock products, while increasing health and environmental concerns strengthen the consumption of protein from alternative sources.

13. In many upper-middle income countries the traditionally strong consumer preference for animal protein is expected to persist, all of the additional protein consumption will be from animal sources. The projected income growth allows consumers to increase their per capita consumption of meat by 4 percent and fish by 12 percent by 2029.

14. Due to limited disposable income in lower-middle income countries, fats and staples will still account for half of the expected calorie increase during the coming decade. Although consumers in these countries are projected to significantly increase their consumption of animal protein, per capita intake remains considerably below consumption levels in the upper middle- and high-income countries. Consumption growth of higher value foods is often constrained by inefficient domestic supply chains for these products, which reduce affordability and limit availability to consumers.

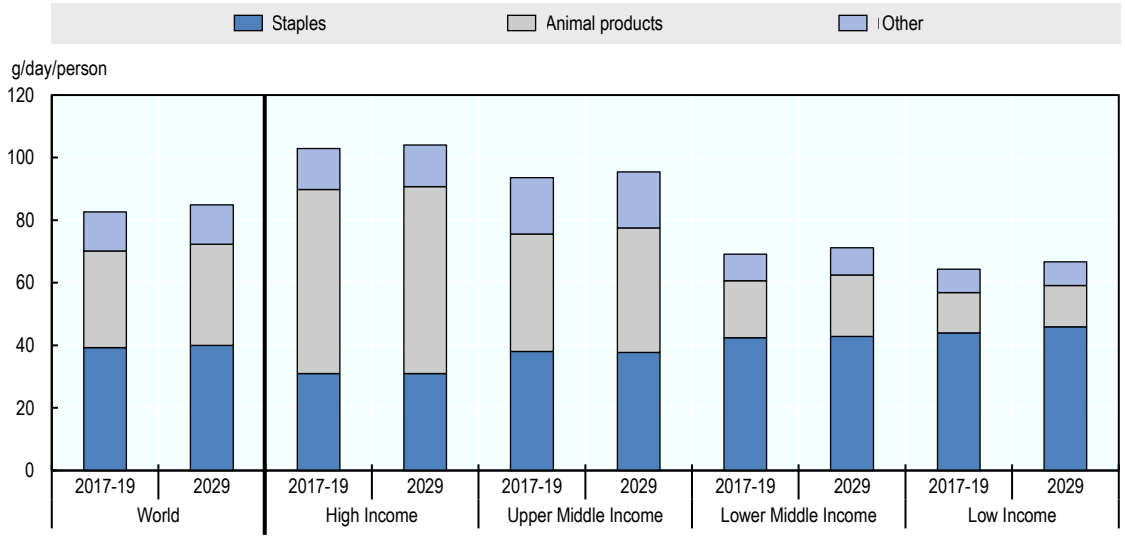
15. Average diets in low-income countries remain heavily based on staples. Almost half of the additional calories over the coming decade are still expected to come from cereals, and roots and tubers. The second most important source of additional calorie consumption will be sweeteners, accounting for 26 percent of the total increase. Growth in the consumption of livestock products and other high value foods will remain limited, due to income constraints.

Figure 2. Per capita consumption of main food groups (calorie equivalent), by income group



Note: 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 include cereals, roots and pulses. Animal products include meat, dairy products (excluding butter), eggs and fish. Fats include butter and vegetable oil. The "other" category includes fruits, vegetables etc.
Source: FAO, 2021.

Figure 3. Per capita consumption of main food groups (protein equivalent), by income group



