7674 accessions of more than 20 vegetable crops (3428 breeding lines and 4246 genebank accessions) were distributed to various stakeholders worldwide.

1788 vegetable accessions were duplicated at the National Agrobiodiversity Center, Korea and 1742 accessions at the Svalbard Global Seed Vault, Norway. 1617 germplasm accessions were characterized based on standard morphological descriptors.

658 vegetable germplasm accessions were screened. Fifteen accessions of pepper, okra and bitter gourd were found to be resistant/tolerant to biotic stresses including potyvirus, anthracnose, Phytophthora blight, aphids, leafhopper and melon fly.

265 Abelmoschus (okra family) accessions have been genotyped and the data have been applied for genetic diversity analysis.

More than 100 polymorphic SSR markers each are now available for Momordica sp. and mungbean.

Evaluation of 158 entries of broccoli and 81 entries of Chinese cabbage resulted in ten hybrids of broccoli and nine hybrids of Chinese cabbage being selected for heat tolerance, high yield and early maturity. Three heat tolerant sweet pepper hybrids were identified from a set of evaluations.

186 tomato lines were sent to 35 countries and 43 indigenous vegetable lines to eight countries. Seed of 50 hot and sweet pepper breeding lines were made available to more than 500 cooperators around the world through the International Chili and Sweet Pepper Nurseries network.


AVRDC maintains and seeks active collaboration with the private sector. In 2012 the Center provided seed of improved onions to seed companies GMR and Semagri in Cameroon to begin commercialization. Two collaborations with East West Seeds Indonesia, one with Indus Seeds, India and one with tomato processor Kagome, Taiwan included seed multiplication, characterization of insect pests, and screening and development of begomovirus-resistant varieties.

Virulence of 45 bacterial wilt-causing Ralstonia solanacearum race 3/biovar 2 potato strains was evaluated on tomato, eggplant and pepper. Virulence on tomato and eggplant increased with the increase of temperature. The strains were not virulent on pepper.

AVRDC identified a new species of begomovirus and named it Sauropus leaf curl virus after the indigenous leafy vegetable host, sweet leaf bush (Sauropus androgynous). Mixed infections of up to three different species of begomoviruses suggest that Sauropus is a perennial overwintering host where viruses can multiply and recombine to potentially form more aggressive or virulent types.
AVRDC leaflets on recommended cultivation of various crops, home gardens and
general vegetable production technologies were in demand in India; in 2012, the Center
received 95,900 requests for leaflets and 49,000 have been distributed.

Nutritional values for amaranth, African eggplant, okra, roselle, chili pepper, and
tomato were evaluated and nutritional information was made available in the AVRDC
Vegetable Nutrient Database.

Pilot vegetable gardens in East Java and Bali, Indonesia completed a year-long
planting schedule using AVRDC’s 6 x 6 m² garden models. The East Java model yielded
a total of 518 kg from 15 vegetable crops, adequate for a family of six to fulfill the
World Health Organization’s recommended level of vegetable consumption (200 g/
person/day); the Bali garden produced 248 kg. Both models provided more than 100%
of the recommended intake of vitamin A, vitamin C and folate for a family of six. The
Java model provided a significant amount of iron and calcium, while the Bali model
contributed vitamin E and calcium.

In collaboration with United Nations Food and Agricultural Organization, UK Department
for International Development, US Horticulture Collaborative Research Support Program,
Catholic Relief Services and Helen Keller International more than 20,000 vegetable seed
kits were distributed in various regions for disaster recovery (in India and Tanzania) and
as nutritional seed kits for small vegetable gardens.

In Tanzania, Bangladesh, Indonesia and India various surveys were conducted and data
analyzed to understand the socioeconomic factors influencing stakeholders’ decisions
on selecting vegetable production practices, using varieties and planting materials,
and consuming vegetables. Surveys provide the data needed to conduct rigorous,
statistically sound impact assessment of the Center’s activities.

A centralized geographic information system database was created for food and
nutritional security of urban and peri-urban communities at selected sites in and around
Bangkok, Thailand.

Through training courses, workshops, internships and specialized training programs,
the Center built the capacity of 12,175 farmers, staff of national agricultural research
and extension systems, nongovernmental organizations, scientists from the public and
private sectors, and higher degree students. More than half (56%) of these trainees were
women.

Research in Lao PDR, Taiwan, Thailand and Vietnam identified several promising
parasitoid candidates that could be exploited as biocontrol agents against the
devastating legume pod borer (Maruca vitrata). Under laboratory conditions, the
tachinid fly (Nemorilla maculosa) parasitized about 40% of a borer population. In
Thailand, an egg-larval parasitoid, Phanerotoma philippinensis, showed parasitism up to
21% in the field.

In a project to determine the potential of bitter gourd (Momordica charantia) to manage
type II diabetes, field trials confirmed the genetic and phytochemical diversity of 73
bitter gourd accessions and commercial hybrids, and seven triterpenoid compounds (a
major anti-diabetic phytochemical group) were identified.