Towards sustainable food and nutrition security in Latin America and the Caribbean in response to the global food crisis

December 2022

A. An uninterrupted series of crises[1]

- The impact of the war between the Russian Federation and Ukraine can be understood in the context of the crises that have affected the world economy over the past 15 years: the 2008 global financial crisis, the economic tensions between the United States and Europe, on one hand, and China, on the other, and the coronavirus disease (COVID-19) pandemic (ECLAC, 2022a).
- These crises, by disrupting global value chains, have put pressure on productive sectors, going against the globalization trend of previous decades. International trade's slower growth and smaller contribution to world growth in recent years is a clear sign of these changes (ECLAC, 2022a).
- The crises led to breakdowns in various primary and manufacturing production chains in economic sectors. Increased protectionism led to more trade barriers, while maritime transport system disruption exposed the vulnerability of the chains to exogenous changes.
- Although the pandemic has had what is probably the most severe impact of any event on logistics in recent decades, the war in Ukraine has been characterized by its potential to disrupt commodity-based sectors. Because of the specialization of the countries involved in the war in terms of production and trade, the conflict has directly affected trade and international prices of crude oil, natural gas, cereals, fertilizers and metals.

[1] The cut-off date for the information used to prepare this report is 10 November 2022, unless otherwise indicated.

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United Nations
ECLAC
Food and Agriculture Organization of the United Nations
WFP
World Food Programme

- Three of the four most recent episodes of food price increases occurred in the past fifteen years (2007–2008, 2010–2011 and since mid-2020); the other one took place in the 1970s. Monetary expansion played a central role in the 2007–2008 and 2010–2011 episodes, originating from measures to overcome the global financial crisis. Higher global liquidity and increased financialization of the markets contributed to driving up international prices of several food groups, as well as fuelling their volatility (Von Braun and others, 2008; ECLAC/FAO/IICA, 2011).
- More recently, the breakdown of logistics and production processes caused by measures to address the COVID-19 pandemic sped up the pace of price increases. Although the relative significance of supply factors and demand factors is still being debated, both are important in the current inflationary situation (ECLAC, 2022a).
- The most recent upwards trend in international food prices began in mid-2020, primarily driven by vegetable oils and grains. The pandemic-induced inflationary pressure was expected to be transitory. However, the war in Ukraine has caused further disruption to key production chains, such as those of energy and fertilizers. Not only has this prevented inflation from returning to pre-pandemic levels, it has also led to a substantial acceleration of inflation in the first seven months of 2022.
- In the case of food, the current inflationary cycle is more marked and longer-lasting than the price rises of 2007–2008 and 2010–2011. The Food and Agriculture Organization of the United Nations (FAO) Food Price Index (FFPI), measured in real terms, rose 64 points between June 2020 and March 2022, reaching an all-time high[2] of 156.3 points in that month (see figure 1). The index then fell 23.3 points (14.9%) between March and October 2022, but remains above the highs of the past decades.

Figure 1 FAO Food Price Index, real monthly variation, January 1990–October 2022
(Index, average 2014–2016=100)

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations Food and Agriculture Organization (FAO), FAO Food Price Index [online] http://www.fao.org/worldfoodsituation/foodpricesindex/en/.

- Although world grain production is still sufficient to meet demand, rising input and transport prices and logistical constraints on access to crops mean that food now costs much more. As a result, consumers face restrictions on access to, but, for the time being, not on availability of food.
- Within countries, this pattern separates those who can afford to pay higher food prices from those who cannot. In the case of fertilizers, at current prices there is a high risk of segmentation of farmers who have the means to buy from those who do not.
- Unequal access to agricultural inputs amplifies the structural heterogeneity of agriculture in Latin America and the Caribbean. Smallholders, who produce for local consumers and sell in

