

Regional outlook: Sub Saharan Africa

The *Outlook's* regional briefs highlight broad trends for the regions defined by the FAO in the implementation of its global work plan. Recognising the regional diversity, the intention is not to compare results across regions. Instead, these briefs illustrate some of the latest regional developments, highlighting responses to global challenges and emerging trends within them and relating these to the main messages of the *Outlook*. The assessments generally compare the end point of the *Outlook's* projection (2031) to the base period of 2019-21. This year, the large and diverse Asia Pacific region has been disaggregated into two separate briefs: Developed and East Asia, and South and Southeast Asia.

The impact of the COVID-19 pandemic, which is still playing out globally, and the response to it, differs across regions. While the briefs do not contain a specific quantitative assessment of the pandemic's impact, they reflect the latest available macro-economic projections and the extent to which the actions imposed to curb the spread of COVID-19 influenced this environment. Similarly, the impact of Russia's war against Ukraine may affect the various regions in the short term, but the briefs do not provide any quantitative analysis as to this impact. Consequently, the trends and issues presented in this chapter are those which are expected to underpin the *Outlook* as economies re-emerge from these recent unexpected shocks and assume that the effects on food, feed and fuel production, consumption and trade will gradually moderate.

Background

Raising agricultural productivity is a major challenge

Sub-Saharan Africa is large and diverse, home to 14% of the world's population. Among the seven regions¹ in this chapter, its economic growth trends and demographic profile are striking. Population growth is the highest amongst the regions and despite rapid progress, urbanisation remains by far the slowest. By 2031, it is expected that the region will add some 334 million people compared to 2019-21, a growth rate of 2.5% p.a. The share of global population living in the region will increase to 16.5%. Although almost two-thirds of the additional people in SSA will reside in urban areas, 52% of the population will still live in rural areas by 2031. This makes it the only region with more than half of the population residing in rural areas by 2031 and one of only two (along with Near East and North Africa) where the absolute size of the rural population is still expected to increase over the coming decade.

Economies in the region typically have a high dependency on resource-based commodities, such as agriculture, oil and metals. Agriculture, fish and forestry account for about 17% of GDP, and this is expected to decline to 15% by 2031. Economic growth, in per capita terms, is expected to be less robust than other emerging developing regions, rising by 1.3% p.a. Having contracted by 5% in 2020 during the COVID-19

pandemic, per capita GDP rebounded by only 1.1% in 2021, with a further 1% expected in 2022. The limited recovery, despite support from strong commodity prices globally, reflects the prolonged impact of economic restrictions to curb the spread of the pandemic, limited resources to support a recovery and persistent travel constraints that reduced the contribution from the tourism sector. At the projected rate of recovery, per capita GDP will only exceed pre-pandemic levels by 2025. Economic performance varies considerably within the region, with least developed economies growing faster, albeit from a lower base level. Average per capita incomes in the region are the lowest globally, at USD 1 719, and are projected to rise to USD 1 920 by 2031 in 2010 dollars. In least developed countries (LDC) in the region, average per capita incomes are only expected to reach USD 1 000 p.a.

Households in the region spend on average about 23% of their incomes on food, the highest amongst all regions. This share varies considerably by country, with the LDCs in the region spending on average 33%.² The high share of total income spent on food makes the region particularly vulnerable to the high food prices projected in the short term and this will have a significant impact on economic welfare, food security and nutritional diversity. Per capita calorie availability is already significantly lower than most other regions, which further magnifies the impact of the COVID-19 pandemic on food affordability and food security. The FAO's State of Food Security and Nutrition (2021) notes that the prevalence of undernourishment increased from 20.6% in 2019 to 24.1% in a single year in 2020, while the number of undernourished people in the region increased by 44 million. While the prevalence of undernourishment in the region had been increasing since 2018, the pandemic induced a rapid acceleration and the current high food price environment could slow progress further.

Sub Saharan Africa is an agro-ecologically diverse, land abundant region that accounts for 15% of global cropland and 20% of pasture. In many countries however, high population density in rural areas has resulted in the agricultural sector facing pressure from land shortages and declining plot sizes. Much of the land still available in the region is concentrated in few countries and/or is largely under forest cover. As a result, the region produced only 7% of the global value of agricultural and fish production in 2019-21. By contrast, the large population with its high consumption requirement and unique, staple dependant dietary composition resulted in the region accounting for 41% of the consumption of global roots and tuber and 13% of cereals, compared to only 7% of global sugar, and 6% of global vegetable oil and fish. The comparatively small share in global meat (4%) and fresh dairy (5%) consumption further reflects weaker purchasing power and low protein inclusion in diets across most of the region. Overall, Sub-Saharan Africa's self-sufficiency for major food commodities is decreasing, as the region's population is expanding beyond the pace of domestic supply growth.

