



AVRDC

The World Vegetable Center

2010 Annual Highlights





AVRDC – The World Vegetable Center, founded in 1971, is an international nonprofit institute for vegetable research and development. The Center effectively mobilizes resources from the public and private sectors to foster the safe production of nutritious and health-promoting vegetables in developing countries. AVRDC's improved varieties and production methods help farmers increase vegetable harvests, raise incomes in poor rural and urban households, create jobs, and provide healthier, more nutritious diets for families and communities.

Prosperity for the poor, health for all



2010 Annual Highlights

Map	2
Foreword	3
Timeline 2010	4
From one farmer, many lives grow	6
AVRDC seed sows a future in Central America	8
Tools and technology	10
Gardens grow, families and communities prosper	12
Taking note of nutrition	14
A first at the fair	16
A diverse workforce	18
Quality and relevance of current research	20
2010 Revenues	21
Why the world needs a World Vegetable Center	22

Our locations



- 01_AVRDC - The World Vegetable Center, Headquarters - Taiwan
- 02_East and Southeast Asia (ESEA) - Bangkok, Thailand
- 03_Project Office - East Java, Indonesia
- 04_Project Office - Honiara, Solomon Islands
- 05_Korean Sub-Center - Suwon, Republic of Korea
- 06_South Asia (SA) - Hyderabad, India
- 07_Office for Central Asia and the Caucasus - Tashkent, Uzbekistan
- 08_Central and West Asia and North Africa (CWANA) - Dubai, UAE
- 09_Regional Center for Africa (RCA) - Arusha, Tanzania
- 10_Sub-regional Office for West and Central Africa - Bamako, Mali
- 11_Project Office - Yaoundé, Cameroon
- 12_Oceania (through Headquarters, Taiwan)

Fostering a step change in monitoring and evaluation arrangements and impact assessment at AVRDC

Over the next two to three years, AVRDC - The World Vegetable Center will institutionalize a strengthened management strategy to improve efficiency and effectiveness through better organizational learning and the overt fulfillment of accountability obligations through enhanced performance reporting. We will involve our stakeholders more in the management lifecycle of all our projects. We will project more realistic results, more prudently assess risks, use progress monitoring and better calculation of the overall resources consumed in real-time steps. We will then report on performance (internally and externally) more effectively and thus integrate any lessons learned into future management decisions in a timely and economically functional fashion.

Why is this needed?

In the fiercely competitive funding environment value for money is a vital consideration of good governance for a world-class agricultural center to demonstrate.

Likewise, the current determination of donors to demand that agricultural research centers go beyond outputs to ensure outcomes are delivered—and holding them responsible for having explicit uptake pathways towards the better attainment of impact at scale—has been taken on-board by AVRDC management and scientists.

Anecdote, evidence, projection and inspiration

Though powerful in an historic context, anecdotal achievement will no longer be a viable option in what will now be an evidence-led research and development strategy. Nevertheless, over-regulated science and science over-dependent on reaching strictly defined quantitative goals may not only be uninspired science, but also may be timid science. The Center will thus adopt a pragmatic position that recognizes the likelihood of important uncertainties in the calculation of its future equations. Horticulture may be more at risk to such shocks than other agricultural elements owing to its great sensitivity to pests and diseases, unpredictable climatic events and economic turmoil. The Center will promote a science-based, evidence-driven approach to research and development but will also be bold in the setting of its proposed targets; we will also be willing to fail to reach these targets occasionally and to acknowledge and learn from such occurrences. We will encourage inspiration from the full gamut of our human intellectual resources and those of our partners and clients.

Finally, we will never forget that whatever we do and however we do it, we will seek to bring prosperity to the poor and health for all.



A handwritten signature in black ink that reads "J.D.H. Keatinge". The signature is fluid and cursive, written on a light-colored background.

J.D.H. Keatinge
Director General

Timeline

2010

January

- Improved chili pepper 'Uchkun' selected from AVRDC line 0337-7069 earns a place on the state register of Uzbekistan
- Robert Holmer appointed new Regional Director of AVRDC East and Southeast Asia



April

- Leafy vegetable value chains in Cambodia, Lao PDR, and Vietnam researched by AVRDC, national partners, and the Asian Development Bank
- The Center's mungbean breeding activities are highlighted in a chapter in the award-winning book *Millions Fed: Proven Successes in Agricultural Development*

May

- A Pepper Demonstration Day heats up Bamako, Mali with the participation of the West African Seed Alliance, the International Crops Research Institute for the Semi-Arid Tropics, and the Center
- The Kastom Gaden Association, the Planting Material Network, and Center staff host the Solomon Islands' first-ever Field Day in Busarata, Malaita
- The Center welcomes 26 seed company representatives to the 2010 Asia & Pacific Seed Association-AVRDC Workshop at headquarters