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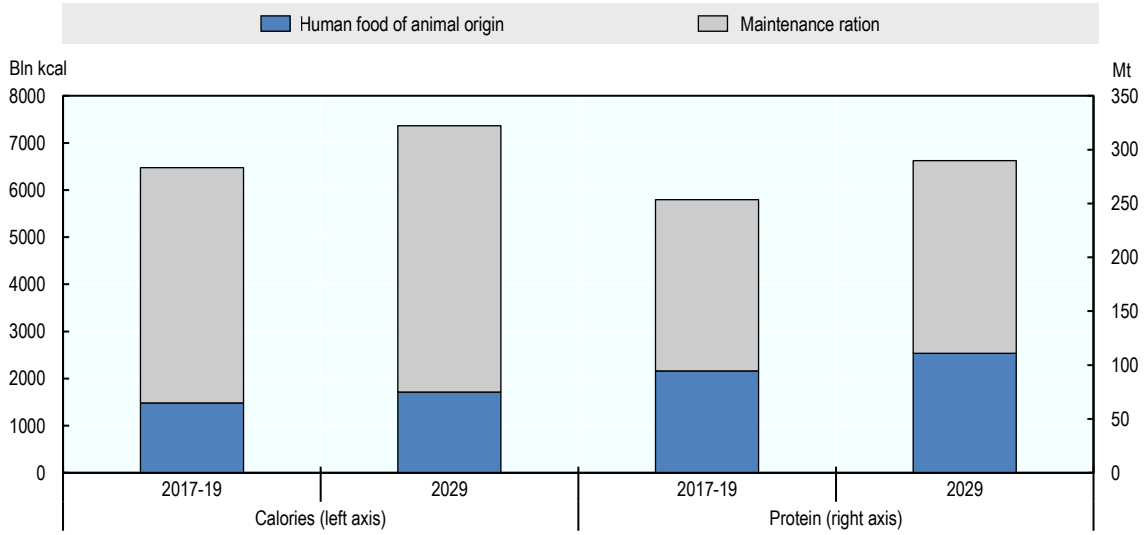
Source: FAO, 2021.

Feed

16. The ongoing evolution of nutrition patterns towards a higher share of foods from animal origin results in a larger amount of crops and other agricultural and fish products being used as feed. The total use of feed energy and protein will grow by about 13 percent by 2029. This growth is mainly due to the continuing expansion of the livestock herd and aquaculture production in low- and middle-income countries. The medium-term projections also assume a further intensification of livestock and fish production, mostly in order to accelerate the finishing process thus providing higher returns on fixed capital investments. Despite the ongoing innovation in the livestock sector, the share of feed energy that is converted into human food is expected to stay globally at only about 23 percent (Figure 4).

Figure 4. Global feed energy and protein use



Note: The maintenance ration is just sufficient to meet the requirements of the animal to maintain its life. An animal receiving only this ration will neither lose nor gain weight.
Source: FAO, 2021.