Improving food security and reducing hunger in a low-income environment will remain one of the greatest challenges facing the region over the coming decade. Despite improvements and success stories in selected countries, productivity in most of the region remains low. Estimates indicate that total factor productivity in the region fell 2% over the decade to 2019, as extensive growth in inputs, primarily capital (including livestock) were not matched by growth in output³. Concentration of land abundance in a few countries implies that significant opportunities may arise to expand intra-regional trade, but costs need to be reduced to improve trade competitiveness. Over the outlook period, imports into the region are therefore expected to rise further. In an increasingly volatile global market, reducing the costs of trade and closing the productivity gap provides a significant opportunity for the region to supply more affordable food products to its growing population.

Production

Increased productivity is the key to growth

In net value-added terms, agricultural and fish production in SSA is expected to grow by an annual average of 2%. Given rapid population growth, this means that per capita production will continue to decline, a trend

that has been evident since 2015 (Figure). Crop production is projected to account for 75% of total output by 2031, while the share of livestock products will remain fairly constant at 18%, and the share of fish production will decline marginally to 7%. Food and feed staples, such as cereals, pulses, roots, and tubers, will be the main sources of growth. In the case of cereals and roots and tubers, the region's global market share will rise over the outlook period. By 2031, the region may account for more than 40% of global roots and tubers output, 21% of pulses and 6.5% of cereals. Cotton production is set to expand by 1.5% p.a., increasing its share in the global market to 8% by 2031. About 70% of the region's cotton will be produced by LDCs of which a substantial share will come from West Africa where Burkina Faso and Benin are major contributors.

Growth of 25% in crop production over the coming decade will be underpinned by a combination of area expansion, changing crop mix and productivity gains. Expressed per unit of land used in agriculture, the real value of crop production will continue to grow by 1.9% p.a., reflecting some crop intensification. Intercropping with beans and cereals and occurs in many countries. Double cropping is also prevalent in tropical regions with bi-modal rainfall, as well as irrigated systems in Southern Africa, where soybeans and wheat are often produced consecutively in a single year. The expansion of rice cultivation in the region, notably in Nigeria, is also expected to be based upon multiple annual harvests.

While the region is considered land abundant, this is concentrated in a few countries, with Sudan, Madagascar, DRC, Mozambique, Angola, Congo Republic, CAR, Ethiopia and Zambia accounting for around 65% of land available for expansion (Chamberlain et al., 2014). Elsewhere, the ongoing expansion of agricultural land use is constrained by land fragmentation, conflict in some land abundant countries, and the presence of other competing uses such as mining and urban sprawl. This accentuates the heightened importance of achieving productivity gains in the region.

Average cereal yields are projected to grow 22% over the outlook period, a similar rate to the past decade. Continued yields gains for most major crops stem from investments in locally adapted, improved crop varieties, and better management practices. While yield growth for most crops exceeds the rates projected at a global level, this occurs from a base which is often less than half the global average. Consequently, although the region's substantial gap relative to yields achieved in the rest of the world will narrow it will still remain substantial by 2031. Efforts to fully close the yield gap are constrained by the limited use of inputs, irrigation and infrastructure. Despite widespread implementation of fertiliser subsidy programs in many countries, fertiliser use is the lowest of all regions and, as a net importer of fertilisers, sharp cost increases in the short term could dampen purchases and use even further (Figure). With a strong reliance on dryland production and in the face of mounting ecological challenges, the region could be one of the most severely affected by climate change, suggesting that yield growth will have to be achieved in an increasingly volatile environment.

The net value of livestock production is projected to expand by 28% over the next ten years, with the fastest increases coming from milk and poultry. The region will add 10.5 Mt of milk and 2.9 Mt of meat by 2031, comprising 1.0 Mt of poultry, 894 Kt of bovine meat, 629 Kt of ovine meat and 362 Kt of pig meat.

Bovine and ovine production systems in the region are typically extensive and growth in the coming decade is fuelled by herd expansion more than productivity gains. In 2019-2021, the region accounted for only 7% of global bovine meat output yet almost 17% of the global bovine herd. The region's share in the global bovine herd is projected to expand to more than 19% by 2031, yet its share in global beef production will only increase by half a percent. Similarly, the region constitutes 14% of global ovine meat output, with 25% of the global ovine flock. Ovine meat production is expected to increase by 29% in the coming decade, with the region increasing its global share to 15%, but the region will still graze 28% of the global flock. However, the expansion of herds by 2031 will occur on an area of almost unchanged pastureland.

