# Global Food Supply Chain and Global Pandemic | What Have We Learned?

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The year 2020 will go down in the history books as one of the worst since the Great Depression. The pandemic upended the lives of millions of people. It exacerbated income and social inequalities and revealed fundamental weaknesses in our infrastructure. It disrupted – and continues to disrupt – healthcare delivery, travel and communications infrastructure, and critical global supply chains – in particular the global food supply chain.

The disruption in the global food supply chain came at a time when the world was striving to create solutions to address global hunger. It also came during the hottest year in recorded history. It triggered or exacerbated food insecurity in practically every country. Not surprisingly, the poorest and most vulnerable communities were most impacted by the pandemic. According to the United Nations, more than 155 million people were suffering from acute hunger by the end of 2020, and forecasts for 2021 show that trend continuing, with ongoing wars, climatic shocks and the pandemic worsening the situation.

The 155 million people dealing with acute hunger are mostly found in fragile states that have been hit by famine, locust invasion, and a sharp drop in foreign remittances to low-and middle-income countries. The United Nations at the beginning of the 2020 lockdown warned that famines could strike three dozen nations classified as fragile states. The Democratic Republic of the Congo, Ethiopia, Nigeria, South Sudan, Syria, Venezuela, and Yemen were forecast to be heavily impacted, pushing an additional 130 million people to the edge of hunger. Similarly, the worst locust invasion in Africa in 70 years is exacerbating COVID-19's effects and threatening to starve 25 million East Africans by destroying food supplies and causing billions of dollars in agricultural damage. According to World Bank data, remittances to low- and middle-income countries might fall by at least 14 percent by 2021, putting an additional 33 million people at risk of famine.

For all the negative impacts, the pandemic has amplified interest in disruptive sustainable agriculture technologies and more efficient delivery methods. These improvements to the global food supply chain can strengthen resilience in both advanced and developing countries. Several sustainable practices, such as vertical farming, organic food certification, biodynamic farming, and regenerative agriculture, have gained momentum as innovative ways of addressing hunger and improving the global food supply chain. Regenerative agriculture, which is similar in some ways to biodynamic farming, has sparked particular interest among impact-oriented investors given its incorporation of social considerations.

**Vertical Farming**

Over the last several years, increased investor interest in indoor vertical farming has brought awareness to the sustainable technique. This relatively new agricultural approach allows plants to be cultivated on trays or by hanging modules indoors. Vertical farming saves space, energy, and money over traditional farming since technology allows for an exact assessment of how much water and nutrients the plants require. Vertical farming has gained the most interest in urban centers to alleviate already stressed distribution chains. Vertical farming has shown to be a more efficient means of growing produce by lowering carbon emissions, reducing water use, and growing higher-nutrient products. Vertical farming also has the potential to produce a wide range of foods year-round, independent of the season. When this strategy is scaled to urban and suburban locations, these products may be supplied to city residents more rapidly while retaining freshness. Furthermore, the technology could help reduce or even eliminate urban food deserts, which are projected to affect more than 20 million people in the United States.

AppHarvest, AeroFarms, and ScottsMiracle-Gro are examples of companies actively involved in vertical farming. AppHarvest operates some of the largest indoor farms in the United States, including two indoor farms totaling 60 acres. One farm is located just outside of Richmond, Kentucky, and the other near Morehead, Kentucky. AppHarvest develops fresh fruits, vegetables, and leafy greens, employing both traditional farming practices and cutting-edge technologies. The company is still in its infancy, but the growth potential is enormous. One significant advantage of AppHarvest is its long-term viability. Because produce is grown inside, the technique is climate-resilient, and there is no agricultural runoff such as soil erosion. Vertical farming also consumes up to 80% less water than traditional agriculture, a major issue as droughts are impacting more communities around the world.

**Rise in Organic Food Certification**

Covid certainly changed consumer practices, particularly concerning the food we eat. The possibility that Covid began from a wet market in China has motivated shoppers to start reexamining the sources of their food. It is essential to recognize that as the

total populace builds, food creation and distribution through business sectors would be indispensable. Be that as it may, "because of the worldwide ramifications of the COVID-19 episode from a live Chinese food market, there could be 'desperate' ramifications on what food we eat, how we produce it, and where we get it". The COVID-19 pandemic has additionally expanded interest in organic products, as consumers look to provide healthy, naturally grown food for their families.

Natural Grocers by Vitamin Cottage and Sprouts Farmers Market are examples of companies specializing in the sale of organically sourced foods and vegetables that are certified by the United States Department of Agriculture ("USDA"). Natural Grocers by Vitamin Cottage sources produce from neighborhoods and local farmers who are keen on selling their farm produce to consumers interested in organic food items.

**Regenerative Agriculture**

Regenerative agriculture is a holistic approach to farming, food, and nutrition. A key goal of regenerative agriculture is to improve soil health, not simply sustain it. The environmental benefits include carbon sequestration, more nutrient-rich crops, improved water quality, and improved climate resiliency, among others. Many proponents of regenerative agriculture have expanded their definition of 'regenerative' to encompass goals such as equity among stakeholders (i.e., investors, owners, farmers), particularly local communities, and support for food systems entrepreneurs.

Regenerative agriculture requires planning and care, as well as innovative approaches to financing. Given the rich opportunities for investment in regenerative agriculture, Pathstone is working on a landscape overview of this space. Be on the lookout for our upcoming report.

**Conclusion**

The 2020 lockdown not only created global havoc but also helped shed light on the fragile state of the global food supply system, amplifying interest in disruptive sustainable agriculture technologies and more efficient delivery methods. These emerging techniques and products ultimately aim to strengthen the resilience of our global food supply chain and create a more equitable and sustainable food economy.

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