February

- AVRDC's newest office—Central & West Asia and North Africa—holds a workshop on technology development and adaptation for Bahrain and Saudi Arabia in Bahrain
- The Center participates in a seminar on protecting plant intellectual property hosted by the International Union for the Protection of New Varieties of Plants in Dar es Salaam, Tanzania



June

- AVRDC's 10-panel nutrition poster display on view at the headquarters of the German Federal Ministry of Economic Cooperation and Development (BMZ) in Bonn
- DG Dyno Keatinge signs Memorandum of Understanding with the Al Sulaiteen Agricultural and Industrial Complex in Qatar



March

- Staff training begins for Maconomy, the Center's new enterprise management system
- The Center and the International Crops Research Institute for the Semi-Arid Tropics win the 2010 Outstanding Partnership award from the Consultative Group on International Agricultural Research for the African Market Gardens project





July

- The Center participates in the second international training course on genebank management systems for ASEAN countries in Korea
- Disaster Relief Seed Kits donated to NGO World Vision for distribution to survivors of Taiwan's Typhoon Morakot



November

- More than 100 delegates from the 2010 Asian Seed Congress tour Center headquarters in Shanhua, Taiwan
- A field day at AVRDC's Regional Center for Africa in Arusha, Tanzania draws more than 200 participants to discuss vegetable production topics and see improved vegetable lines



August

- Disaster Relief Seed Kits sent to Taiwan Technical Mission in Haiti for use in an agricultural rehabilitation project for earthquake survivors
- AVRDC's Regional Center for Africa claims first prize in technology development in the Tanzania's *Nane Nane* Agricultural Show
- Tomato line LBR-11, named 'Manja' launched during the annual Madagascar Rural Economy International Fair in Antananarivo



December

- For the first time AVRDC participates in Kasetsart University's annual Kaset Fair in Kamphaeng Saen, Thailand with an exhibit on enhancing the climate resilience of small-scale vegetable growers
- Local performances of the drama "Grow and Eat Vegetables" in the Solomon Islands raise awareness of nutrition and health

September

- Chili pepper production in Indonesia benefits from an AVRDC - Australian Centre for International Agricultural Research project on integrated disease management
- Staff from the Bhutan Department of Agriculture visit AVRDC South Asia to learn about home garden activities in India



October

- The Center joins a coalition against hunger and malnutrition in Mali to mark the International Day of Nutrition 2010 in Koulikoro
- Researchers from Iraq, Gaza, Yemen, Egypt, Bahrain, United Arab Emirates, Kuwait, Oman, Qatar and Saudi Arabia review modern techniques for protected agriculture at an AVRDC workshop in Qatar



10 things you
should know
about...



1. Our name

Established in 1971 as the **Asian Vegetable Research and Development Center**, with a focus on tropical Asia. As the need for vegetable expertise increased, the Center expanded into Africa, India, and other parts of Asia; to reflect this broader scope, the Center's working name was changed to AVRDC – The World Vegetable Center.



From one
farmer,
many
lives grow

Knowledge
enhanced
by training
multiplies good
agricultural
practices
throughout an
archipelago

Palm-fringed tropical islands represent paradise to many people. But life in paradise is no picnic for farmers in the Solomon Islands, who must contend with low soil fertility, high incidence of pests and diseases, and an erratic water supply during the dry season. Farmers tending the small-scale vegetable gardens that supply the archipelago's half a million people with much-needed fresh produce lack seed of improved varieties, seldom have access to credit, face uncertain land tenure, often can't obtain technical advice to improve their productive capacity, and have few good options available to transport their harvest.

Johnson Ladota'a is one Solomons farmer who refused to be daunted by the challenges of island agriculture. He and his family have been farming in Masilana, North Malaita for 23 years. At their farm located in the highlands 800 meters above sea level, Johnson, his wife Helen, and their 10 children as well as other family members built a reputation for producing high quality taro and watercress. Johnson, however, had ambitions to do more.

To increase income-generating opportunities for farmers like Johnson in the Solomons, the **Australian Centre for International Agricultural Research (ACIAR)** and AVRDC – The World Vegetable Center embarked on a project to develop and promote integrated and improved crop management packages for smallholder vegetable gardens.

In 2008, with assistance from the **Ministry of Agriculture and Livestock (MAL)**, Johnson started working with AVRDC – The World Vegetable Center to conduct observation trials for a range of vegetable crops. After attending

several training courses held by AVRDC and other organizations, Johnson learned how to save his own vegetable seeds. MAL and AVRDC helped Johnson establish a nursery, where ball cabbage, onion, sweet pepper, tomato, ginger, sweet potato, pak choi, and Chinese cabbage seedlings grow in neat raised beds.