While extensive poultry production systems are still common in the region, a greater degree of intensification has been evident, particularly in countries such as South Africa that produce surplus feed grains. Albeit from a small base, feed intensity is expected to continue increasing in the region as supply

chains modernise in countries such as Zambia and Tanzania, but many smaller producers continue to use non-grain, often informally procured feed inputs. In countries that already use feed more intensively, genetic improvements and better feed conversion over time will reduce the amount of feed required per animal. Overall in the region, the net effect results in feed use growing at a marginally faster rate than meat production. Some feed is used in fish production, which is expected to increase 14% by 2031. An expansion of 32% in the aquaculture sector compared to 13% for captured fisheries is from a small base and by 2031 aquaculture will still represent only 9% of the fish production, compared to 8% in the base period.

Based on these production projections, the region's direct greenhouse gas (GHG) emissions from agriculture are expected to grow by 14% by 2031 compared to the base period. Sub-Saharan Africa will account for 40% of the global increase in direct emissions from agriculture and as a result will account for 16% of global direct agriculture emissions by 2031. However, agricultural emissions per USD value of production in the region are expected to continue a declining trend.

Consumption

Slow but insufficient improvement in nutritional status

Most of the world's poor are concentrated in the region. The prevalence of undernourished individuals in the region is also the highest in the world. Poor food security was further exacerbated by the ongoing COVID-19 pandemic. Supply chain disruptions, particularly in informal sectors, curbed accessibility, while income and employment shocks weakened affordability. The slow economic recovery will prolong affordability constraints, particularly in the high price environment projected in the short term. Food security and undernourishment will likely remain a challenge and even as income levels start to recover, a sustained recovery will require improvements in the availability, accessibility, affordability and utilisation of food supplies in the future.

The slow recovery in average income levels following the economic contraction in 2020 suggests that population growth remains the biggest driver of rising food consumption (Figure). This combination of rapid population growth and potential gains in per capita calorie availability, make the region one of the largest sources of additional demand for the global agricultural sector in the coming decade. The region's share in global food calorie consumption is anticipated to rise from 11.5% in the base period to 13.5% by 2031.

The contribution of staples to total calorie availability is higher in SSA than any other region. While per capita consumption of food staples is set to increase further by 2031, the share of food staples in total calorie availability remains fairly constant. For most other commodity groups, including meat, dairy, fish, sugar and vegetable oils, per capita consumption levels are currently the lowest in the world. While per capita consumption of dairy and vegetable oils is set to increase over the coming decade, for meat, fish and sugar it is set to decline due to the slow post pandemic recovery in income growth. This implies that dietary diversification will remain slow, but total food consumption will increase substantially for all commodities, due to rapid population growth.

Gains of 79 kcal/day over the outlook period will enable average calorie availability in the region to exceed 2 500 kcal/capita per day by 2031. This is well below the global average of 3 040 kcal/day and calorie intake in the region will still be the lowest in the world by 2031. Protein consumption is only expected to increase by 1.2g per person per day, predominantly from plant-based sources. While dairy consumption is expected to increase, this is more than offset by the decline in per capita meat and fish consumption over the next decade, limiting improvements in intake of vital nutrients and micronutrients.

Cereals are set to overtake roots and tubers over the coming decade as the main source of feed to the livestock sector. However, total feed use in the region is low, and will account for less than 4% of total animal feed consumed in the world by 2031, despite being home to 16% of the world's population.

Trade

Increasingly import dependant with slow progress in regional trade agreements

The region is expected to become increasingly reliant on imports to close the gap between domestic production and consumption. With few exceptions, most basic food commodities in the region are produced for domestic consumption rather than exports. However, many countries benefit from counter seasonality in the northern hemisphere and competitive labour costs, enabling net exports of high value fresh produce.

The trade deficit in major food items is anticipated to widen over the coming decade. Evaluated at constant (2014-16) global reference prices, the deficit is projected to grow significantly from about USD 9 billion to USD 26 billion by 2031.

Amidst the pandemic related challenges in 2020, cereal imports increased, while they decreased for meat, fish, vegetable oil and sugar. At the height of the pandemic's first wave, intraregional trade faced many logistical challenges, causing long delays at land border posts (Njiwa and Marwusi, 2020^[3]). With restrictions easing through latter waves of the pandemic as strategies adapted, imports also increased for meat, fish and cereals, but significant price increases dampened sugar and vegetable oil imports into the region. The region also continues to be affected by global problems such as container shortages, high freight rates and rising local fuel costs, adding to the cost of trade in a region which already scores poorly in trade efficiency indicators such as the World Bank's logistics performance index.

