

Global food security – Part 3

Curtis R Youngs, Professor & M.E. Ensminger Endowed Chair of International Animal Agriculture, continues his discussion of global food security

Global food security is a societal goal that, in my opinion, should be supported by everyone. Who could argue against preventing human deaths due to starvation and/or stopping the stunting of children’s physical and cognitive development due to malnutrition? Despite societal support of this goal, however, progress toward attainment of global food security in the past two years has not occurred due to disruptions of the human food supply chain caused by the SARS-CoV-2 global health pandemic, Russian invasion of Ukraine, and rampant inflation.

These unprecedented challenges to feeding the world’s growing human population represent an urgent call to action if humankind is to make significant progress in reducing the number of people facing severe food insecurity.

Tackling this problem in an effective manner will necessitate a re-framing of the discussion to mandate the use of science-based facts and concurrent abandonment of hidden social and political agendas. It will entail unbiased education of government policymakers, consumers, leaders of international aid organizations, and others about the myriad of options available to achieve positive change. It will require a critical assessment of the issue through the lens of the hundreds of millions of people experiencing food insecurity on a daily basis – the people whose primary goal is to have enough food to stay alive.

Geography matters when it comes to food access

Having been born in the U.S., I was born with a “privilege” that many infants around the globe (including in the U.S.) don’t receive – simply because of the circumstances in which they were born. Fortunately, I have never experienced chronic hunger. My parents provided me with enough food to nourish my body and mind as I was growing up, and I had access to a good quality education that enabled me to choose vocations that were meaningful to me and which provided enough income to sustain my family and subsequently give my children similar opportunities.

Unfortunately, many children are not as fortunate and are born into a home where there is lack of access to sufficient nutritious food, quality education, and income-generating opportunities. This lack of access frequently leads to children finding themselves in the “poverty trap” (Balboni et al., 2022).

Poverty often equates with malnutrition, and malnutrition during the first 1,000 days of life (from conception until a child reaches two years of age) typically results in stunted physical and cognitive development. Beyond the ethical concerns related to stunted/malnourished children, there are additional long-lasting adverse impacts on societal development (Behrman et al., 2020).

Reducing hunger and malnutrition within communities

During the past decade, I have had the privilege of using my knowledge, skills, and abilities to assist smallholder farmers in developing countries with their quest to improve agricultural productivity, reduce hunger and malnutrition within their families and communities, and enhance their livelihoods to be able to afford educating their children (i.e., paying school fees and buying school uniforms). Many of these farmers do not have electricity or running water in their homes, and family members spend hours per day carrying water from the community well (“borehole”) to their homes.

Many of these farmers utilize generations-old agricultural production practices because they lack access to an agricultural extension service that could train them in more modern production practices, and many rely on manual labor because they lack access to capital to buy machinery that could increase production efficiency while concurrently reducing the physical burden of raising food for their families. Subsistence farmers view the issue of food insecurity through a much different lens than do many in developed countries of the world.

Agriculture and the environment

Agriculture feeds the world, and, like other industries, it is an ever-changing industry that continually strives to improve not only by adopting new technologies but also by learning from its past imperfections. Animal agriculture in particular has been blamed by many as the main culprit causing global warming and climate change; however, there is much evidence that those allegations are inaccurate.

For example, a recent report from the United States Environmental Protection Agency (USEPA, 2021) revealed that in 2019 the agriculture sector (not just animal agriculture) was responsible for 10.2% of all US greenhouse gas emissions (expressed as CO₂ equivalents). That emission level pales in comparison to the transportation sector (28.6%), electric power industry (25.1%), and industry (22.9%). Thus, a greater opportunity exists for the reduction of greenhouse gas emissions in transportation, the electric power industry, and industry than in agriculture.

Decreasing greenhouse gas emissions

Another study modelled the removal of farmed animals from U.S. agriculture (White and Hall, 2017). Removal of farmed animals altered the foods available for domestic consumption and decreased U.S. agricultural greenhouse gas (GHG) emissions by 28%. This reduction in agricultural GHG emissions, however, equated to only a 2.6% overall reduction in total U.S. GHG emissions.

The modelled system without animals increased the total volume of food produced by 23%, but led to a greater excess of dietary energy (a potential concern for obesity) and a greater number of deficiencies in essential nutrients (e.g., calcium; vitamins A, B12, and D). The importance of animal-source foods in the diet of children was shown in a study of snacks provided to Kenyan school children (Neumann et al., 2007); children who ate meat had higher test scores, were more physically active, and exhibited more leadership behaviors.

Some people argue that livestock represent a threat to global food security because: 1) animal feed rations contain products that can be used as food for humans, 2) animal feed may be produced on land suitable for production of human food, and 3) the relatively low efficiency of animals in converting feed into human-edible products. However, a recent study (Mottet et al., 2017) reported that human-edible feed materials represented only 14% of the global livestock feed rations. The report also indicated that 57% of the land currently used for livestock feed production is not suitable for the production of food for humans.

Feeding the world is a huge challenge, and societies must work together to raise people in developing nations out of the poverty trap. Doing so will make the world a better place for everyone.

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