Although his highland farm was productive, it was a heavy harvest: Johnson had to carry his produce on a three-hour hike down the mountain, followed by a three-hour truck ride to reach the market.

To shorten his transport time Johnson established a farm in Fuliabu, in Malaita's coastal region, where roads are easier to access. He grows cabbages for markets in Auki, the provincial capital, and in Honiara, the capital on nearby Guadalcanal island.

Johnson uses the skills and knowledge he learned from AVRDC to share the vegetable seed he collects with other farmers, and also trains his fellow farmers in nursery management and crop production methods. Today he is actively involved with the **Kastom Gaden Association** and the **Baetolau Farmer Association**, two local groups dedicated to improving the livelihoods of farmers and the health of residents throughout the Solomons by increasing the production and consumption of vegetables.

42,000 - 148,000

In rupees, amount that farmer incomes rose in Fatehpur district, Uttar Pradesh, India from planting improved mungbean varieties based on AVRDC lines

11,027

AVRDC germplasm accessions stored in the Svalbard Global Seed Vault

10 things you
should know
about...



2. Where we work

Headquarters
in Taiwan, four
regional bases in
Thailand, Tanzania,
India, and Dubai
UAE, offices in
Cameroon, Mali,
Solomon Islands,
Indonesia, Korea,
and Uzbekistan.



AVRDC seed sows a future in Central America

Breeding lines
distributed
by AVRDC
– The World
Vegetable
Center took
on a life of
their own in
Nicaragua,
and the Center
was delighted
to see its
progeny
spread

James Nienhuis, Professor of Horticulture at the University of Wisconsin – Madison USA specializing in breeding and genetics of self-pollinated crops, kindly shared this update from Fundacion Hondureña de Investigacion Agricola - La Lima, Cortez, Honduras; CARE, El Salvador; and Universidad Nacional Agraria, Nicaragua—partners in Central America involved in a **United States Agency for International Development Collaborative Research Support Program (USAID/CRSP)**:

“Our current proposal involves the evaluation of pepper and tomato germplasm, much of which comes from AVRDC – The World Vegetable Center. I thought you might be interested in knowing how much of an impact you already are having in this region.

“About 10 years ago we began evaluating AVRDC germplasm through a previous Central American project in which I was involved (REDCAHOR). I thought the results of the REDCAHOR project had been minimal and had faded over time, but on my recent trip to Central America I found that I was wrong. Breeding lines from AVRDC – The World Vegetable Center are being used actively in the region, especially in the Sebaco valley of Nicaragua. Sebaco is an incredibly good agricultural region of Nicaragua. It has abundant water, irrigation, terrific soils, and a moderate climate.

*“A lot of grains and vegetables are grown in Sebaco. **Tomas Laguna**, a colleague I worked with there more than 10 years ago, has continued to evaluate breeding lines from [AVRDC tomato breeder] **Peter Hanson** and [AVRDC pepper breeder] **Paul Gniffke**. Over the last decade, from among*

hundreds of tomato and pepper lines, Tomas has identified three with great tolerance to local diseases, including viruses, and with acceptable market qualities. This in itself was a terrific achievement of a local scientist taking advantage of your technology, but Tomas went one step further. To have greater impact, he constructed relatively simple screenhouses and in the dry season with drip irrigation he has increased seed of tomato, pepper, and squash cultivars adapted to the region.

“Even more inspiring, during those 10 years he has provided 80,000—yes, 80,000—seed packages of AVRDC lines to local farmers in Sebaco. He says he has requests for thousands more, but has no way to fill the demand. This is where our new AID/CRSP pilot program will, I hope, be able to step in and take this evaluation and seed production story to a new level. I thought you might be interested in knowing what a positive and large impact you are having in the Central American region. You inspired Tomas Laguna, and with the help of your germplasm he is making a difference in the region.

“In the world of international agriculture, funding agencies legitimately expect impact; the problem is that they are often impatient and expect immediate impact. What makes this story so nice is that it reflects the reality of how we can quietly inspire a colleague in a target country, and through dedication and time and hard work, the impact can be very impressive. It just takes a little longer than some funding agencies fully appreciate.

“This story makes me proud to be a partner with AVRDC – The World Vegetable Center. Congratulations to Drs. Gniffke and Hanson for a job well done!”

2500

Farmers using the African Market Garden System developed by AVRDC and the International Crops Research Institute for the Semi-Arid Tropics

1000

Primer pairs of simple sequence repeat markers for tomato developed in collaboration with seed companies in Asia and the Pacific

10 things you should know about...



3. Who we work for

Poor farmers and the landless in developing countries.

4. Why we work for them, part 1

Because vegetable production is one of the best ways out of poverty, and helps to empower women; it generates more income and jobs per hectare on- and off-farm than most other agricultural enterprises.