Over the course of the next decade, imports of cereals, meat, fish, sugar and oils will rise substantially, at a faster rate than production. Wheat comprises almost half of the region's cereal imports and historically the Russian Federation (hereafter "Russia") has been the biggest supplier, with notable volumes also from Ukraine. Consequently, the evolution of Russia' war against Ukraine will heighten concerns on the availability and costs of imported wheat. Across most major commodities, exports will tend to decrease over time. The region is not self-sufficient in basic food staples and its import dependence is expected to deepen over the next decade. However, in the case of fresh fruit and vegetables, the real value of exports is expected to expand by 31% and 48%, respectively, by 2031. Consequently, the total value of agricultural exports in real (2014-16) terms could increase 23% by 2031.

In contrast to basic food crops, the bulk of cotton production is sold on global markets and more than 90% of cotton from the region will be exported by 2031. Most of this comes from the least-developed countries and the region's share in global exports is expected to increase marginally over the outlook period.

It has been a little more than a year since trading under the preferential arrangements of the African Continental Free Trade Area (AfCFTA) started. Its goal of improving internal trade is critical for the region's economic development, particularly in light of rising global uncertainties. The COVID-19 pandemic has resulted in delayed implementation and in 2020 intra-Africa trade declined to 16%, compared to a five-year average of 18%. Agricultural products constitute about a quarter of intra-Africa trade and supply chain disruptions because of the pandemic clearly diminished trade.

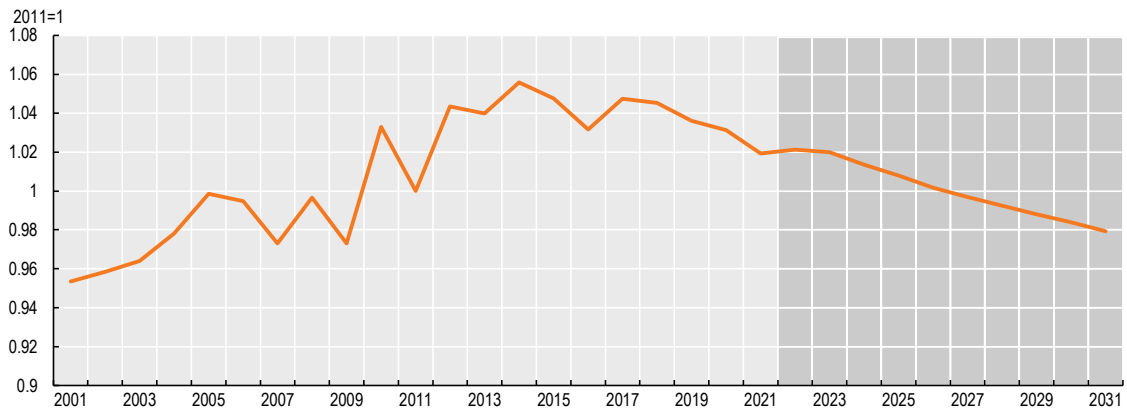
The ambition of the AfCFTA is to achieve a zero tariff rate on 90% of tariff lines, through a phased approach over a period of ten years for LDC's and five years for others. However, by January 2022, rules of origin agreements had only been reached on 88% of tariff lines. Other delays in progress emanate from some customs union members not ratifying the agreement. Botswana, South Sudan, Benin, Guinea-Bissau and Liberia have not yet ratified, which prevents several regional trade unions from fully trading under preferential terms, unless concessions can be made to allow the agreement to be implemented on an individual basis. Despite the slow start, some progress has been made and as many as 76% of the

countries have deposited instruments of ratification. This essentially represents commitment to implement the agreement. While further engagements regarding rules of origin need to be concluded, the agreement will ultimately only exclude 3% of tariff lines and therefore has significant potential to increase intra-Africa trade in the medium term.

Over 50 countries have made market access commitments on trade in services that often complement and support trade in goods, while negotiations on the protocols covering investment, competition policy, intellectual property rights, digital trade and women and youth in trade are still ongoing to maximise the gains of the AfCFTA.⁴ A key enabling initiative is the recently launched Pan-African Payment and Settlement System (PAPSS) by the African Export-Import Bank (Afreximbank) and the AfCFTA Secretariat. PAPSS enables instant cross-border payments in respective local African currencies and effectively eliminates Africa's financial borders and formalises and integrates Africa's payment systems.