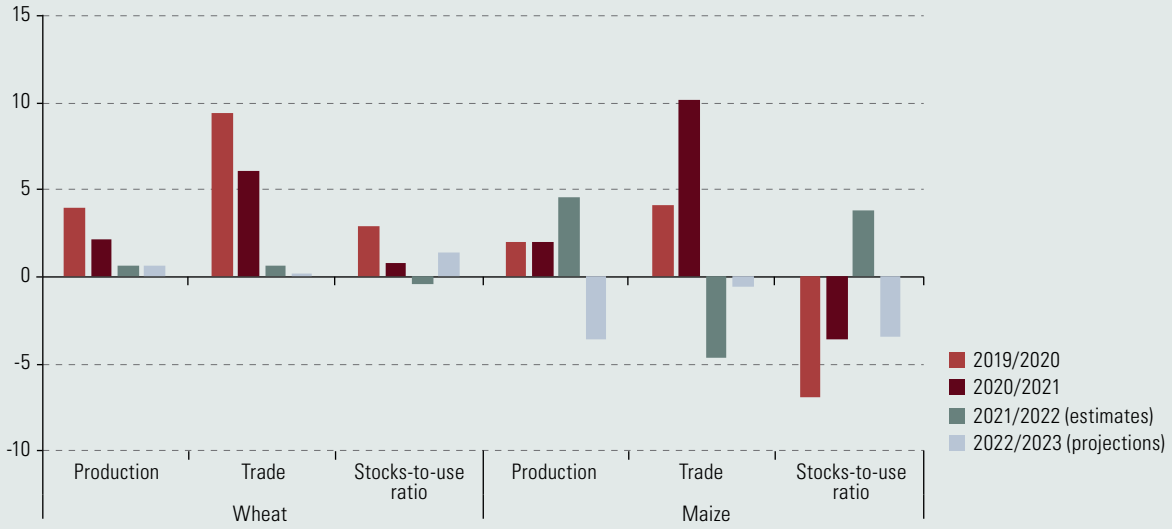
[2] The index has been calculated on a monthly basis since January 1990.

domestic currency while paying for dollar-denominated inputs, may be forced to reduce their use of those inputs significantly and risk further declines in yields and total output. Their products are vital for food security in the urban and rural areas of the region.

B. Restrictions on food production are aggravating the effects of the climate crisis

- The war in Ukraine is affecting the global food supply in several ways. Firstly, destruction of infrastructure and blockades of ports in the Black Sea makes it difficult for stockpiles in Ukraine and the Russian Federation to leave the countries. Ukrainian exports have come to a virtual standstill since the war began, mainly owing to closures of the ports through which around 90% of its agricultural products were previously exported.
- On 22 July 2022, the Black Sea Grain Agreement was signed by Ukraine, the Russian Federation and Türkiye, in Istanbul, Türkiye, under the auspices of the United Nations, to enable the transport of grain, other foodstuffs and fertilizers from three Ukrainian ports on the Black Sea to the rest of the world. In early August, for the first time in more than five months, a ship loaded with maize left the Ukrainian port of Odesa for Türkiye.
- The Agreement was greeted with optimism and the FAO Cereal Price Index fell 19.1 points (11.5%) in July. International prices of all grains in the index declined in July; wheat prices were down by 14.5% and maize by 10.7%. Despite this, international wheat prices remain 24.2% above October 2021 levels.
- The Russian Federation and Ukraine are among the world's key suppliers of agricultural products: together, they exported 12% of the calories traded in 2021. In the case of wheat, the two countries accounted for around 30% of world exports, for maize, their combined share was about 20% and for sunflower oil, 55% (FAO, 2022a).
- Before the signing of the Agreement in Istanbul, around half of Ukraine's grain export supply, 22 million tons, was in storage with no possibility of being shipped. Between 1 August and 28 October, more than 9.3 million tons of grains, oilseeds and other foodstuffs were exported under the agreement (Laborde and Glauber, 2022). In mid-November, the Black Sea Grain Initiative was renewed for a further 120 days.
- The war is also a threat to world grain production in the 2022/23 season. In Ukraine, there is a lack of fuel, labour and, in many areas, machinery for sowing crops. Around one third of crops may not be harvested and the same proportion of agricultural land, not cultivated in 2022 (FAO, 2022d). As a result of trade sanctions, the Russian Federation may find itself short of machinery, seeds and pesticides that it normally buys from the European Union and other countries.
- In the 2022/2023 season, global maize production is forecast to be 3.7% lower (see figure 2), reflecting a steeper decline than at the nadir of the pandemic. This stems from the decreases already seen in production in the European Union and the United States, and from further reductions forecast in Ukraine. Global wheat production, meanwhile, is expected to increase slightly in 2022/2023, to the extent that the decline in production in Ukraine is offset by an increase in other producing areas.
- The cases of wheat and maize are illustrative of how weather-related shocks can further weaken world production that has already been hit by the war. India, the world's second largest wheat producer, experienced extreme temperatures last spring, much earlier than expected, affecting crops and pushing up international grain prices in May and June 2022. This led the government to roll back a plan to supplement world wheat supplies, which had been depleted by the war. Owing to climate change, the probability of such extreme events is estimated to have increased by a factor of about 30 (Zachariah and others, 2022).
- In the European Union, not only are temperatures high, 47% of the territory is subject to drought warnings and 17% in states of alert (European Commission, 2022). As a result, the wheat harvest completed in mid-2022 was 4% smaller than in 2021. In the case of maize, production in the 2022/23 season is estimated to be 15% lower (USDA, 2022).

