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Editorial

Effective plant breeding to handle the climate change global problem

Roughly 370 million of the world's poorest people live in resource-poor, highly varied, and risk-prone rural areas. Extreme poverty is typically found in semi-arid or dry areas, as well as in hills and highlands that are ecologically delicate. In many countries, an increasing number of people are being forced to live in marginal areas, putting them at danger from the negative consequences of climatic variability and change (such as floodplains, exposed slopes, arid or semi-arid lands). Climate change will probably make food insecurity worse unless early warning systems and development initiatives are used more effectively. The current climate changes are already having a severe effect on food supply and quality; the poorest farmers and the poorest nations are most at risk. A detrimental consequence has arisen (pests and diseases) as a result of the predicted or probably increased frequency of various abiotic stresses, such as heat and drought, as well as the increased frequency of biotic stresses. Furthermore, reductions in biodiversity are predicted as a result of climate change, particularly in marginal environments. Plant breeding has been used to manage both biotic and abiotic stresses. The solution to the swiftly changing climate that has made environmental problems more frequent and severe in recent years must include predator breeding. Plant breeding can produce climate change-adaptive varieties using a range of techniques, from simple field selection of plants with desirable traits for propagation to more complex classical or molecular methods. We only eat varieties of wheat, rice, corn, and potatoes that have been created by plant breeders and cultivated by farmers. After the discovery of genetics, plant breeding emerged as a more reliable technique for enhancing diversity. The technique of plant breeding, known as modern biotechnology, has sped up and improved the accuracy of the process of developing new suited species. The science underlying plant breeding is developing swiftly, and with continuous investment, it will play a much larger role in feeding the world and halting climate change. The current climate changes are already having a severe effect on food supply and quality; the poorest farmers and the poorest nations are most at risk. Plant breeding has been used to manage both biotic and abiotic stresses. Strategies of adaptation to climate change include improved water use efficiency, a reemphasis on population breeding in the form of evolutionary participatory plant breeding to provide a buffer against irradiation, and increased access to a variety of varieties with different durations to escape or avoid predictable occurrences of stress at critical points in crop life cycles. Plant breeding is essential in addition to crop management and policy improvements to secure global food security and alleviate the consequences of climate change. However, variations in environmental conditions also affect the objectives, efficacy, and genetic gains of the current plant breeding system. In this paper, we address the challenges of breeding crops that can withstand climate change as well as the shortcomings of the next-generation breeding approach. Thanks to the integration of several disciplines and technologies into the three schemes of genotyping, phenotyping, and envirotyping, crops that are ready for climate change should be available sooner. Hope that the integration of various technology and plant breeding techniques would aid in combating the global issue of climate change.