A New Look Asian Seed Magazine
New design launched for APSA's 20th anniversary

Seeds – Banking on the Future
In-depth reports on how seed banks are saving for the future

World Seed Congress 2014
All eyes are on China at this year's ISF event in Beijing

Seed for Thought
How the seed business has developed in the Asia-Pacific region

BANKING ON SEEDS/NEW MAGAZINE DESIGN
The AVRDC Genebank, Taiwan

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To develop improved vegetable varieties that yield well, resist pests and diseases, thrive under extreme heat or drought or flooding — and meet the specific preferences of farmers and consumers — plant breeders need access to a diversity of genetic resources. The AVRDC Genebank has met this need since 1971 with an ever-expanding, carefully documented collection of vegetable germplasm. Diversity in the vegetable crop portfolio at local, national and global levels has powerful implications for food, nutritional and economic security as well as sustainable production. Individual and community nutrition improves when diets are rich in fruit and vegetables, which supply micronutrients essential for good health; with better nutrition at an early age, children can develop and healthy, productive adults. As the global climate shifts, improved vegetable varieties capable of thriving under harsh weather conditions will be sought to feed a growing population.

All of these benefits depend on access to genetic diversity of crops and their wild relatives for breeding programmes. Vegetable breeders scan available germplasm diversity for traits of interest as they strive to stay one step ahead of evolving pests and diseases, search for new heat-tolerant varieties, or develop crops for consumer market niches. Each year the Center’s tomato breeders intercrossed different BW-resistant sources with high general combining ability, such as S. Solanum pimpinellifolium and S. lycopersicum var. cerasiforme. The Center’s tomato breeders released to farmers around the world, helping them to produce good harvests and generate income despite pest and disease pressure or abiotic stress.

Seed companies greatly benefit from access to the AVRDC Genebank and the Center actively collaborates with the private sector, whose strength in commercial seed multiplication and marketing can rapidly spread AVRDC’s beneficial research outcomes to farmers. Companies can obtain the Center’s breeding lines to use as parent lines or as a source of traits in backcrossing programmes. AVRDC Genebank accessions are global public goods and as such are widely shared.

Diversity of crop improvement programs and related research.

Since it was founded, the AVRDC Genebank has distributed more than 624,000 seed samples (289,266 accessions/breeding lines) to researchers and breeders in 197 countries. More than 500 improved vegetable varieties developed from this germplasm have been released to farmers around the world, helping them to produce good harvests and generate income despite pest and disease pressure or abiotic stress.

You say tomato

Consider just one crop — tomato — to illustrate the impact and relevance of the vegetable germplasm held at the Center in the development of improved varieties:

• Bacterial wilt (BW) resistance in cultivated tomato caused by Ralstonia solanacearum originated from the wild tomato species Solanum pimpinellifolium and S. lycopersicum var. cerasiforme. The Center’s tomato breeders released to farmers around the world, helping them to produce good harvests and generate income despite pest and disease pressure or abiotic stress.

• Late blight caused by Phytophthora infestans in the wild tomato species Solanum pimpinellifolium and S. habrochaites accession V009104 (L3708). The improved lines also are resistant against tomato mosaic virus, Fusarium wilt races one and two, grey leaf spot, and bacterial wilt. The wild species S. pimpinellifolium and S. pennellii are used in the Center’s breeding activities to introgress heat and drought tolerance genes into cultivated tomato.

Plant breeders and researchers turn to the AVRDC Genebank to obtain the germplasm they need to breed productive, resilient, and nutritious vegetable varieties for farmers. The genebank is thus the essential link in the vegetable value chain that leads to improved health and incomes in developing countries.

The opinions represented in the articles on seed banks are those of the authors.