Apart from tariffs, a major factor constraining trade within the region is high non-tariff barriers. Although the agreement includes a mutual recognition of standards and licences, as well as the harmonisation of sanitary and phytosanitary (SPS) measures, many non-tariff barriers are more difficult to remove or reduce. The non-tariff costs of trade on the continent, as estimated from the ESCAP-World Bank trade cost data, are estimated at an *ad valorem* equivalent of around 283%. Moreover, these are over 300% for agricultural products⁵ and more than 100% higher compared to non-agricultural manufacturing. A major contributor in this regard is the high cost of road transportation, which emanates from poor infrastructure, as well as inefficiencies at border posts. This is supported by the presence of only six SSA countries in the top half of the World Bank's logistical performance index ranking, which covers 160 countries in total. Based on the regulations implemented to date, and the need to finalise tariff reduction schedules and sensitive product lists, no discernible impact was included in the baseline projection this year.

Figure 1. Per capita net value of agriculture and fish production in Sub Saharan Africa

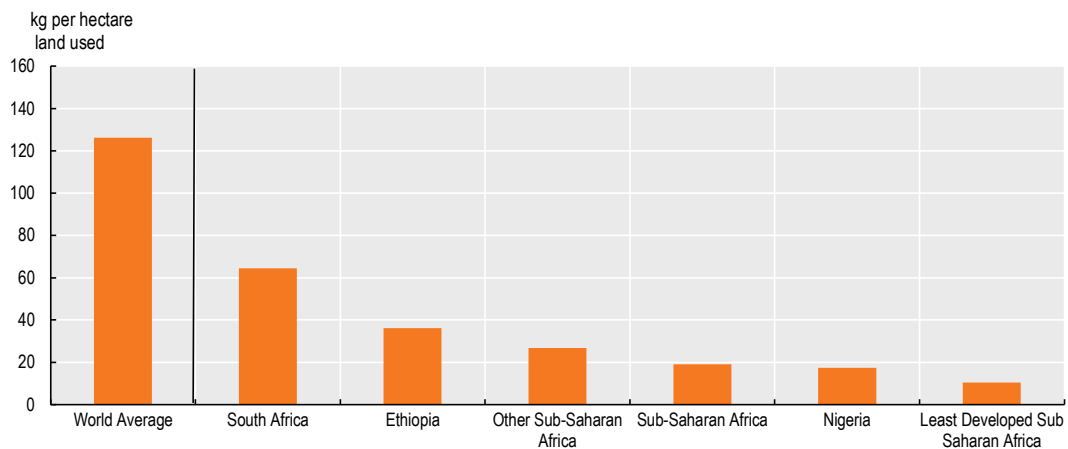


Note: Estimates are based on historical time series from the FAOSTAT Value of Agricultural Production domain, which are extended with the *Outlook* database. Remaining products are trend-extended. The Net Value of Production uses own estimates for internal seed and feed use. Values are measured in constant 2014-2016 USD.

Source: FAO (2022). FAOSTAT Value of Agricultural Production Database, <http://www.fao.org/faostat/en/#data/QV> ; OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

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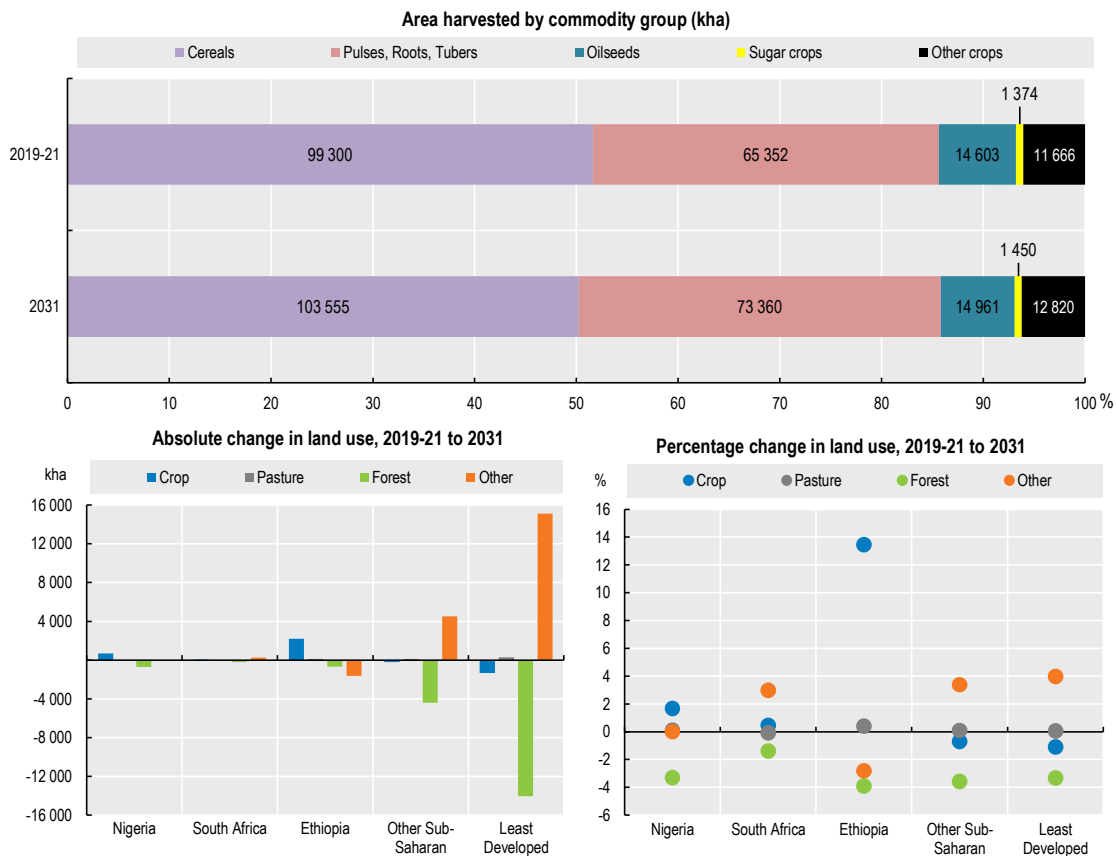
Figure 2. Fertiliser application per hectare of land used for crop production is low in Sub Saharan Africa, 2017-19 average