10



Tools and technology

Center researchers work closely with farmers and partners to test new methods and improve techniques for vegetable production in different agroecosystems

Solar pumps

Intense daily sunshine and cool nights hold the promise of good vegetable harvests in West Africa's semi-arid Sudano-Sahelian zone. Although groundwater and river water are available for irrigation, smallholder farmers do have difficulty accessing water for their vegetable crops. As fuel prices increase in the zone, so has interest in using low-cost solar pumps for irrigation.

With a grant from the **Taiwan Ministry of Foreign Affairs**, AVRDC – The World Vegetable Center and the **International Crops Research Institute for the Semi-Arid Tropics** (ICRISAT) set up a low-cost solar pumping unit in a farmer's field in Niger at total cost of US\$3750—50% less than the solar pump available in the local market. The unit pumps about 23 and 30 cubic meters of water per day from depths of 7 meters and 5 meters depth, respectively—sufficient for irrigating 0.25-0.4 hectares of vegetable farmland.

With minimal operating and maintenance costs, the user-friendly, durable solar pump drew a lot of attention from local farmers. The pumps are used to fill small on-farm reservoirs, which can be tapped whenever water is required, even at night or during cloudy days. The solar panels can be mounted on truck beds to provide a mobile source of energy; several farmers plan to form groups to purchase and share one unit.

Compared with fuel-powered pumps, the solar pumps are more reliable, convenient and cheaper for farmers over the long term. With the right technology, farmers can harness abundant energy free for the taking under the Sahel's open skies.

Seed dryers

Saving seed for later use or longer-term storage requires the removal of most, but not all, of the moisture present in the seed. Careful drying of seed slows the rate of deterioration, helps more seed remain viable, and can prevent the growth of fungi or production of toxins. To improve seed processing operations at AVRDC's **Regional Center for Africa** (RCA) in Tanzania, two seed dryers were constructed by a local carpenter from plans designed by genetic resources scientist **Marilyn Belarmino** and other RCA staff. All materials were purchased locally. The bottom of the drawers in each dryer are made from nylon mesh supported at the bottom with wire mesh. The dryers are powered by small motors. As cool air flows over the seed, the seed dries gradually and thoroughly. Using the dryers prevents accidental mixing of seed, and prevents contamination and impurities caused by dust, a common problem when seed is dried on the ground.

Simple yet speedy separator

An effort to grow edamame (vegetable soybean) at Kentucky State University, USA in 2010 got a boost from a simple but effective **bean separator** developed at AVRDC back in 1990. "We separated the beans from the plants using a simple slotted board design from the **Asian Vegetable Research and Development Center**," said Michael Bomford, a KSU research and extension provider. "It sped the bean picking process considerably."

100%

Daily recommended levels of vitamins A and C provided by produce from the Center's Home Garden kits in Punjab and Jharkhand, India

200

Farm households in Segou, Mali that tested the Center's low-cost drip irrigation systems for vegetable gardens

10 things you
should know
about...



5. Why we work for them, part 2

Because
vegetables combat
the hidden hunger
of micronutrient
malnutrition by
supplying the
essential nutrients
lacking in starchy
staple-based diets.

Gardens grow, families and communities prosper

Small market
gardens in Africa
produce big returns
for farmers, home
gardens in India
improve family health
and incomes



In March 2010 the **Consultative Group on International Agricultural Research (CGIAR)** presented its Outstanding Partnership Award to **AVRDC – The World Vegetable Center (AVRDC)** and the **International Crops Research Institute for the Semi Arid Tropics (ICRISAT)** for their work in developing and promoting market gardens to combat poverty and malnutrition in the Sahel of West and Central Africa.

The research and development effort was initiated in 2001 with an observation: If farmers could grow high-value vegetable and fruit crops in market gardens— small irrigated plots ranging from 100–500 square meters in size—they would be able to gain a measure of control over an erratic and unforgiving climate, increase their incomes, and help improve the health of their families and communities. That year, **Dov Pasternak** of ICRISAT started introducing improved gardening methods and simple, low-cost, low-pressure drip irrigation (called the “African Market Garden” system) in the region. By 2003, AVRDC established regional variety trials in Bamako, Mali to evaluate vegetable varieties suited to production under local climatic conditions that growers would find acceptable. About a dozen vegetables including okra, tomato and onion suited to local market preferences were selected and bred to thrive in the high temperatures and harsh conditions of the region.

In 2007 AVRDC and ICRISAT jointly appointed a plant breeder, **Sanjeet Kumar**, to continue vegetable breeding and selection. Dr. Kumar’s efforts focused on developing heat-tolerant vegetable varieties, especially short-duration okra. Short-duration varieties produce harvestable fruit in a shorter period of time, helping farmers use scarce resources more efficiently and provide food and income for their families faster.