Figure 2 Annual growth rates for world wheat and maize production, trade, and stocks-to-use ratios, 2019/20–2022/23 seasons
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Agricultural Market Information System (AMIS).

- Declines in cereal harvests also affect livestock. Cattle, poultry and pig farmers face higher grain and energy costs, as well as more frequent disease outbreaks. In the European Union, this has affected livestock numbers and pushed up meat prices, which in June 2022 were about 12% higher than in 2021, according to Eurostat data.
- Farmers do not always benefit from higher cereal prices, as producer prices are less elastic in relation to global prices than wholesale prices (Dutoit, Hernández and Urrutia, 2010). There are asymmetries in agricultural commodity markets, with few buyers and many geographically dispersed and unaffiliated producers. Prices are volatile and windows for selling are concentrated in time, limiting producers' bargaining power. Above all, producers' income margins are narrowing, because fertilizer and energy prices are rising more quickly than grain prices (FAO, 2022b; United Nations, 2022a).

C. The vast majority of Latin American and Caribbean countries are net importers of cereals

- Latin America and the Caribbean as a region has an annual agricultural surplus of more than US$ 127 billion, equivalent to US$ 200 per capita, more than any other region in the world except Oceania. Even so, the vast majority of the countries in the region are exposed to production and marketing problems, as well as to price hikes caused by the war in Ukraine, as they are net importers of wheat, maize and vegetable oils (see table 1).
- In the region, 26 countries are highly reliant on wheat imports, while 13 countries are highly reliant on maize imports. Only Argentina is a net exporter of all the agricultural products shown in table 1, while the Caribbean subregion is a net importer of almost all of them.
- The countries of Latin America and the Caribbean do not depend on the Russian Federation and Ukraine for their imports of wheat, maize and vegetable oils. However, regional imports of these and other foodstuffs are being affected by the war in Ukraine through higher global prices.
- Regional food imports are also being affected by export restrictions by several countries not directly involved in the conflict. On average, products equivalent to 5% of the calories imported by the region are affected by trade restrictions applied in response to the war. In the cases of Haiti and Nicaragua, this percentage is more than 10% (Laborde and Mamun, 2022).

Table 1 Latin America and the Caribbean: trade balance of main agricultural items, 2018–2020 average
(Millions of dollars)