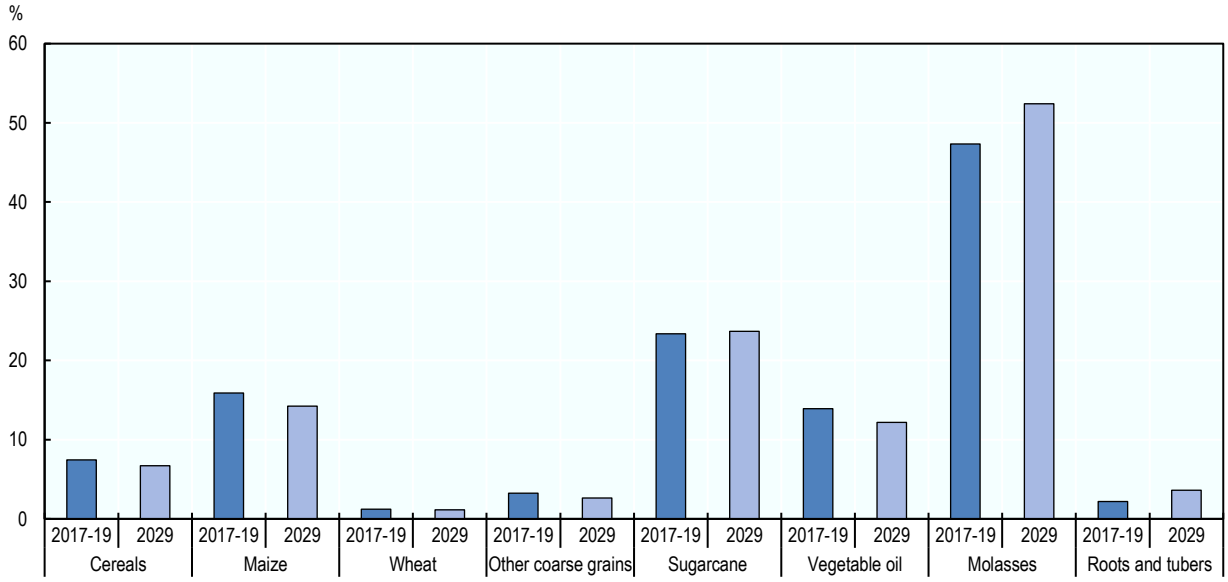
Biofuel

17. Biofuel is going to remain an important user of primary agricultural commodities, but it is not expected to generate significant additional demand for feedstock crops, due to weakening political support in the wake of the growing proliferation of electric and hybrid vehicles, which offer better efficiency in the reduction of greenhouse gas (GHG) emissions. Globally, biofuel use of maize is expected to expand only slightly over the coming decade, thus reducing its share of total use from 16 percent in the base period to about 14 percent in 2029 (Figure 5). Biofuel use of sugarcane is expected to expand by 15 percent keeping the biofuel share at 23 percent of total sugarcane use throughout the projection period. This gain can be largely attributed to the projected expansion of the Brazilian RenovaBio program, which aims to reduce GHG emissions from transportation fuel.

18. Because the use of vegetable oil as biofuel feedstock is expected to remain constant at about 30 Mt over the coming decade, its share in global vegetable oil use is expected to decline from about 14 percent in the base period to about 12 percent in 2029. In addition to the expected global decline in biofuel-blended diesel fuel use, a new regulatory framework in the European Union is expected to limit the biodiesel use of palm oil grown in carbon-capturing ecosystems such as forests, wetlands and peatlands. Increasing demand for palm oil-based biodiesel, mainly in South-East Asian countries will compensate the reduction in the European Union.

19. The reduction in transport fuel use caused by the measures to contain the spread of the coronavirus is estimated at around 1.8 percent in 2020 compared to 2019. Consumer demand and producer profitability of biofuels is expected to recover after the restrictions are lifted in 2021 and the crude oil price gradually increases.

Figure 5. Share of biofuel in total use



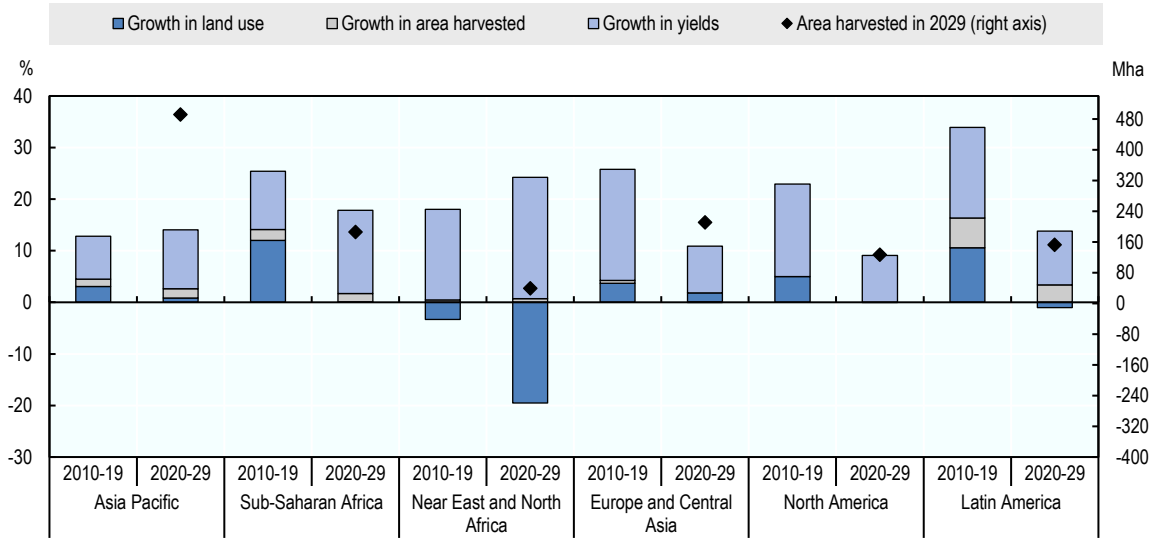
Source: FAO, 2021.