More than 3000 farmers now use the African Market Garden system in Senegal, Burkina Faso, Niger, and Benin. Another 7000 gardens are underway. These gardens provide returns of up to USD 1500 annually to farmers in a region where the average daily wage is about a dollar a day. The partners held a training course for farmers to learn how to multiply seed of the heat-tolerant varieties. To date, more than 250 farmers have taken the training and are beginning to produce vegetable seed for regional distribution.

Home gardens

Home gardens contribute to nutritional and food security for the world's poorest families by ensuring nutrition-packed, health-promoting vegetables are close at hand and available year-round. For more than 30 years, the Center's **Healthy Home Garden Kits** have diversified diets and improved nutrition in South Asia, Southeast Asia, and Africa.

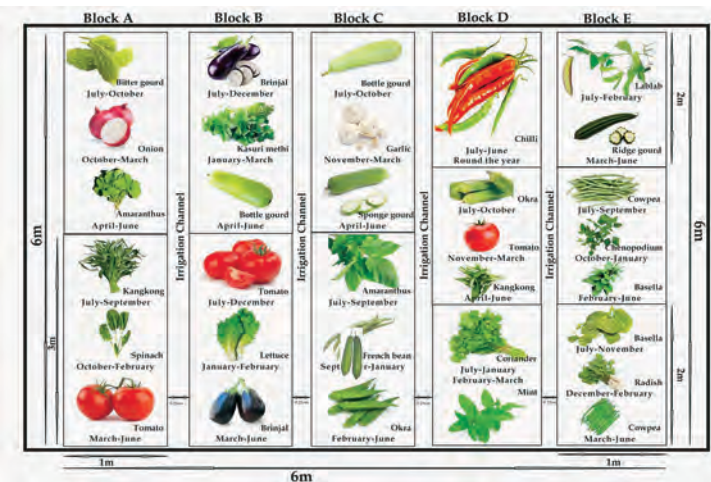
In 2010 more than 1000 rural households in Jharkhand and Punjab, India received home garden kits, and an additional 3600 received seed of five leafy vegetables to help diversify their cereal-based diets. To help spread the word and ensure home gardeners have a local source of information, nearly 2000 extension officers, community service providers and farmers attended gardening and nutrition awareness workshops hosted by AVRDC and partners **Birsa Agricultural University** and **Punjab Agricultural University**.

Each home garden kit includes open-pollinated seed of vegetable varieties well-adapted to local conditions; garden plans, and planting instructions in local languages. By following the Center's plans for a 6 x 6 meter intensive vegetable garden, families

can grow approximately 250-500 kg of vegetables throughout the year. Produce from the garden can supply more than adequate vitamin A and C, and contributes protein, iron and other essential nutrients. With vegetables from a home garden, less of the family budget is spent on food purchases at the market, micronutrient intake increases, and surpluses can be sold to generate income.

Climates, needs and preferences of specific regions are considered when the kits are assembled. For instance, kits distributed in Africa supply seed of 17 different kinds of high yielding and nutritious vegetables, including indigenous favorites such as African eggplant and amaranth, to provide a healthy diet for a family of eight year-round.

Kits for South Asia produce vegetables for a family of four. In Punjab, 27 crops rotating in 13 sequences produce more than 450 kg of vegetables throughout the year, including summer and winter vegetables. Kits for Jharkhand include 23 crops in 13 sequences. For Andhra Pradesh, home gardens kits currently under development will offer 21 crops in 15 cropping sequences.



1093

Visitors to headquarters
hailing from 46 countries

121

Kilograms of seed sent
to the Taiwan Technical
Mission in Haiti for
agricultural rehabilitation

10 things you should know about...



6. Why we work for them, part 3

Because farmers need tools, options, and opportunities to address evolving climate challenges and produce nutritious food for the health and security of their families and communities.



Taking note of nutrition

Advocates for advancing health policy in Mali find support from the vegetable sector

The multisector nature of nutrition was the topic at Mali's first **National Forum on Nutrition** held from 1-3 June 2010 in the capital, Bamako. **Theresa Endres**, AVRDC Community Development Specialist, and **Mamoutou Diarra**, AVRDC consultant were there to inform the debate from the point of view of farmers and consumers.

More than 1500 participants from Mali, Burkina Faso, Mauritania, and Senegal, and from international institutions including the World Food Program, World Health Organization, UNICEF, the French Institute of Development Research (IRD), the General Directorate for Humanitarian Aid, the European Delegation, Mali's ministries of Health and Agriculture, the Secretariat in charge of Nutrition Security, national research institutions, and nongovernmental organizations gathered at the International Congress Center to take part in the forum.