	Agricultural products	Food (excluding fish)	Cereals	Maize	Wheat	Dairy products	Fruits and vegetables	Meat	Vegetable oils
Latin America and the Caribbean	**127 142**	**109 264**	**507**	**3 882**	**-2 702**	**-2 522**	**37 143**	**17 259**	**2 765**
The Caribbean	**-6 181**	**-6 292**	**-1 719**	**-552**	**-483**	**-764**	**-359**	**-1 221**	**-652**
Antigua and Barbuda	-123	-115	-1	0	0	-10	-20	-24	-2
Bahamas	-437	-417	-8	0	0	-31	-64	-102	-10
Barbados	-243	-230	-16	-7	-5	-25	-54	-34	1
Cuba	-1 632	-1 635	-668	-181	-181	-204	-109	-446	-104
Dominica	-33	-32	-1	0	-	-3	-1	-9	-2
Dominican Republic	-908	-1 244	-431	-276	-137	-246	159	-219	-169
Grenada	-58	-53	-5	-1	-3	-9	-4	-17	-2
Haiti	-1 294	-1 279	-345	-6	-59	-71	-76	-126	-279
Jamaica	-595	-515	-152	-58	-53	-44	-42	-85	-37
Saint Kitts and Nevis	-39	-35	-1	0	-	-4	-5	-11	-1
Saint Lucia	-109	-102	-5	-1	-2	-14	-12	-31	-4
Saint Vincent and the Grenadines	-58	-59	-12	-2	-9	-7	-2	-18	-3
Trinidad and Tobago	-652	-576	-73	-20	-34	-97	-130	-100	-39
Central America and Mexico	**13 106**	**15 888**	**-6 179**	**-3 891**	**-1 371**	**-1 643**	**17 934**	**-2 051**	**-83**
Belize	-31	19	-7	-1	-5	-19	68	-9	-13
Costa Rica	2 593	2 633	-335	-187	-71	84	2 392	-10	79
El Salvador	-1 145	-929	-266	-150	-79	-184	-235	-248	-112
Guatemala	2 627	2 638	-488	-273	-160	-214	1 485	-213	375
Honduras	539	656	-274	-137	-74	-41	401	-123	221
Mexico	9 434	11 529	-4 459	-2 977	-907	-1 264	13 690	-1 800	-571
Nicaragua	1 077	1 010	-147	-62	-34	140	228	485	-14
Panama	-1 988	-1 668	-204	-104	-40	-145	-96	-132	-49
South America	**120 217**	**99 669**	**8 405**	**8 325**	**-848**	**-114**	**19 569**	**20 530**	**3 500**
Argentina	29 650	20 358	8 377	5 388	2 248	714	2 386	3 101	3 812
Bolivia (Plurinational State of)	643	176	52	-4	-18	-5	183	28	302
Brazil	72 913	62 176	4 141	5 561	-1 395	-423	1 831	15 541	76
Chile	5 046	5 582	-803	-394	-291	-187	6 562	-401	-254
Colombia	1 130	635	-1 831	-1 151	-458	-140	707	-263	6
Ecuador	3 982	3 821	-352	-49	-314	-6	3 786	-14	47
Guyana	42	63	169	-12	-9	-31	-21	-8	-12
Paraguay	4 384	3 723	589	268	76	-8	-38	1 126	415
Peru	2 272	2 757	-1 340	-738	-538	-153	4 445	-181	-381
Suriname	-83	-81	29	-2	-5	-14	13	-20	-15
Uruguay	3 595	3 503	384	-75	53	630	-80	1 733	-92
Venezuela (Bolivarian Republic of)	-3 359	-3 044	-1 010	-466	-196	-491	-206	-112	-403

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), Corporate Database for Substantive Statistical Data (FAOSTAT).
Note: Darker shades indicate a larger surplus (green) or deficit (red) relative to imports of each category in each country.

