

Seed companies across Asia experienced the quality and depth of the WorldVeg breeding program during two field days showcasing the most recent developments in disease resistance and production characteristics for tomato and bitter gourd. teaser

Virus-resistant tomatoes prompt huge seed industry interest

The world's second largest tomato producing country gave a resounding vote of confidence in the breeding work of the World Vegetable Center through a successful field day held on September 7 at the WorldVeg South Asia campus in Hyderabad, India. The first WorldVeg tomato virus field day ever held in India attracted more than 70 seed industry staff representing 38 companies from across the country to hear talks about breeding for virus resistance and to see the best WorldVeg lines for themselves.

The value of the Center's tomato breeding work to India was highlighted by the presentation to WorldVeg Tomato Breeder **Peter Hanson** of a top partnership award by **Dr. AT Sadashiva** from the Indian Institute of Horticultural Research. The prestigious award from the Indian Council of Agricultural Research was for outstanding interdisciplinary research to produce improved tomato varieties for Indian farmers.

A recent WorldVeg survey of the Indian seed sector found that one in six commercial hybrid tomato plants and more than one in three public sector hybrid plants sold in India contain germplasm from the World Vegetable Center.

Seed companies are trying hard to produce stable resistance and to address the complex of viruses that are often involved. A major focus of their concern is tomato yellow leaf curl disease caused by begomoviruses. The World Vegetable Center is currently conducting a multilocation trial supported by members of the Asia and Pacific Seed Association to assess the performance of 15 improved WorldVeg tomato lines pyramided with different resistance genes for the disease.

The field day trial plots, established by seed production officer Lucy Sarkar, amply demonstrated the robust performance of several lines with multiple gene resistance, and tracked the progression of the disease in each line over the season.



Visitors from East-West Seed, Thailand and Ajeet Seeds, India discussed bitter gourd trials with WorldVeg Cucurbit Breeder **Narinder Dhillon**. The vegetable is popular in Asia and contains compounds beneficial for diabetics.

Sampling the success of the bitter gourd breeding program

The World Vegetable Center cucurbit team proudly demonstrated 400 bitter gourd breeding lines during Open Field Days, 21 August - 6 September 2016 at the WorldVeg East and Southeast Asia/Oceania Research and Training Station, Kasetsart University, Kamphaeng Saen, Thailand. Breeders, pathologists, virologists, and administrators from 15 seed companies and research institutions evaluated the advanced breeding lines for selection into their breeding programs.

Bitter gourd is cultivated on nearly 400,000 hectares in Asia and the bitter gourd seed market is highly specialized and segmented according to fruit morphology and taste. However, a common requirement is resistance to various diseases. "Molecular analyses of these lines have helped us to understand the genetic relatedness of lines, which provides clues to

the breeders when choosing parents for their hybrid breeding programs,” said **Narinder Dhillon**, WorldVeg Cucurbit Breeder. “These lines represent a broader genepool due to their development from the global collection of bitter gourd maintained at the WorldVeg genebank.”

Visitors based their selections on vine stem vigor, copious branching pattern, disease resistance characters, fruit quality (shape, color, spine pattern) and ratio of female to male flowers and yield.

The cucurbit team also showcased elite bitter gourd hybrids from different market segments developed using WorldVeg breeding lines—which further demonstrates the breeding potential of the Center’s unique breeding lines for the immediate gain of seed sector stakeholders.



WorldVeg Tomato Breeder **Peter Hanson** (left) addressed seed company breeders at the first WorldVeg tomato field day in India. He was honored for his tomato research with a partnership award from the Indian Institute of Horticultural Research.