March 11, 2021

The Honorable David Scott
Chairman
Committee on Agriculture
U.S. House of Representatives
1301 Longworth HOB
Washington, DC 20515

The Honorable Glenn "GT" Thompson
Ranking Member
Committee on Agriculture
U.S. House of Representatives
1010 Longworth HOB
Washington, DC 20515

Dear Chairman Scott, Ranking Member Thompson, and Members of the Committee:

The Biotechnology Innovation Organization (BIO) is pleased to submit a statement for the record to the United States House of Representatives Committee on Agriculture hearing entitled, "A Look at Food Insecurity in America."

Introduction

BIO[1] represents 1,000 members in a biotech ecosystem with a central mission – to advance public policy that supports a wide range of companies and academic research centers that are working to apply biology and technology in the energy, agriculture, manufacturing, and health sectors to improve the lives of people and the health of the planet. BIO is committed to speaking up for the millions of families around the globe who depend upon our success. We will drive a revolution that aims to cure patients, protect our climate, and nourish humanity.

Existing Challenges of Food Insecurity

The Committee's hearing examining food insecurity comes at a critical time. As we are all too aware, one-year into dealing with the pandemic, COVID-19 has also exposed the vulnerabilities and inequalities in how communities are disproportionately impacted, our capacity to respond to crisis, our ability to maintain our supply chains, and to withstand an economic downturn.

Unfortunately, the challenges of hunger and food insecurity predate COVID-19. According to Feeding America[2], before the coronavirus pandemic, more than 35 million people struggled with hunger in the United States, including more than 10 million children. The coronavirus pandemic has left millions of families without stable employment. As result, more than 42 million people, including 13 million children, may experience food insecurity.

According to the United Nation's (UN) nearly 690 million people are hungry, or 8.9 percent of the world population – up by 10 million people in one year and by nearly

[1] https://www.bio.org/
[2] https://www.feedingamerica.org/hunger-in-america/facts

1201 Maryland Avenue SW
Suite 900
Washington DC 20024
202.962.9200 P
202.488.6307 F
bio.org

60 million in five years.[3] As a result, the world is not on track to achieve the UN's goal of Zero Hunger by 2030 and profound changes are needed to nourish not just the 690 million hungry people today, but the 2 billion additional people the world will have by 2050.[4]

Using Innovation to Tackle Hunger

As part of BIO's BIOEquality Agenda[5], fostering enhanced nutritional opportunities is critical to promoting health equity. By broadening access to biotech advances that improve nutritional wellness, we can enhance overall community health.

Developing and deploying new innovations in crop and animal production will be critical to feeding a growing world. As highlighted by the United Nations, biotechnology can contribute to combating global hunger and malnutrition. Approximately 140 million children in low-income groups are deficient in Vitamin A. This situation has compounded into a public health challenge. The World Health Organization reports that an estimated 250,000 to 500,000 Vitamin A-deficient children become blind every year, half of them dying within 12 months of losing their sight. Golden Rice, a crop produced using the tools of biotechnology, contains three new genes that helps it to produce provitamin A.[6] Because of these benefits, 150 Nobel Laureates and 13,270 scientists and citizens wrote in support of crops and foods improved through biotechnology.[7]

Gene editing can fast track genetic improvements in plants and animals to keep pace with a growing population[8] and enable growers to produce higher yields with lower fertilizer, water, and nitrogen inputs.[9] This technology can help us create more resilient crops able to withstand more variable weather events due to climate change by increasing plant tolerance to heat, floods, salinity, droughts and extreme cold.

Gene editing can also boost the nutrient levels of fruits and vegetables. Increasing the vitamin and mineral contents of plants, particularly staple crops, such as, potatoes, corn, soybeans, and wheat can address hunger issues globally and, in the U.S., where large portions of the population do not meet their nutrient requirements.[10]

Incentivizing the utilization of biotech in specialty crops can also help address the lack of fresh fruits and vegetables in food deserts in urban and rural communities. Consumers are already enjoying non-browning features in apples and potatoes. Extending the shelf life of produce can increase the availability of fruits and vegetables.

---

[3] https://www.un.org/sustainabledevelopment/hunger/
[4] Ibid.
[5] https://www.bio.org/bioequality-agenda
[6] https://unchronicle.un.org/article/biotechnology-solution-hunger
[7] https://www.supportprecisionagriculture.org/nobel-laureate-gmo-letter_rjr.html
[8] https://www.nytimes.com/2019/06/17/science/food-agriculture-genetics.html#click=https://t.co/yb95Eso0kY
[9] https://innovature.com/article/dr-kasia-glowacka-plants-may-thrive-less-water
[10] https://innovature.com/article/dr-taylor-wallace-gene-editing-could-mean-healthier-foods-and-healthier-planet

Additionally, it will cut down on food waste. According to USDA, in 2018 Americans threw away roughly 150,000 tons of food each day with fruits and vegetable accounting for 40 percent of that total.[11] Globally, the U.N. Food and Agriculture Organization (FAO)[12] estimates that worldwide, the amount of food wasted is enough to feed 2 billion people – more than double the number of people struggling with hunger.

Demand for protein, particularly in developing countries, will dramatically rise with a growing population and middle class. The OCED and FAO predicts meat consumption will grow 12 percent in the coming decade.[13] While traditional breeding has led to increased production, precision breeding of animals to produce more meat or milk will be critical to sustainably meet this demand by making similar improvements in a fraction of the time.

As an example, the first bioengineered food animal approved to date, the AquAdvantage salmon, is a fish that can grow large and healthy with fewer resources, near population centers. Faster growth to harvest weight will increases access to affordable and nutritious protein.

Using microbials and synthetic biology, we can boost nature's ability to grow more food on less land and create food ingredients. Through synthetic biology we can make vanillin that is molecularly identical to the bean.[14] Separately, using synthetic biology to edit brewer's yeast to produce hemoglobin is key to the development of new alternative proteins.[15]

Conclusion

Innovation can be a solution to food insecurity. However, we must incentivize and invest in the research and development of these technologies and practices and streamline and expedite regulatory pathways for breakthrough technology solutions.

BIO is committed to working with the Committee and Congress to address food insecurity. We urge you to support policy that advances pioneering technology breakthroughs. With science we can ensure everyone has access to affordable healthy fare and achieve universal nutrition

[11] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0195405
[12] https://www.wfpusa.org/articles/8-facts-to-know-about-food-waste-and-hunger/
[13] https://www.meatpoultry.com/articles/4395-global-meat-consumption-to-rise-73-percent-by-2050-fao
[14] https://wholefoodsmagazine.com/columns/debates/synthetic-biology-key-to-a-healthier-planet-or-threat-to-organic/
[15] https://www.bio.org/blogs/synthetic-biology-sustain-agriculture-and-transform-food-system