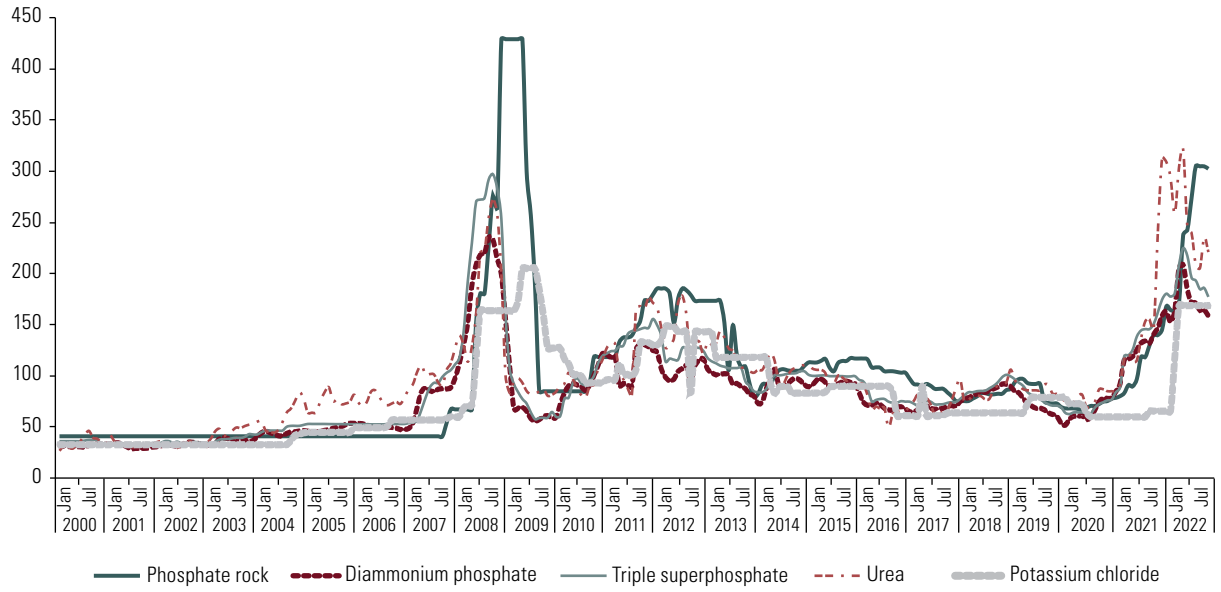
- The ongoing crisis has come at a time of high debt levels, in part because of increased public spending to address the challenges posed by the pandemic. In March 2022, the ratio of central government debt to GDP for Latin America and the Caribbean was 52.1%, 4.4 percentage points lower than at the height of the pandemic in 2020. Even so, this is over 20 percentage points higher than during the 2008 financial crisis (ECLAC, 2022a and 2022b).
- Credit conditions have also worsened as developed economies have adopted more restrictive monetary policy. The resulting increase in the cost of international credit is greatly affecting countries whose total external debt includes a large proportion of floating rate borrowing. More than half of the Latin American and Caribbean countries for which information is available are in this situation (ECLAC, 2022a).
- The effect of developed countries' restrictive monetary policies on devaluation of the region's currencies is another factor driving inflation. These conditions may well undermine implementation of social protection policies, transfers to the low-income population and support for food production. In the case of countries that are highly dependent on food and fertilizer imports, macroeconomic conditions have an even more direct impact on food security.

D. Insufficient fertilizer production: uncertainty for agriculture

1. Fertilizers are increasingly unaffordable for farmers

- The increase in fertilizer prices is another effect of the war, as the Russian Federation was, in 2021, the world's largest exporter of nitrogen fertilizers, the second-largest supplier of potassium and the third-largest exporter of phosphate fertilizers. Although fertilizers, as well as food, have been excluded from the sanctions imposed on the Russian Federation by the international community, logistical and financial restrictions operate as barriers to trade in these inputs, driving up prices. Added to this are the high prices of natural gas, a fundamental input in the production of nitrogen fertilizers.
- As in the case of basic foodstuffs, nitrogen and phosphate fertilizer prices had already risen sharply throughout 2021 owing to rising natural gas prices, but in the first weeks after the start of the war in April 2022, they reached their highest levels in several years (see figure 3). The price of urea increased the most, followed by triple superphosphate and diammonium phosphate.

