

fresh

News from AVRDC – The World Vegetable Center



16 December 2014

avrdc.org



OPEN DAY 2014

Visitors get their fill of vegetables during a special day of activities and fun for all

Verdant vegetable fields, photos with “Big Tom” and the chance to extract their own DNA were among the many attractions that drew an estimated 5,000 visitors to AVRDC – The World Vegetable Center’s **Open Day 2014** on 13 December 2014. The lively event aimed to acquaint Taiwan residents with the activities of the Center, which has had its headquarters in Shanhua, southern Taiwan for more than 40 years.

People moved freely throughout the research fields, where the Center’s improved breeding lines of tomatoes, peppers, cucurbits, onions, shallots, garlic and other crops flourished. Traditional vegetables from other parts of the world, such as Ethiopian mustard and African eggplant, captured the interest of many who attended Open Day to learn more about the Center and its work.

Crossing through an intricate bamboo tunnel woven by the deft fingers of students from Tainan National University of the Arts, the visitors emerged into a



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and Super Vegetable Soybean. Cheesecake baked by the AVRDC Cafeteria—a famous treat savored in the area for decades—sold out within an hour.



Nine Taiwan farmers' associations, one public sector company (Taiwan Sugar Company), four farmers, and 15 local food/drink vendors participated in the Open Day Farmers' Market. Two Taiwan seed companies (Known-You Seed and Sing-Flow) also had tents to display their products.

lively village of tent displays, where they learned about the Center's research in biotechnology, bacteriology, mycology, virology, and entomology, and were introduced to our global development activities. Some visitors even extracted their own DNA with the guidance of the Biotech Team.

varieties from around the world thrive.

There were plenty of photo opportunities with "Big Tom," the world's largest tomato (a 3 x 3 meter helium balloon), and vegetable ambassadors the Tomato Twins, Dr. Pepper, Captain Carrot

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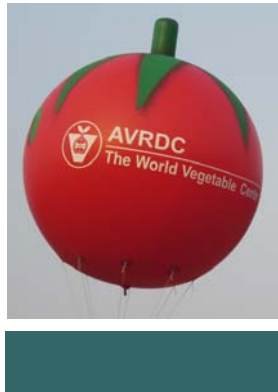
In the do-it-yourself education tents, children and adults enjoyed a nutrition treasure hunt, and learned how to plant portable gardens, graft tomatoes, and sketch vegetable cartoons. The Center's Genebank—home to the world's largest public sector collection of vegetable seed—offered visitors samples of microgreens, a chance to guess the number of vegetable seeds, and a look at the Center's extensive and diverse eggplant collection. Visitors also enjoyed tours of the Demonstration Garden, where more than 100 vegetable



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“Open Day 2014 is our chance to say thank you to the people who have been our neighbors for 40 years,” said **Yin-fu Chang**, Deputy Director General for Administration & Services. “We hope the Center will continue to be a valued part of the community for many more years to come.”

The Taiwan Ministry of Foreign Affairs provided support for this special event. In addition to its global research and development activities, the World Vegetable Center breeding programs, in partnership with the Council of Agriculture (COA) Taiwan, have developed and released numerous improved cultivars of soybean, tomato, pepper, Chinese cabbage and broccoli to benefit Taiwanese growers and processors.



When the trained do the training

Smallholder farmers teach Peace Corps agribusiness volunteers a few things about growing vegetables

Vegetable farmers (8 female and 2 male) in the villages of Biyeyem and Mekalat-Yeyem in the south region of Cameroon planted the seeds of knowledge on 30 September 2014, when they used their production skills and experience to train a group of 30 Peace Corps volunteers (12 female and 18 male) in vegetable nursery and transplanting methods. **Ashu Tambe**, coordinator of the Center for Assistance to Sustainable Development (CASD), said leading the training session was a new experience for the farmers, and a chance for them to put into practice what they learned through their previous participation in CASD project activities.

Carole Adgoa, head of the Biyeyem farming group, welcomed the Peace Corps volunteers, then introduced them to improved traditional vegetable varieties and explained how these crops are disseminated in the country. The trainees learned how to plant seed of nightshade, amaranth, jute mallow, and African eggplant in a nursery, and reviewed transplanting techniques under the farmers' guidance. Each Peace Corps member transplanted some of the vegetable seedlings.