According to the United Nations, Mali has made progress in overall life expectancy over the past 30 years, yet about a third of Malian children under 5 are underweight, and in 2009 the country ranked 6th globally in under-5 mortality.

In presentations, participants learned about the experiences of Burkina Faso and Mauritania in implementing nutritional programs, and examined the approach of Mali's technical and financial partners to nutrition initiatives.

AVRDC set up a booth where staff offered information on processing tomatoes, cabbage, eggplant, okra, and onions, and distributed fact sheets on the nutritional value of selected vegetables and production aspects of seed lines and varieties. The first edition of a

recipe collection was presented to the public. Reporters from two television channels interviewed the AVRDC team, helping to spread the Center's mission and work in nutrition throughout the region.

The national forum built on the work of regional forums in five thematic areas: the role and place of nutrition in the fight against poverty; intervention choices and synergy; funding for nutrition; reinforcement of human resources; and the legislative and institutional framework of nutrition. Continued collaboration between all actors will guarantee that nutrition—and vegetables—hold an important position in Mali's development.



97

Tanzanian farmers that learned seed production techniques in courses held in conjunction with the Association for Strengthening Agricultural Research in Eastern and Central Africa

10

New lines of tomato with multiple resistance against *Tomato yellow leaf curl virus* and bacterial wilt distributed for variety trials in Bangladesh, India, Pakistan, Myanmar, Cambodia, Japan, Ghana, Tanzania, El Salvador, and Nicaragua

15

10 things you
should know
about...



7. Who we work with

Farmers, nongovernmental organizations, community-based organizations, development agencies, national research and extension institutions, universities, advanced research institutes, governments, foundations, and the private sector.



A first at the fair

Thailand gets
a taste of
the Center's
activities
across
Southeast
Asia and
beyond

For the first time, AVRDC – The World Vegetable Center joined the annual **Kaset Fair** on the Kamphaeng Saen campus of Thailand's Kasetsart University. The December 2010 fair featured an exhibit displaying the Center's work in developing and promoting low-cost technologies for smallholder rural and urban vegetable growers around the world.

Associate Professor **Vudtechai Kapilakanchana**, President, Kasetsart University and H.E. **Theera Wongsamut**, Minister of Agriculture and Commerce, cut the ribbon to open the AVRDC exhibit with **Jackie Hughes**, AVRDC Deputy Director General-Research and **Robert Holmer**, Regional Director for East and Southeast Asia, along with other dignitaries of the Royal Thai Government and representatives of Kasetsart University.

The exhibit highlighted the Center's mature technologies with a special focus on enhancing the climate resilience of small-scale vegetable growers: **grafting** to improve the tolerance of tomatoes in waterlogged conditions after heavy rainfall; **microirrigation** to increase water use efficiency during periods of water scarcity; and **vermicomposting** for sustainable environmental waste management and to add value to biodegradable wastes.

During the week-long fair the Center's **improved vegetable lines** drew the attention of hundreds of Thai farmers who appreciated the healthy crops with excellent fruit quality that demonstrated multiple disease resistance. The lines rated the highest by visitors: tomatoes CLN 3070I and CLN 2463E, and chili pepper PP 9955-15 and PP 0537-7504.

Home gardens in the different regions where AVRDC is active flourished at the exhibit. Participants of the 29th Regional Training Course hailing from different countries of Africa and Asia helped to design and staff the gardens.

On December 7, a special **Partners and Donors Day** was held at the exhibit for representatives of embassies and local and international development organizations, followed by a wide-ranging roundtable discussion at Kasetsart University. Jackie Hughes led the discussion with Robert Holmer, **Nagaraj Inukonda** (Director of Human Resources), **Annelie Öberg** (Manager-Grants and Partnership Development) and **Narinder Dhillon** (Vegetable Breeder-Cucurbits), which touched on ways to develop better partnerships, increase impact on the livelihoods of the poor, increase resources available for vegetable research and development, and promote cooperative efforts of the public and private sectors in bringing relevant technologies to farmers.

4

Number of vegetable postage stamps released in the Solomon Islands

#1

AVRDC Genebank: World's largest public-sector holder of tomato and pepper germplasm

10 things you should know about...



8. Our staff

The Center has approximately 300 staff located around the world.

PERSPECTIVE

A diverse workforce

The Center's diverse workforce reflects the institution's scope and reach, and makes a significant contribution to our dynamic, forward-thinking approach to research and development. Two measures of staff diversity are nationalities of international staff and gender balance.

As of December 2010, AVRDC – The World Vegetable Center staff members hailed from 32 countries, including Taiwan. Of the 68 senior staff positions, women occupy 32%.