B. Production

20. Global agricultural production is projected to increase by 13 percent by 2029, a slower rate than during the previous decade. Low- and middle-income countries with availability of land and labour resources are expected to account for about 50 percent of global output growth. National food self-sufficiency initiatives will also support this development, in particular for cereals.

21. The COVID-19 pandemic is expected to only slightly affect the ongoing structural change in agricultural production over the medium-term. The transition from food staples to feed crops and livestock production stagnates in 2020, particularly in middle-income countries and least-developed countries (LDCs), but is assumed to resume in 2021.

Figure 6. Global growth in crop production

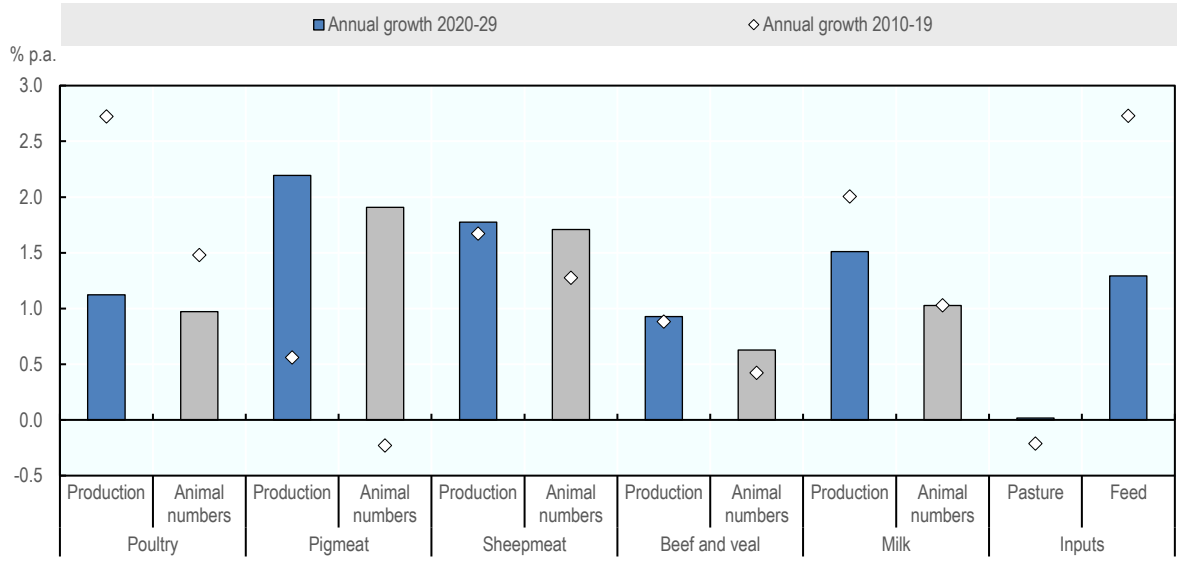


Note: The figure shows the decomposition of total production growth (2010-19 and 2020-29) into growth in land use, land intensification through growth in multi-cropped land, and growth in yields. It covers the following crops: cotton, maize, other coarse grains, other oilseeds, pulses, rice, roots and tubers, soybean, sugarbeet, sugarcane, wheat and palm oil.
Source: FAO, 2021.

22. About 80 percent of global crop output growth over the next ten years is attributed to yield improvements resulting from more intensive input use, investments in production technology and better cultivation practices. Further intensification of land use through multiple harvests per year will account for another 18 percent, while cropland expansion is projected to account for only 2 percent. The relative importance of increased productivity and cropland expansion will vary between regions and commodities, reflecting differences in availability and cost of land and other resources. Land use will intensify especially in Latin America, Sub-Saharan Africa and Asia Pacific.