Source: FAOSTAT.

StatLink 2 <https://stat.link/zk4vwm>

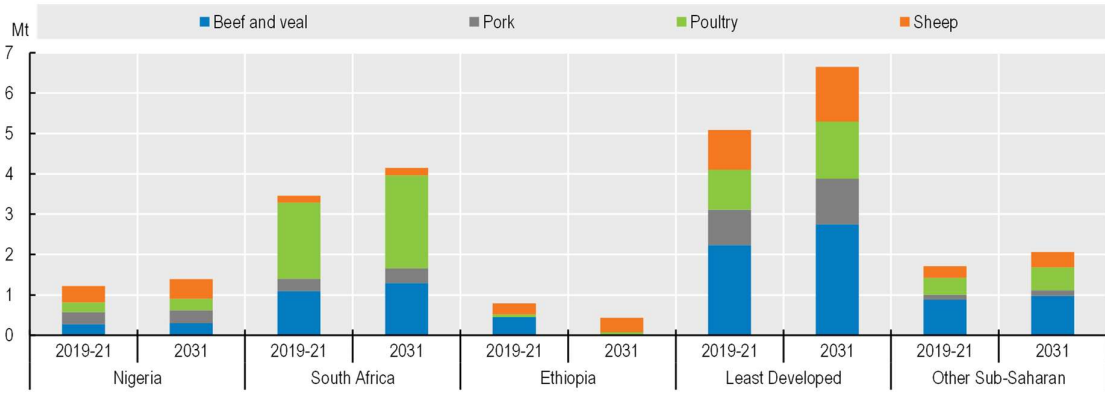
Figure 3. Change in area harvested and land use in Sub Saharan Africa



