

Crops for a changing climate

Plant breeders are already adapting crops to the world's changing climate, but the clock is ticking. To help us grow more and faster, we need a policy environment where innovation can flourish

Farmers around the world already suffer from the instability and uncertainty caused by climate change. Erratic and extreme weather conditions are wreaking havoc on harvests and livelihoods by increasing drought, soil salinity, plant pests and diseases.

Crop improvement is key to stabilising and increasing harvests in such challenging growing conditions. Yield stability is the basis of farmers' livelihoods and local food security. In pursuit of this, plant breeders are constantly seeking new ways to adapt crops to local climates. But we need to recognise that the lack of incentives for innovation in both the public and private sectors is compromising the world's ability to combat hunger.

Thanks to advances in plant science and breeding methods, today's breeders have developed climate-resilient varieties, such as drought-tolerant maize. They are developing crops with resistances to fungi, bacteria and insects whose detrimental impact can be exacerbated by climate change.

Resistances to rust in wheat, blast in rice and bacterial blight in barley can all be found when breeders can use a wide variety of natural genetic diversity.

Plant breeding takes time – up to 10 years, depending on the crop. However, with the current pace of climate change and rate of population growth, plant breeders are struggling to keep up with demand.

Clarity and reassurance needed

Better understanding of biological mechanisms in plants have brought us new tools that can significantly speed up the breeding process and target the necessary improvements more precisely.

However, not all tools are equally accepted everywhere in the world, which creates a patchwork of policy and regulatory environments for such plant breeding innovations, despite their relative accessibility and affordability.

This leads to uncertainty for the world's plant breeders who are developing crops



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Investment in plant research can yield tools with great societal benefits

adapted to local conditions. Ultimately, this state of confusion can limit innovation.

Plant breeders, both in public institutes and private breeding companies, need more clarity about the national policies that govern access to genetic resources for food and agriculture, and reassurance about the acceptance and regulation of the breeding methods that can be used. Plant breeding has shown that investment in plant research can yield tools with great societal benefits – and

public investment in research is badly needed. In order for farmers to benefit from these new developments, policies should be consistent and science-based across countries and regions.

Time is not on our side. Action needs to be taken now to provide an enabling policy environment that stimulates plant breeding to bring stability for farmers, product quality for consumers and food security for the world. Let's make sure that future generations will not ask why more was not done to deploy the full range of plant breeding tools available. ■

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