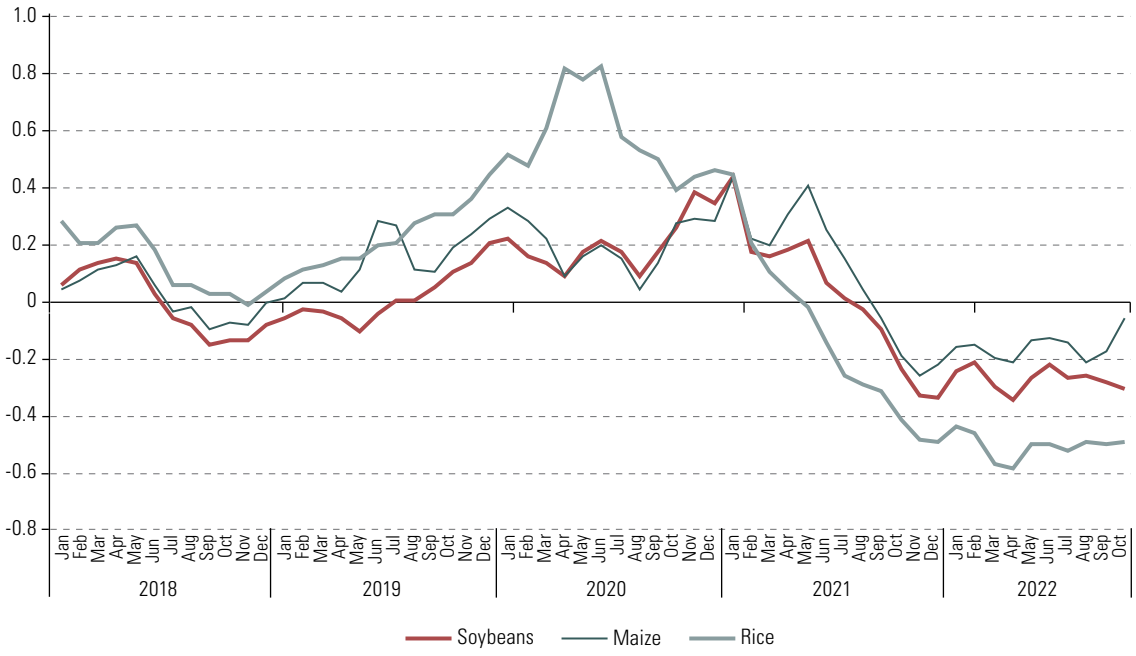
Figure 3 Fertilizer price indices, based on nominal monthly prices in dollars, by type of fertilizer, January 2000–October 2022
(Index: 2010=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the World Bank.

- Since the end of July, the prospect of increased exports from the conflict zones drove down the prices of most fertilizers, with the exception of phosphates. However, prices remain significantly above those of mid-2021. Fertilizer prices are likely to remain high because of supply uncertainty and high natural gas prices.
- This price crisis differs somewhat from the rise observed in 2008. Although in both cases higher energy prices had an impact on the cost of fertilizer production and distribution, the 2008 boom was characterized by a strong demand-side effect (a rise in response to high food prices), low inventories and the industry's inability to adjust production levels quickly (Huang, 2009).
- Fertilizers, together with energy (fuels), are the main expense item for farmers in many chains. In Brazil, for example, fertilizers accounted for 19% of annual crop production costs according to the 2017 Agricultural Census, when prices had not yet started their upward trend. Combined with agrochemicals and fuel, they account for an average of more than 40% of costs. Fertilizer prices nearly tripled from 2017 onward and fuel prices doubled, which has weighed heavily on total costs.
- The variation in exchange rates has also been unfavourable for input imports, especially for farmers whose products are priced in local currency. The fertilizer affordability indicator, which expresses the relationship between the prices of each crop and the main fertilizer used in its production, has shown a greater deterioration in products such as rice, for which international trade is less important in terms of consumption than that of soybeans or maize (see figure 4). The deterioration was greater in the months prior to the start of the war, when fertilizer prices rose much more than food prices.