Senior Staff	Position	Nationality
Abang, Mathew	Vegetable Breeder	Cameroon
Abdourhamane, Issoufou	Plant Pathologist	Niger
Abdulai, Mashark	Vegetable Breeder	Ghana
Acedo, Antonio	Regional Project Coordinator	Philippines
Adeniji, Olawale	Vegetable Breeder	Nigeria
Afari-Sefa, Victor	Socioeconomist	Ghana
Akyeampong, Ekw	Liaison Officer	Ghana
Belarmino, Marilyn	Genetic Resources Support Specialist	Philippines
Bhattarai, Madhusudan	Agricultural Economist	Nepal
Chadha, Madan Mohan Lal	Regional Director	India
Chagomoka, Takemore	Seed Marketing Specialist	Zimbabwe
Chen, Shih-Kuang	Postdoc, Molecular Entomology	Taiwan
Chang, Yin-fu	Deputy Director General – Administration & Services	Taiwan
Dagnoko, Sokona	Vegetable Breeder	Mali
Dhaliwal, Major Singh	Vegetable Breeder	India
Dhillon, Narinder	Cucurbit Breeder	India
Dibiyantoro, Anna	Project Site Coordinator	Indonesia
Dinssa, Fekadu Fufa	Tomato Breeder	Ethiopia
Diouf, Meïssa	Vegetable Breeder	Senegal
Easdown, Warwick	Donor Support & Information Technology Manager	Australia
Ebert, Andreas	Genebank Manager	Germany
Endres, Theresa	Community Development Specialist	Germany
Galvez, Hayde	Molecular Marker Specialist	Philippines
Gniffke, Paul	Plant Breeder	USA
Hanson, Peter	Plant Breeder	USA
Helsen, Jan	Project Manager	Belgium
Holmer, Robert	Regional Director	Germany
Huang, Chen-Ling	Public Relations and Partnerships	Taiwan



Senior Staff	Position	Nationality
Hughes, Jacqueline d'A.	Deputy Director General - Research	UK
Hsu, Sylvia	Food and Dormitory Services Manager	Taiwan
Javier, Edwin	International Variety Development Coordinator	Philippines
Keatinge, John Donough	Director General	Ireland
Kenyon, Lawrence	Virologist	UK
Kouamé, Christophe	Liaison Officer	Côte d'Ivoire
Kumar, Sanjeet	Vegetable Breeder	India
Knierim, Dennis	Postdoc, Virology	Germany
Kriesemer, Simone Kathrin	Postdoc, Socioeconomics	Germany
Kwazi, Nadine Mujinge	Executive Assistant to Regional Director	Zambia
Ledesma, Dolores R.	Biometrician, Board Secretary	Philippines
Lee, Jung-Sup	Plant Pathologist	Korea
Lu, Vincent	Internal Auditor	Taiwan
Luther, Gregory	Technology Dissemination Specialist	USA
Luther, Kartini	Assistant to the Deputy Director General - Research	USA
Mak, Adrienne	Management Support and HR Services Manager	Taiwan
Maryono, Joko	Research Associate, Socioeconomics	Indonesia
Mavlyanova, Ravza	Regional Coordinator	Uzbekistan
Mecozzi, Maureen	Head, Communications & Information	USA
Moustafa, Ahmed	Regional Director	Egypt
Nagaraj, Inukonda	Director of Human Resources	India
Nair, Ramakrishnan	Legume Breeder	India
Ndung'u, Philip Kamau	Regional Administration and Finance Officer	Kenya
Neave, Suzanne	Project Coordinator	UK
Öberg, Annelie	Grants and Partnership Development Manager	Sweden
Ojiewo, Christopher	Vegetable Breeder	Kenya
Olatifede, Kolade	Director of Finance	Nigeria
Palchamy, Kadirvel	Postdoc, Molecular Breeding	India
Rakotoarisoa, Benjamin	Liaison Officer	Madagascar
Ramasamy, Srinivasan	Entomologist	India
Rouamba, Albert	Onion Breeder	Burkina Faso
Schafleitner, Roland	Head, Molecular Genetics	Austria
Symonds, Rachael	Postdoc, Molecular Breeding & Biotechnology	UK
Tanyongana, Ronia	Seed Health Specialist	Zimbabwe
Tenkouano, Abdou	Regional Director	Burkina Faso
Wang, Jaw-fen	Plant Pathologist	Taiwan
Wang, Peter	Superintendent, Technical Services Office	Taiwan
Weinberger, Katinka	Socioeconomist	Germany
Yang, Ray-yu	Nutritionist	Taiwan
Yeboah, Martin Agyei	Vegetable Breeder	Ghana



10 things you should know about...



9. Our sources of funds

The Center is a nonprofit institute. We receive funds from national governments, international funding bodies, and private-sector foundations and organizations. The annual budget is approximately US\$15 million.

