

Biotechnology in Agriculture for Long-Term Food Security

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Abstract

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Introduction

The European Commission (EC) launched a number of programs to ensure the sustainability of the agricultural sector and the economy prior to the global crisis. The European Green Deal is the most ambitious and difficult of them all, with the goal of making the EU, the second-biggest economy in the world, climate neutral by 2050 [1]. A just, healthful, and ecologically sustainable food system is one of the main goals of the European Green Deal. The EC created the "Farm to Fork Strategy" [2] with the intention of achieving this objective by revolutionizing the production and consumption of food. The European Commission (EC) set targets for a number of actions in the EU Farm to Fork Strategy.

Methodology

By 2030, cut fertilizer use by at least 20%, increase organic production to account for 25% of EU agricultural land use, and reduce

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moving beyond the traditional four-pillar framework for food security, which consists of availability, access, utilization, and stability, to a six-dimensional framework that incorporates agency and sustainability. A strategy that promotes all facets of food security ought to be developed in order to strengthen the resilience of food systems.

Discussion

is particularly crucial in situations like the present food crisis brought on by the hostilities in Ukraine. The COVID-19 pandemic brought attention to the need for global food systems to change. It is necessary to look for innovative ways in agriculture to raise output and lower food waste. During emergencies like pandemics or wars, information technology (IT) solutions are particularly crucial because they can be used to automate factories using smart sensors, minimizing human contact and communication with objects and allowing for remote monitoring.

When all households have the financial and material means to purchase food in sufficient quantity, quality, and variety to provide everyone—including disadvantaged people and groups—with a nutritious diet, food access is guaranteed. According to the legal, political, economic, and social structures of the community in which they reside, entitlements are the collection of all commodity bundles over which an individual can exercise authority (including traditional rights such as access to common resources).

In order to achieve a state of nutritional well-being where all physiological needs are satisfied, food use and utilization depend on knowledge and comprehension of an appropriate diet. It considers social settings, cultural considerations, health care, clean water, sanitation, and cooking, storing, and preparing skills.

The ability to guarantee food security in the face of cyclical events (such as seasonal food insecurity) or abrupt shocks (such as an economic, health, conflict, or climatic crisis) is referred to as stability.

Therefore, the concept can be applied to both the food security's availability and access dimensions. The ability of people and groups to exert some degree of control over their own circumstances—to choose what they eat, produce, and how that food is produced, processed, and distributed—as well as to meaningfully participate in the governance processes that influence food systems is referred to as agency. In order to ensure that the food needs of the current generations are met, sustainability refers to food system practices that support the long-term regeneration of natural, social, and economic systems.

Conclusion

The EU's definition of genetically modified organisms does not yet