Source: OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

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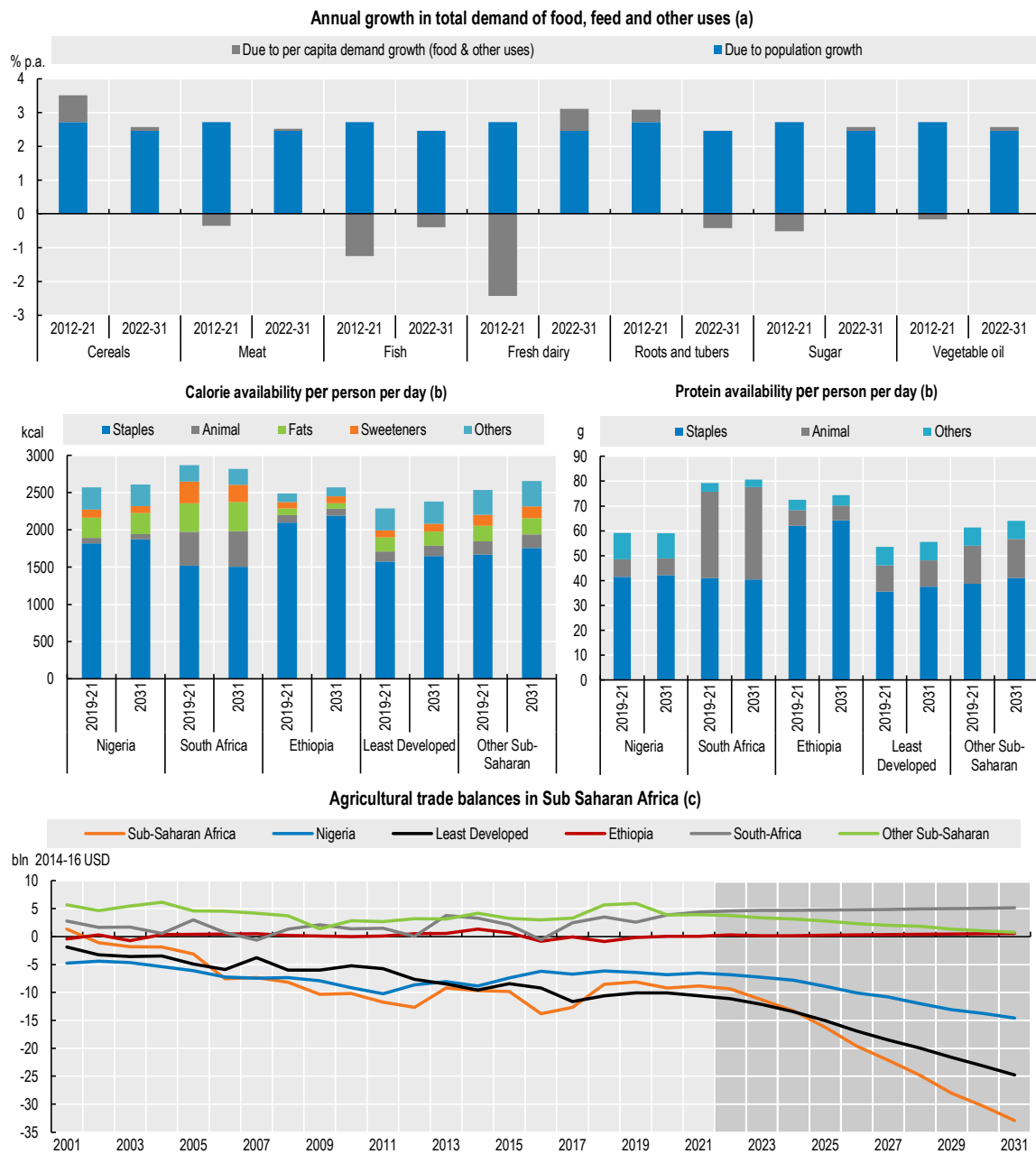
Figure 4. Livestock production in Sub Saharan Africa



Source: OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

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Figure 5. Demand for key commodities, food availability and agricultural trade balance in Sub Saharan Africa



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 (2022). FAOSTAT Value of Agricultural Production Database, <http://www.fao.org/faostat/en/#data/QV> ; OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>