Quality and relevance of current research

AVRDC – The World Vegetable Center is unique among international agricultural research institutes in having development as well as research in its mandate. In 2010, more than 7700 extension workers, farmers, and small-scale entrepreneurs attended “training of trainers” and other workshops hosted by the Center and its partners in postharvest processing, home gardening, integrated pest management, grafting, and other crop protection and cultivation methods.

More than half of the Center’s peer-reviewed publications were produced in partnership with scientists from developing countries—a further manifestation of the Center’s commitment to development. The publication of peer-reviewed articles in international journals is another measure of the Center’s scientific productivity and publication quality.

	Total externally reviewed publications per scientist (journal articles, books, book chapters)	Publications per scientist in Thomson Scientific/ISI journals	Percentage of scientific papers in refereed journals, conference and workshop proceedings published with partners from developing countries
2009 (no. of scientists: 65)	1.6	0.6	40%
2010 (no. of scientists: 55)	1.9	0.7	73%
Average	1.75	0.65	56.5%

The Center’s top 10 journal articles (as rated by Thomson Scientific/ISI impact factors) were published in the following journals; the articles presented research in plant breeding, plant production, plant pathology, genetics, and nutrition: *Molecular Ecology* (6.457); *Plos ONE* (4.411); *Journal of Chemical Ecology* (2.486); *Transgenic Research* (2.47); *Plant Pathology* (2.237); *Pest Management Science* (2.313); *Molecular Biology Reports* (1.875); *Euphytica* (1.597); *European Journal of Plant Pathology* (1.575); *Journal of Economic Entomology* (1.201).

Financial health

	AVRDC	CGIAR **recommended range
Cash management on restricted operations *	0.07	less than 1
Adequacy of reserves	66 days	75-90 days
Short-term solvency	131 days	90-120 days

* Restricted accounts receivable divided by restricted accounts payable expressed as a ratio

** Consultative Group on International Agricultural Research

The Center’s strong long-term financial support from its host country, Taiwan, helps to compensate for Taiwan’s relatively high labor costs. Unrestricted income in 2010 comprised 49% of the total and was obtained from national governments and the private seed sector; restricted income was 48%; other income, 3%.

2010 Revenues (in '000 USD)

Unrestricted grants	7,309	49%
Restricted grants	7,135	48%
Other revenues and cost recovery	410	3%
Total income	14,854	100%
Unrestricted grants		
Republic of China	5767	38.83%
United States Agency for International Development (USAID)	242	1.63%
UK Department for International Development (DFID)	931	6.27%
Japan	47	0.31%
Korea	30	0.20%
Thailand	141	0.95%
Asia & Pacific Seed Association	150	1.01%
Subtotal	7,309	49.20%
Restricted grants		
Asian Development Bank	74	0.50%
Australian Centre for International Agricultural Research (ACIAR)	409	2.76%
Austrian Agency for International Development	12	0.08%
Bill & Melinda Gates Foundation	2,428	16.35%
CIRAD	15	0.10%
Forum for Agricultural Research in Africa (FARA)	43	0.29%
Germany / BMZ / GTZ	1,045	7.04%
Global Crop Diversity Trust	79	0.53%
International Fund for Agricultural Development	1	0.01%
Japan	20	0.13%
Korea Rural Development Administration (RDA)	60	0.40%
Republic of China / Council of Agriculture	337	2.26%
Republic of China / Ministry of Foreign Affairs	2,238	15.07%
Republic of China / National Science Council	124	0.83%
Sir Ratan Tata Trust	149	1.00%
United States Department of Agriculture	6	0.04%
Training funds and other revenue	95	0.64%
Subtotal	7,135	48.03%
Other revenues	401	3%
TOTAL	14,854	100%



10 things you
should know
about...



10. Why the world needs a World Vegetable Center

Because no other international agricultural research institute focuses its resources on health and food security by:

- cataloging the rich **diversity** of vegetable species
- conserving vegetable **seed for the future** of all humankind
- breeding heat- and drought-tolerant open-pollinated vegetable lines with **improved yield and resistance** to pests and diseases
- developing and disseminating **safer pest control strategies** and tested, sustainable vegetable production methods
- building capacity of partners through **training**
- **networking** to connect the many actors in vegetable seed and market systems
- increasing farmer incomes and **economic opportunities** with improved varieties and market analysis
- contributing substantively to the **empowerment of women**
- enhancing health and increasing food choices with more **nutritious vegetables**
- providing **information** in many media for families, farmers, students, researchers, and national partners

Prosperity for the poor, health for all



AVRDC – The World Vegetable Center

An international nonprofit research institute committed to alleviating poverty and malnutrition in the developing world through the increased production and consumption of nutritious and health-promoting vegetables.

www.avrdc.org

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