23. Over the outlook period, global livestock production is expected to expand by 13 percent, supported by lower feed and stable product prices incentivising investments into additional production capacity and efficiency improvements, such as better genetics and more effective disease control (Figure 7). The productivity of production facilities is also expected to increase through more intense feeding practices to achieve higher slaughter weights and shorter finishing times. In addition to ongoing intensification, output will still expand significantly through herd enlargements. The extent and relative importance of intensive and extensive growth will vary by type of livestock commodity, as well as development status, resource endowments and policies of countries.

Figure 7. Growth in global livestock production



Source: FAO, 2021.

24. Globally, dairy production is estimated to grow by 22 percent, mainly on the account of Asian countries. Meat production is projected to expand by 11 percent, mostly originating in emerging economies and low-income countries. Poultry production is expected to increase by almost 20 Mt, which accounts for about half of the projected increase in total meat output.

25. Over the outlook period, world production of aquatic food is projected to grow by 12 percent per annum, to 196 Mt in 2029 (+20 Mt). Asia Pacific, the main producing region, will account for 70 percent of the global increase. Almost all of the additional aquatic food output originates from aquaculture, as capture fisheries remain heavily regulated.

26. Production projections suggest a growth in direct GHG emissions of 6 percent by 2029, indicating a decline in the carbon intensity of agricultural production over time. Geographically, most of the increase is projected to occur in emerging and low-income regions due to higher output growth in production systems that are more emission intensive. Livestock production will account for 80 percent of the global GHG emission growth.

C. Trade

27. Growth in international trade[2] is expected at 1.7 percent per annum over the projection period, compared to 2.9 percent per annum over the previous decade. Trade volumes will be mostly driven by production developments as the accelerating effects of trade liberalisation have diminished. The projected slowdown in demand growth in China and other emerging economies will be equally important.

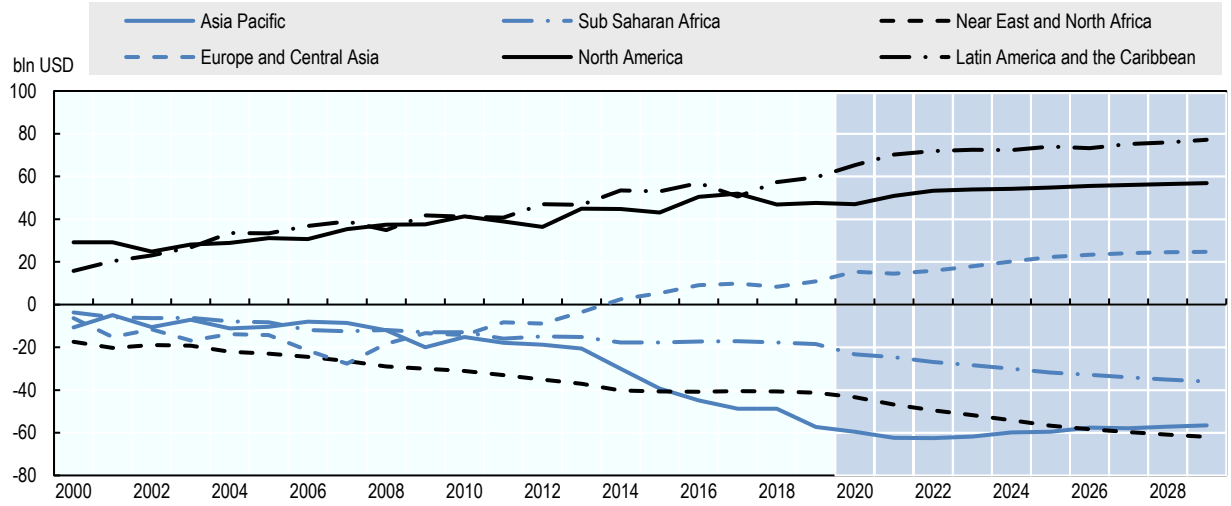
28. The Americas are expected to consolidate their position as the world's largest supplier of agricultural commodities, with net exports projected to increase by around 21 percent over the outlook period (Figure 8). Increased production of maize, soybeans, beef, poultry and sugar will underpin the expansion. Over the coming decade, net exports from Eastern Europe and Central Asia are projected

[2] Aggregate trade is the sum of cereals, oilseeds, roots and tubers, pulses, meat, dairy products, sweeteners, aquatic food, and cotton.

to increase by 55 percent, largely due to higher exports from the Russian Federation and Ukraine. Investments in infrastructure and technology are the main factors underpinning this trend.