Figure 4 Fertilizer affordability indicator, January 2018–October 2022



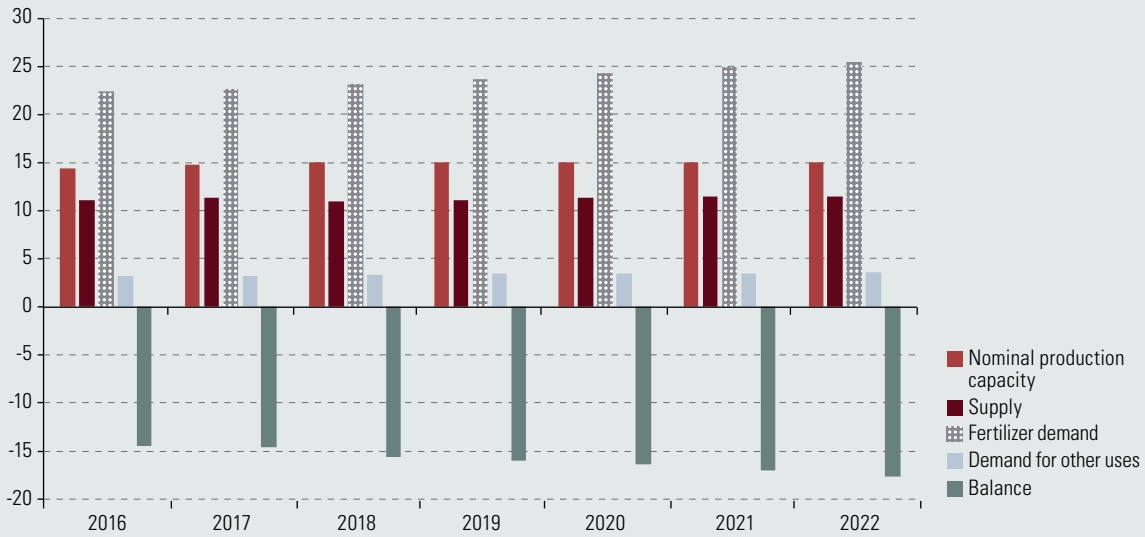
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), Corporate Database for Substantive Statistical Data (FAOSTAT) and World Bank.
Note: The indicador expresses the relationship between the international prices for soybeans, maize and rice, and the fertilizer price index (average for nitrogenous, phosphate and potassium fertilizers).

- Farmers' strategies to circumvent the current fertilizer price hike include planting varieties that are less intensive in the use of synthetic fertilizers, changing fertilization practices, using bioinputs and technologies that increase efficiency (soil and plant analysis, sensors, remote sensing, variable rate application), and reducing or postponing fertilizer application. The main risk is that locally consumed products, which are very important for food security, will be affected by a significant reduction in fertilizer use and, therefore, by a decrease in yields and production. This could result in restrictions on the availability of some foods.

2. The region is highly dependent on fertilizer imports

- Latin American and Caribbean countries import about 85% of the fertilizers they use.[3] No other region in the world is so dependent on fertilizer imports, and especially no other region that produces and exports so much food. In the region as a whole, the intensity of fertilizer use has been growing at higher rates than in the rest of the world.
- Synthetic fertilizer production capacity has hardly increased in recent years, in the region, which implies that the increase in demand has translated into greater dependence on imports (see figure 5). Regional production capacity is low in relation to demand, especially for potassium, the fertilizer for which demand has risen most sharply in recent years, together with phosphoric acid. However, nitrogen fertilizers continue to be the most widely used fertilizers in the region and in the world.

Figure 5 Latin America and the Caribbean: estimated nitrogen, phosphoric acid and potassium (NPK) fertilizer balance, 2016–2022
(Millions of tons)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), *World fertilizer trends and outlook to 2022*, 2019.

- International fertilizer production and trade are dominated by a few producing countries and companies. Five countries produce 62% and export 55% of the fertilizers consumed worldwide,[4] while five companies (Nutrien, Yara, Mosaic, EuroChem and Israel Chemicals) account for 45% of the fertilizer market, estimated at US$ 160 billion in 2021.[5] A consequence of this high concentration is that fertilizers tend to be difficult to access for many farmers, owing to distribution or price factors, especially in marginal producing areas (Torero and Hernandez, 2018).
- The region is highly dependent on fertilizer imports from the Russian Federation, which supplies