StatLink 2 <https://stat.link/3ymodv>

Table 1. Regional indicators: Sub Saharan Africa

| | Average | | | % | Growth ² | |
|---|---------|-------------------|-----------|--------|---------------------|---------|
| | 2009-11 | 2019-21 (base) | 2031 | | Base to 2031 | 2012-21 |
| Macro assumptions | | | | | | |
| Population ('000) | 823 015 | 1 078 061 | 1 412 143 | 30.99 | 2.72 | 2.46 |
| Per capita GDP ¹ (kUSD) | 1.67 | 1.72 | 1.92 | 11.49 | -0.43 | 1.26 |
| Production (bln 2014-16 USD) | | | | | | |
| Net value of agricultural and fisheries ³ | 213 | 286 | 357 | 24.71 | 2.50 | 1.96 |
| Net value of crop production ³ | 151 | 213 | 267 | 24.92 | 2.89 | 1.92 |
| Net value of livestock production ³ | 44 | 50 | 65 | 28.46 | 1.14 | 2.47 |
| Net value of fish production ³ | 17 | 22 | 25 | 14.03 | 2.08 | 1.12 |
| Quantity produced (kt) | | | | | | |
| <i>Cereals</i> | 116 434 | 160 064 | 202 852 | 26.73 | 3.38 | 2.07 |
| <i>Pulses</i> | 13 634 | 20 468 | 25 909 | 26.58 | 3.77 | 1.86 |
| <i>Roots and tubers</i> | 61 857 | 94 412 | 117 858 | 24.83 | 2.92 | 1.94 |
| <i>Oilseeds⁴</i> | 7 325 | 8 474 | 9 687 | 14.31 | 1.02 | 1.13 |
| <i>Meat</i> | 9 423 | 12 268 | 15 194 | 23.85 | 2.59 | 2.13 |
| <i>Dairy⁵</i> | 3 392 | 3 619 | 5 015 | 38.61 | 0.47 | 3.27 |
| <i>Fish</i> | 5 980 | 7 803 | 8 903 | 14.09 | 2.08 | 1.12 |
| <i>Sugar</i> | 6 556 | 7 600 | 8 898 | 17.08 | 1.00 | 0.89 |
| <i>Vegetable oil</i> | 5 328 | 7 513 | 8 958 | 19.23 | 3.03 | 1.24 |
| Biofuel production (mln L) | | | | | | |
| <i>Biodiesel</i> | 0 | 0 | 0 | 148.75 | 0.00 | 2.25 |
| <i>Ethanol</i> | 732 | 994 | 970 | -2.44 | 4.83 | 2.72 |
| Land use (kha) | | | | | | |
| Total agricultural land use | 860 717 | 883 817 | 885 653 | 0.21 | 0.14 | 0.01 |
| Total land use for crop production ⁶ | 207 172 | 223 930 | 225 314 | 0.62 | 0.23 | 0.00 |
| Total pasture land use ⁷ | 653 545 | 659 887 | 660 339 | 0.07 | 0.11 | 0.01 |
| GHG Emissions (Mt CO₂-eq) | | | | | | |
| Total | 709 | 842 | 988 | 17.28 | 1.68 | 1.42 |
| Crop | 215 | 196 | 198 | 0.75 | -0.86 | 0.04 |
| Animal | 493 | 645 | 789 | 22.33 | 2.57 | 1.80 |
| Demand and food security | | | | | | |
| Daily per capita caloric availability ⁸ (kcal) | 2 433 | 2 433 | 2 512 | 3.25 | 0.01 | 0.38 |
| Daily per capita protein availability ⁸ (g) | 61.7 | 59.3 | 60.5 | 2.02 | -0.32 | 0.27 |
| Per capita food availability (kg/year) | | | | | | |
| <i>Staples⁹</i> | 178.1 | 196.4 | 203.7 | 3.71 | 0.38 | 0.24 |
| <i>Meat</i> | 10.3 | 10.7 | 10.9 | 1.94 | -0.07 | 0.07 |
| <i>Dairy⁵</i> | 4.5 | 3.7 | 4.0 | 6.65 | -1.70 | 0.82 |
| <i>Fish</i> | 8.2 | 7.7 | 7.5 | -3.24 | -1.23 | -0.34 |
| <i>Sugar</i> | 10.4 | 10.5 | 10.7 | 1.84 | -0.36 | 0.30 |
| <i>Vegetable oil</i> | 7.7 | 8.4 | 9.1 | 8.49 | -0.67 | 0.87 |
| Trade (bln 2014-16 USD) | | | | | | |
| Net trade ³ | -11 | -9 | -26 | 199.51 | .. | .. |
| Value of exports ³ | 30 | 48 | 59 | 22.88 | 3.91 | 1.65 |
| Value of imports ³ | 41 | 57 | 86 | 50.13 | 2.58 | 3.87 |
| Self-sufficiency ratio¹⁰ | | | | | | |
| <i>Cereals</i> | 84.2 | 82.3 | 78.1 | -5.03 | 0.11 | -0.45 |
| <i>Meat</i> | 88.7 | 85.3 | 79.4 | -6.89 | -0.35 | -0.37 |
| <i>Sugar</i> | 75.8 | 66.3 | 58.4 | -11.85 | -0.61 | -1.98 |
| <i>Vegetable oil</i> | 58.9 | 57.4 | 50.4 | -12.25 | 1.13 | -1.52 |

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 2014-16. Projections for not included crops have been made on the basis of longer term trends. 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 availability 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 (2022). FAOSTAT Food Balance Sheets and trade indices databases, <http://www.fao.org/faostat/en/#data> ; OECD/FAO (2022), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

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

² Source OECD-FAO interpolated for 2019-21 from the database of the Global Trade Analysis Project (GTAP) 2011, using food expenditure and GDP data used in this Outlook.

³ (Fuglie, 2015_[12])(updated to 2019, USDA).

⁴ FAO informal consultation with African ministers of agriculture held on 4 April 2022 leading up to the 32nd FAO Regional Conference for Africa.

⁵ ESCAP-World Bank trade cost database. <https://www.unescap.org/resources/escap-world-bank-trade-cost-database>

Summerised in Tralac report: <https://www.tralac.org/resources/infographics/15537-intra-africa-non-tariff-trade-costs-for-the-period-2015-2019.html>