



Nutritional Security through Horticultural Diversity: An Integrated Component of Seeds for Needs

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RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



Background

Traditionally, in India and other South Asian countries, sustenance farming is mainly based on cereal cultivation followed by pulses, oilseeds and some forage grasses to feed livestock.

The practice of monoculture and the disappearance of landraces and traditional crop diversity, have resulted in imbalanced diets and malnutrition, which affect women and children the most. Data from the National Nutrition Monitoring Bureau indicates that Indian households' daily intake of all foods, except cereals and millets, is lower

than the recommended dietary allowance (RDA).

The inclusion of crop diversity in farming systems can help develop a stable and sustainable agricultural system, and at the same time ensure better livelihoods and reduce malnutrition by injecting a supply of vital nutrients and minerals at the household level. The 'Seeds for Needs' initiative of Bioversity International is broadening the crop genetic base by integrating horticultural crops that can reduce farmers' excess dependence on cereals and increase their livelihood and nutritional security.

Our Approach

The villages chosen for planting fruit crops are located in low rainfall regions, where tree plantation has an important role in sustaining small farmers' livelihood security, besides helping to conserve soil. Bioversity International is providing quality seed and seedlings of vegetable to many farmers in Uttar Pradesh, Madhya Pradesh and Bihar. The selection of crops and varieties is done in consultation with the local national partners. Planting material is procured from official sources, such as the Indian Council of Agricultural Research (ICAR), agricultural universities and other government approved nurseries. To improve the availability of quality planting material in remote areas, Bioversity International has involved women self-help groups and trained them in nursery raising, successful growing of crops and adoption of plant protection measures on fruit trees.



Fruit tree plantation in low rainfall areas
Credit: Bioversity International

Top image: Horticultural diversity at display in a local market in Bihar
Credit: Bioversity International / S. Dsouza



Mango nursery
Credit: Narendra Singh

Inclusion of horticultural crops in *Seeds for Needs* aims to promote diversity in the field and on the food plate. Small seed kits of seasonal vegetables and fruit tree saplings are being provided for 'Kitchen Garden' to improve dietary diversity and quality diets, whereas a seed kit of relatively larger quantity is provided to analyze the economics of growing multiple vegetables.

Our Progress

So far, we have distributed saplings of fruit trees to more than 700 households. Species distributed are region-specific and include mango, guava, citrus, bael, aonla, pomegranate, litchi, custard apple, Indian black berry (jamun), sweet orange, ber, jackfruit, drumstick, citrus, papaya and karonda. Farmers are trained on how to plant, manage and protect fruit trees.

More than 800 farmers have participated in the vegetable trials. Seed and seedlings are being made available to the participant farmers and feedback is being collected. The gathered information helps to

assess the impact of diversification on pest management, dietary habits and economic returns, and its contribution to the broader *Seeds for Needs* objectives. The trials in Satna district Madhya Pradesh during rabi season of 2016 have increased the profit of participating farmers by 19.2% and more than 84.2% of them want to continue with the multiple vegetable cropping. 81.6% of the participating households reported an increased vegetable consumption in their diets.



Crop diversification through vegetables
Credit: Bioversity International / S. Dsouza

Looking Ahead

To identify the region-specific vulnerabilities and gaps in diet quality, we prepared a questionnaire on availability of meals and diet diversity in the area. The study will help develop recommendations of selected vegetables and fruits to be included in diets. Women of reproductive age (16-49 years) will be the focus of the study as they are often nutritionally vulnerable because of physiological demands and local social norms. Nutritional profiling of indigenous minor and underutilized horticultural crops will be carried out to encourage their cultivation based on the study.

The programme will also generate greater awareness on safe plant protection measures, conservation, consumption and use of agricultural biodiversity, especially of horticultural crops and their landraces.



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