After the nursery training, the group visited a vegetable farm



(above and below) Learning from the experts: Women farmers in Cameroon instruct Peace Corps volunteers in the preparation of nursery beds and management of vegetable seedlings. Putting their training into practice by showing others how to do it was a challenging yet exciting and rewarding experience for the farmers. The Peace Corps volunteers found working alongside the farmers educational and enjoyable.



belonging to **Mr. Basou** in Mekalat-Yeyem village. The trainees had a particular interest in agribusiness; they asked Mr. Basou if he kept records of expenditures and income on his farm. Mr. Basou said he did not keep farm records—

not unusual, as few farmers in the area do so. At the end of the visit, several vegetable farmers agreed to participate in an agribusiness study on vegetable production in the community.

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“Several Peace Corps trainees commented on how encouraging it was to visit a working garden in our community,” said Renée St Jacques, leader of the Peace Corps group. “We felt very welcomed to Cameroon when the women started singing as we entered the farm. We could see that they were very proud of what they had grown and were happy to share their techniques with us. It was educational and enjoyable to work alongside the women as we transplanted the young plants. It is important that

we learn growing techniques, but also practice with local community members. We were happy to share their sense of achievement. This experience will help us prepare for our work as Peace Corps volunteers.”

CASD, AVRDC and other partners are currently collaborating on a project promoting production and consumption of traditional vegetables to enhance income and nutrition among rural poor in West and Central Africa, funded by the West and Central African Council

for Agricultural Research and Development (CORAF/WECARD). The training of Peace Corps agribusines volunteers by smallholder vegetables farmers who have benefited from the project is a significant achievement in capacity building and dissemination.



(top left): Farmer Basou (blue shirt) shows his thriving crop of leafy greens to the volunteers. (top right) Njoh Wanduku, former AVRDC researcher, now part of the Peace Corps team.

(left) Volunteers practice their new planting skills.

Conference corner

**7th Global Forum for Food and Agriculture 2015**

15-17 January 2015
Berlin, Germany

The German Federal Ministry for Food and Agriculture will host a series of expert panel discussions and working meetings to identify ways and means of sustainably meeting the diverse and growing demands being made on the agricultural sector. Registration deadline: **9 January 2015**

<http://www.gffa-berlin.de/en>

NEW DATES: First International Symposium on Moringa and Sixth National Moringa Congress

15-17 November 2015
Manila, Philippines

Abstract submission deadline: **28 February, 2015**

<http://avrdc.org/moringa-symposium/>



Recent research

Recent papers published by World Vegetable Center scientists:

Abang AF, Srinivasan R, Kekeunou S, Hanna R, Chagomoka T, Chang JC, Bilong Bilong CF. 2014. **Identification of okra (*Abelmoschus* spp.) accessions resistant to aphid (*Aphis gossypii* Glover) in Cameroon.** African Entomology 22(2):273-284.
[DOI: 10.4001/003.022.0201](https://doi.org/10.4001/003.022.0201)

Chagomoka T, Afari-Sefa V, Pitoro R. 2014. **Value Chain Analysis of Traditional Vegetables from Malawi and Mozambique.** International Food and Agribusiness Management Association 17(4):57-83.

Hanson P, Schafleitner R, Huang S-M, Tan C-W, Ledesma D, Yang R-Y. 2014. **Characterization and mapping of a QTL derived from *Solanum habrochaites* associated with elevated rutin content (quercetin-3-rutinoside) in tomato.** Euphytica 200(3).
[DOI: 10.1007/s10681-014-1180-7](https://doi.org/10.1007/s10681-014-1180-7)

Keatinge JDH, Lin L-J, Ebert AW, Chen WY, Hughes J d'A, Luther GC, Wang J-F, Ravishankar M. 2014. **Overcoming biotic and abiotic stresses in the Solanaceae through grafting: current status and future perspectives.** Biological Agriculture and Horticulture.
[DOI: 10.1080/01448765.2014.964317](https://doi.org/10.1080/01448765.2014.964317)

