

More than half of surveyed crop varieties are under threat of extinction, according to study in India

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According to the survey results in India, 50% of crop varieties are at risk. Credit: Alliance of Bioversity and CIAT / Neil Palmer

Crop and varietal diversity are critically important for global food and

nutrition security, as well as the livelihoods of millions of people, especially those living in marginal areas. This diversity includes many different crop species and farmer varieties, many of which have been cultivated and safeguarded by farmers and indigenous peoples for millennia on their farms. Each one contains unique genetic traits which could help breeders and farmers adapt our food systems to meet urgent global challenges like climate change adaptation and mitigation, both now and in the future.

While it is widely accepted that many of these crops and varieties are being lost at an alarming rate, there remain large data gaps when it comes to knowing how many we have lost, how many we are losing, and which crops and varieties are under the most urgent threat. These data gaps present a challenge for international frameworks established to monitor agrobiodiversity at country, regional and global levels, and hinder conservation and awareness-raising efforts.

Counting on crop diversity on the farm

The good news is that there is now a methodology that could help plug these data gaps. Developed by the Alliance of Bioversity International and CIAT, working with partners, the Varietal Threat Index proposes a systematic way to monitor changes in varietal diversity on farm, between areas, and over time. The approach uses a rapid assessment technique to gather [farmer](#) knowledge about local agrobiodiversity combined with a four-cell assessment method to identify and calculate the level of threat for each crop and variety reported, including both farmer and improved varieties.

Almost 600 farmers from seven Indian states, covering five different agroecological areas, took part in the study. The farmers—representing a mix of gender, ethnicity, and caste—were selected based on their knowledge of crops and varieties across the 17 study sites. They each

listed the crops and varieties grown in their household, noted their uses, and indicated their spread and abundance, including information on varieties grown during the previous ten years which were no longer grown.

Results showed that within the study sites there is a significant diversity of landraces grown, especially in central and western regions, more than 50% are threatened. Trends revealed that those [crops](#) and varieties mostly used for consumption were often classified as under threat, whereas varieties with multiple uses such as sales, and fodder as well as household food, were less likely to be classified as under threatened. As many as 76% or above of landraces were reported as vulnerable, near threatened, threatened, or lost while varieties of least concern were predominantly improved or released varieties.

How can the Varietal Threat Index be useful?

As efforts to measure progress and advance [conservation strategies](#) accelerate under the Post-2020 Global Biodiversity Framework, this kind of information could help inform global efforts by the Food and Agriculture Organization of the United Nations (FAO) and the Secretariat of the Convention on Biological Diversity (CBD) to develop targets and indicators to monitor the global status of plant genetic resources for food and agriculture that include internationally agreed indicators to measure and monitor on farm crop and varietal [diversity](#).

With more than 50% of landraces considered threatened across five different agroecological regions of India, knowing which are most threatened will help inform urgent priority conservation actions to give people the options they need to transform food systems and improve lives, sustainably and inclusively, both now and in the future.

More information: Mohammad Ehsan Dulloo et al, Varietal Threat

Index for Monitoring Crop Diversity on Farms in Five Agro-Ecological Regions in India, *Diversity* (2021). [DOI: 10.3390/d13110514](https://doi.org/10.3390/d13110514)

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