



# BIOVERSITY INTERNATIONAL

## Seeds for Needs

Farmer involved in the Seeds for Needs initiative, India.

Credit: Bioversity International/  
C.Zanzanaini

With climatic uncertainty, including floods, droughts, cyclones and heat waves, projected to increase in the future, agriculture and food security are more vulnerable than ever. This instability puts productivity, incomes and ecosystems at risk. Poor smallholder farming communities will be hardest hit.

In 11 countries, Bioversity International is working through its Seeds for Needs initiative to help farmers adapt better to climate change through the use of agricultural biodiversity.

The Seeds for Needs concept is simple – if an array of different crops is grown on a farm or in a landscape, farmers are more likely to be able to cope with unpredictable weather. But farmers do not always have access to information or planting material to help them choose different crops or varieties that suit their conditions.

Seeds for Needs addresses both these issues by:

- Exposing farmers to more crop varieties, increasing their knowledge about different traits.
- Strengthening their local seed systems so they have access to seeds that fit changing needs.

Farmers are directly part of evaluating and selecting varieties throughout the growing season, providing feedback on their preferred traits to scientists. Since 2011, the initiative has been using a crowdsourcing approach: each farmer is given three randomly-assigned varieties out of a broader selection to compare with their own varieties. By carrying out these mini trials with such a small number of varieties, more farmers can participate as 'citizen scientists'. The initiative is also using mobile technology as a cheap and accessible way to communicate with farmers.

The Seeds for Needs initiative is now working with around 10,000 farmers worldwide.

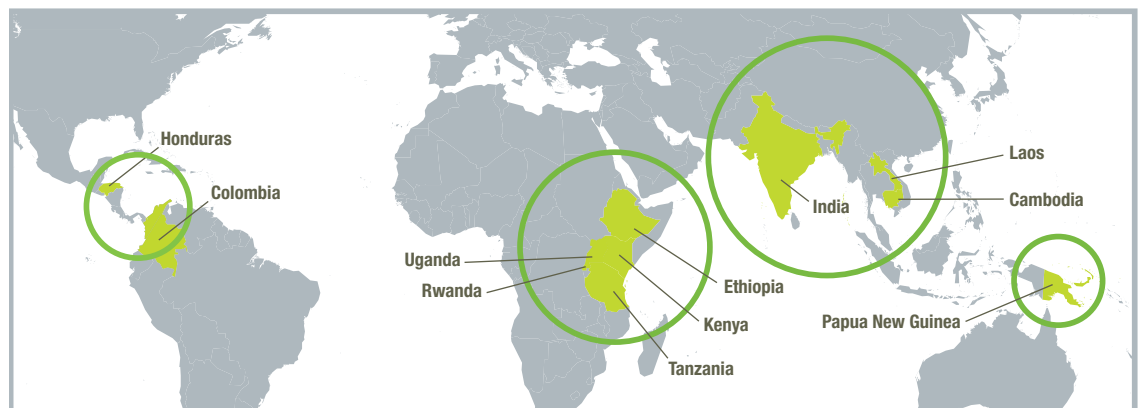


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Science for a food secure future

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Seeds for Needs started in Ethiopia in 2009 and now has project sites in eleven countries. Cambodia: rice, sweet potato; Colombia: beans; Ethiopia: barley, wheat; Honduras: beans; India: rice, wheat; Kenya and Tanzania: sorghum, pigeon pea, cowpea; Laos: cucumber, long bean, rice, sweet corn, watermelon; Papua New Guinea: taro, sweet potato; Rwanda and Uganda: beans

Ethiopia was the first country where the Seeds for Needs initiative started in 2009. Bioversity International worked closely with partners to identify seeds from the national genebank that would resist drought and elevated temperatures.

From 25,000 varieties of durum wheat and barley, 500 were short listed using geographic information system (GIS) technology and characterization. Out of this short list, farmers and scientists selected 50 to test for local adaptation.

All of the 500 varieties have been made available to farmers either through established or new community seedbanks in the three regions where Bioversity International works.

Farmers scoring durum wheat varieties according to their preferred traits in a field trial, Northern Ethiopia. Credit: Bioversity International/C.Fadda



Seeds for Needs in India started with some 30 farmers in 2011 and has exponentially increased to 5,000 farmers through crowdsourcing. In the coming two years, Bioversity International hopes to work with over 30,000 farmers, with a strong focus on increasing women farmers' access to knowledge and information.

The initiative has also set up weather sensors, known as iButtons, in farmers' fields to record local temperature and humidity. This data is then compared with feedback from farmers on crop performance. Bioversity International is developing a data analysis software called ClimMob to help identify trends and give farmers feedback based on the collected data.

Farmer observing neighbour's wheat trials in India. Credit: Bioversity International/C.Zanzanaini

Bioversity International's Seeds for Needs initiative provides an effective and cost-efficient way to provide farmers with vital information and improve their seed systems. The aim is to test and then develop solutions at scale, ensuring more potential benefits to more farmers and their families. Now more than ever, there is the potential to create lasting solutions for resilience and climate adaptation for smallholder farming communities worldwide.