Kenyon L, Kumar S, Tsai W-S, Hughes, J d'A. 2014. **Chapter 6: Virus Diseases of Peppers (*Capsicum* spp.) and Their Control.** Advances in Virus Research 90:297-354.
[DOI: 10.1016/B978-0-12-801246-8.00006-8](https://doi.org/10.1016/B978-0-12-801246-8.00006-8)

Kenyon L, Tsai W-S, Shih S-L, Lee L-M. 2014. **Emergence and diversity of begomoviruses infecting solanaceous crops in East and Southeast Asia.** Virus Research 186:104-113.
[DOI: 10.1016/j.viruses.2013.12.026](https://doi.org/10.1016/j.viruses.2013.12.026)

Knierim D, Tsai W-S, Maiss E, Kenyon L. 2014. **Molecular diversity of poleroviruses infecting cucurbit crops in four countries reveals the presence of members of six distinct species.** Archives of Virology 159(6):1459-1465 [DOI: 10.1007/s00705-013-1939-5](https://doi.org/10.1007/s00705-013-1939-5)



EXECUTIVE COMMITTEE MEETS: The World Vegetable Center Board of Directors EXECOM held its second meeting of 2014 on 20-21 November at headquarters. (*l to r, front row*) **Yin-fu Chang**, Deputy Director General- Administration & Services; **Wolfgang Kasten**, Chair of the Audit Committee; **Yu-Tsai Huang**, Board Chairman; **David Sammons**, Board Vice-chair and Chair of EXECOM; **Dyno Keatinge**, Director General; **Jim Phelan**, Chair of Program Committee; **Jackie Hughes**, Deputy Director General - Research. (*l to r, back row*) **Warwick Easdown**, Regional Director South Asia; **Fenton Beed**, Regional Director East and Southeast Asia; **Abdou Tenkouano**, Regional Director West and Central Africa; **Thomas Dubois**, Regional Director Eastern and Southern Africa; **Didit Ledesma**, Board Secretary; **Dirk Overweg**, Finance Director; **I.R. Nagaraj**, Human Resource Director; **Lucy Sun**, External Program and Management Review panel member; **Sonja Venter**, Agricultural Research Council, South Africa.



INSTALLING DRIP IRRIGATION: Mr. Hipolito, VINESA Coordinator in Mozambique, demonstrates drip irrigation kits to farmers and staff during a recent visit to Wollisso Best Practice Hub in Ethiopia.

How write they are!



(left, l to r) **Sopana Yule**, Research Assistant in Entomology, shares her story with **Maureen Mecozzi** and Cucurbit Breeder **Narinder Dhillon**. (right, l to r) **Sirikul Wasee** asks a question while **Fenton Beed** looks on.

How to craft a catchy title and begin the first paragraph to attract readers' attention? How to state the facts? These are the basic questions and the common hurdles staff encounter when sharing the stories—news, research results, successes—of what's happening in their respective working areas.

On 2 December 2014, the World Vegetable Center Communications Group organized a mini writeshop for the staff of AVRDC East and Southeast Asia and the Tropical Vegetable Research Center (TVRC) of Kasetsart University (KU) at the AVRDC Research and Training

Station on the KU campus in Kamphaeng Saen, Thailand. **Maureen Mecozzi**, Head of Communications, facilitated the writeshop. Eight staff from East and Southeast Asia led by Regional Director **Fenton Beed**, and four from TVRC, led by **Sirikul Wasee** and **Orarat Mongkolporn**, participated in the activity.

The mini-writeshop aimed to improve the knowledge and skills of participants in writing news and success stories. Maureen shared quick and useful tips for story writing, which participants gamely

applied in writing their individual stories to share. Sirikul Wasee expressed her appreciation to AVRDC for the opportunity to learn and hone skills in story writing, and said the writeshop has made news writing simpler for her.

The Center in the news



Director General **Dyno Keatinge** and directors from other member institutes of the Association of International Research and Development Centers for Agriculture (AIRCA) have been blogging their views on landscapes ([“Sciences and technology at the hear of agricultural development”](#)) and soils ([“Healthy soil: the foundation for healthy people and landscapes”](#)) in a blog series sponsored by CABI and IFDC.