29. After steadily increasing during the previous decade, net imports by the Asia-Pacific region are projected to remain broadly unchanged over the next decade, mostly because of the marked slow-down of Chinese imports, from 84 percent growth during the previous decade to only 10 percent to 2029. Net imports by Sub-Saharan Africa increase by 59 percent over the next decade, mainly due to fast growing imports of wheat, maize and soybeans. Land and water constraints, a lack of investment in agriculture, and the fast population growth cause the expected 45 percent net import growth of basic foods in the Near East and North Africa, the largest importer of basic foods on a per-capita basis.

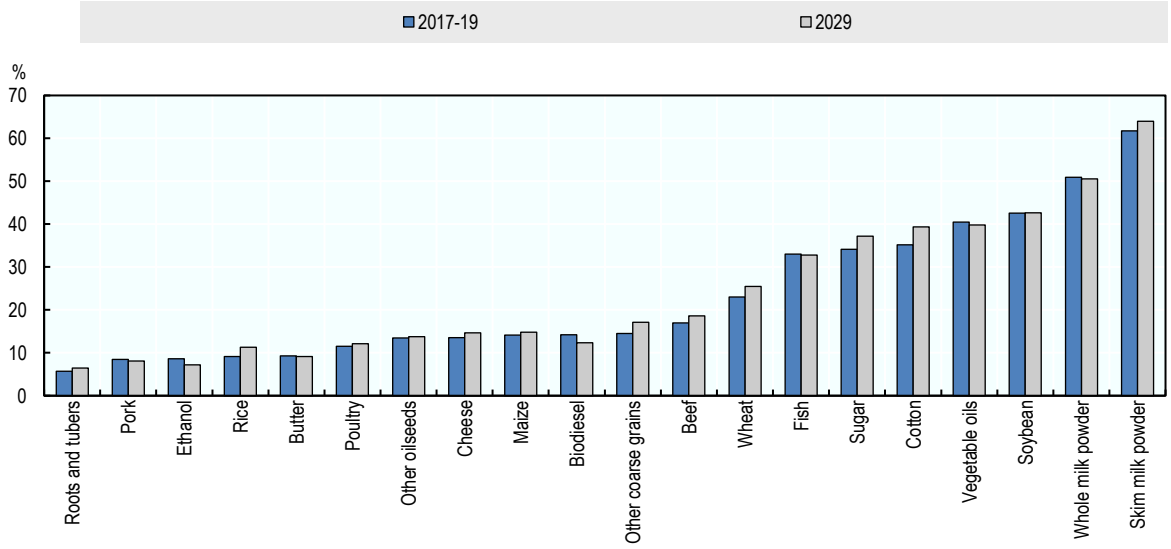
Figure 8. Agricultural trade balances by region



Note: Net trade (exports minus imports) of commodities covered in the *OECD-FAO Agricultural Outlook*, measured at constant 2004-06 USD. Source: FAO, 2021.

30. The shares of production traded by commodity are shown in Figure 9. Highly traded commodities such as wheat, soybeans and milk powders are those demanded for further local processing by importing countries. A number of commodities have their export ratios decline marginally over the outlook period, reflecting either weakness in import demand, or in the case of vegetable oil, increasing domestic use for biodiesel production, especially in Indonesia.

