

Pricey crops

During the past year, global prices of major crops have continued to soar, and the proportion of undernourished people has increased globally. The food security situation is not optimistic.

Since May 2020, the FAO Food Price Index has rapidly increased for 12 consecutive months, an increase of more than 40% in one year¹. The rise in the prices of food and other raw materials has pushed up the inflation rate in most parts of the world. More than 10% of economies are experiencing double-digit food inflation. For instance, Argentina's inflation rate in June was 53.2%, Turkey's reached 19.99% and Brazil's was 12.59%. Among other economies such as India, Mexico, Russia, South Korea, Saudi Arabia and South Africa, the food inflation rate in June also exceeded 5%. The United States, the world's largest economy and its largest food exporter, has a food inflation rate of 2.4%². Such figures raise strong concerns about future food shortages.

The increase in food prices during this period is partly due to the decrease in food production and supply. In the first half of the year, both Brazil and the United States suffered historically extreme weather conditions. In the summer, most of the United States was caught in a series of heat waves that caused many states to declare states of emergency. The 'unbearable temperatures' brought large-scale drought, which has and will continue to have an influence on food production in the world's largest food producer.

Not only the United States but also Brazil, another world granary, has fallen into a drought of a severity almost unknown in a century. Rainfall has hit a 20-year low, and agricultural water shortages have affected the production of crops including corn, coffee and sugarcane. The international trading prices of agricultural products such as corn, vegetable oils, cane sugar and several more have all seen notable increases in the past year. Besides drought, Brazil's main coffee-growing regions have recently suffered their worst frost since 1994, causing coffee prices to reach a 7-year high.

In western Europe and Henan, China, recent short-term sudden rains have led to deadly floods, causing many casualties and considerable economic losses. Henan is a large agricultural province with the highest total wheat production in China. The July rainfall in many parts of Henan has reached historic highs. For example, a peak 3-day precipitation in Zhengzhou, the provincial capital of Henan, was equivalent to the total for 2020 as a whole. Heavy rainfall has

caused urban waterlogging, dam bursts and submerged farmlands. By the end of July, the area of affected farmland was 75,000 hectares.

Also in July, many European countries, including Germany, Belgium and the Netherlands, suffered heavy rainfall and floods, in what has been called Germany's worst natural disaster in 60 years. The floods have caused a devastating effect for many fruit and vegetable crops grown in open fields. Also, the humid environment and saturated soil greatly increase the risk of fungal disease development in crops. The disaster is not over yet. Exact losses cannot be accurately counted, but it is certain that such extreme weather conditions, which are occurring more frequently, are making agriculture and other human activities more vulnerable.

In addition to unfavourable weather conditions, food production has also been directly affected by the COVID-19 pandemic. COVID measures have created obstacles to the distribution and circulation of products locally and between regions. Some countries, such as Vietnam, Thailand, Cambodia and Russia, announced that they were protecting their food supply by prohibiting exports from the beginning of the pandemic. COVID-19 infections have caused a shortage of regional labour in some areas, which further affects food production. This international food crisis has been brewing since the very beginning of the pandemic and continues to progress as new SARS-CoV-2 variants drive recurrent waves of infection.

Travel restrictions, pricey fuel and the prolonged loading/unloading times have reduced shipping traffic, nearly doubling global shipping prices in a year. The price of grains shipped from Australia to Southeast Asia increased from US\$15 to US\$30 per tonne, and the price of grains shipped from the western United States to Asia increased from US\$25 to US\$55 per tonne³. Annual shipping orders are filled sequentially, so logistics and shipping costs will remain high for some time to come.

Adding to the supply chain, capital investment boosts global food prices from the demand side. Under circumstances of excess liquidity, food has become a popular investment, although many countries have policies to restrict grain exports, investment

and hoarding. During the past year, the world's grain stocks have risen. The main driving factor is the growth of China's corn and soybean stocks, which are currently at record-high levels and estimated to climb throughout the rest of 2021.

The effects of food inflation are multidimensional. For major food-producing countries that have achieved bumper harvests, rising international food prices will bring greater trade gains. Developed economies that rely on food imports need to increase food import expenditures. Most adversely affected are poor populations lacking food self-sufficiency in developing countries. Unfortunately, the COVID-19 vaccination rates in these areas are rarely high, so that COVID-19, high food costs will hit less affluent families hardest. In 2020, about 10% of the world's population was estimated to be undernourished, up from 8.4% in 2019⁴, the majority in developing countries.

A variety of complex factors have contributed to the extraordinary rise in international food prices and will continue to be influential. What good news can be found is that the upward movement in the most recently released FAO Food Price Index has declined slightly¹. The 'invisible hands' of the markets may be working. Also, increased food prices have promoted crop planting, so food production may increase in the near future, eventually reducing prices.

Either COVID-19 or the past months' climate extremes alone would have been serious threats to global food supplies; their combined effects may be with us for many years to come. Such confluences seem set to become common occurrences that will need globally coordinated interdisciplinary responses to counter them — not least in the plant sciences. □

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References

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