Figure 9. Share of production traded, by commodity



Source: FAO

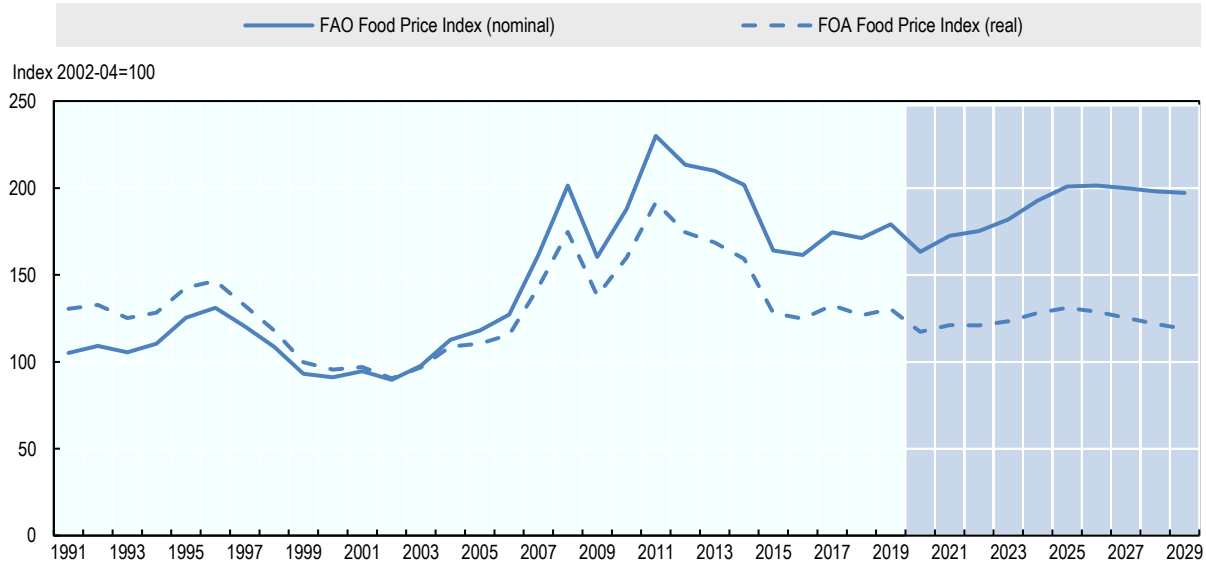
D. Prices

31. The outlook uses prices observed at key markets as international reference prices for the projected commodities. Overall, the continued demand for agricultural commodities is projected to be met by efficiency gains in production, which will keep real agricultural prices broadly flat, provided the economic recovery from the COVID-19 pandemic will start in 2021, as assumed, and there will be no further restrictions to economic activity in the following years.

32. Due to the global recession, the FAO Food Price Index (FPI) is expected to dip in 2020. Based on the assumed accelerated economic recovery from the COVID-19 crisis until 2025, prices are projected to rise to 2026 and then stay flat for the remaining period (Figure 10). In real terms, the FPI is projected to rise to pre-COVID-19 levels during the assumed recovery from the pandemic and to resume its falling trend from 2026 onward. While agricultural commodity prices are expected to be below the peaks seen in 2008 and 2011, they will remain above early 2000s price levels, both in nominal and real terms.

33. For cereals, the increase in global demand, in particular of food demand, together with the ongoing destocking of maize and rice in China will continue to exert upwards pressure on prices over the outlook period. Prices for soybean and other oilseeds are projected to remain essentially at their current levels as productivity growth is expected to keep pace with growing demand. Nominal sugar prices are expected to increase but should remain broadly flat in real terms with a slowdown in demand growth in regions where per capita consumption is already high. Meat prices trends differ from the projected crop prices as they are expected to fall from the current highs that were caused by ASF-related supply constraints in a number of Asian countries. Skim milk powder (SMP) prices recovered following the complete disposal of the European Union's intervention stocks in 2019, and are expected to remain constant in real terms throughout the outlook period. Butter prices are projected to continue to decrease slightly in real terms, which will further narrow the price gap between SMP and butter. Real fish prices are expected to remain largely unchanged over the next ten years, with small increases in the first part of the outlook period followed by a decline in the second half as production grows faster, particularly in China.

Figure 10. Projected evolution of FAO FOOD Price Index



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 dividing the FAO Food Price Index by the US GDP deflator (2002-04 = 1).
Source: FAO, 2021.