Visitors



(left) 64 students from the **Department of Agribusiness Management, National Pingtung University of Sciences and Technology**, led by Prof. Yung-shun Lin, came to headquarters on 26 November 2014. **Yu-hsia Huang** show the students drip irrigation and other low-cost production technologies in the Demonstration Garden. (right) A group of 40 visitors from the **Tzukuang Farmers' Association, Kaoshiung, Taiwan** visited headquarters on 4 December 2014 for a briefing on Center activities given by Visitor Coordinator Shiu-luan Lu.



(left) 14 International Master Program of Agriculture students and 27 undergraduates from **National Chung Hsing University**, along with Assistant Professor **Chifumi Takagai**, toured campus on 7 November 2014. The students stopped in at the Genebank, where Yung-kuang Huang explained various seed management operations, and also visited the Demonstration Garden guided by **Yi-chin Wu**. (right) A delegation of 13 from **Nong Lam University, Vietnam** and the **Vung Tau Investment Promotion Center** viewed the campus and Demo Garden on 8 December.

On 3 December 2014, participants in the **Pacific Islands Farmers' Organization Network** training program organized by National Pingtung University of Science and Technology, accompanied by three international students studying tropical agriculture and two staff from the university, toured headquarters to learn more about the Center's research in Oceania and beyond.



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A delegation from the Philippine Department of Agriculture, headed by **Proceso Alcala**, Secretary of Agriculture, made a brief stop at Center headquarters on 3 December 2014 to meet with Director General **Dyno Keatinge**, Deputy Director General Administration & Services **Yin-fu Chang**, Deputy Director General - Research **Jackie Hughes**, Board Chair **Yu-Tsai Huang** and Board Secretary **Didit Ledesma**. The visit was organized by the Manila Economic and Cultural Office in Taipei and the Department of International Affairs, Taiwan Council of Agriculture.



Rod Drew, the new president of the **International Society for Horticultural Science**, visited headquarters from 29 November to 1 December 2014. Dr. Drew discussed topics of interest with **Dyno Keatinge**, **Jackie Hughes** and **Yin-fu Chang**, and also had an opportunity to tour nearby Tainan City, guided by Ms. Rosi Keatinge.

(left) Dyno Keatinge (r) presents Rod Drew with a USB card, tie, and luggage strap to commemorate Dr. Drew's visit to the World Vegetable Center.

18th Seed and Seedling Festival



The AVRDC booth was a standout among the many seed companies and farm product vendors participating in this annual celebration of agriculture hosted by the **Tainan District Agricultural Research and Extension Station** in Xinhua, Taiwan on 6 December 2014. Thousands of visitors saw eggplant varieties from around the world provided by the AVRDC Genebank. Staff chatted with the crowd, explained the Center's work, and distributed literature about AVRDC activities.



AVRDC cucurbits capture global attention



(l to r) Prof. S. Kulling, Supannika Sanguansil, Narinder Dhillon, Dr. T. Bernhard.

Germany

Cucurbits such as bitter melon and pumpkin are an integral component of vegetable gardens in Asia. These two cucurbit species are rich in micronutrients. Bitter melon and pumpkin breeding by the private seed sector has focused on developing hybrids for commercial production that are not necessarily suitable to be grown in home and school gardens, where space often is limited. School and home gardens need varieties with short vines, and both early and late marketable maturity to extend the span of fruit availability. They should be high yielding and open-pollinated, so that vegetable gardeners can save the seed for successive plantings; nutritionally dense; and resistant to diseases to minimize pesticide use.

AVRDC has bred cucurbit lines

possessing some of these attributes. The horticultural and nutritional traits of these lines is being investigated by AVRDC and Max Rubner Institute of Food and Nutrition (MRI) in Karlsruhe in Germany through an AVRDC-GIZ project "Vegetable cucurbits for nutrition-sensitive home and school gardens in Southeast Asia."

Supannika Sanguansil, Research Assistant – Cucurbit Breeding, and **Narinder Dhillon**, Cucurbit Breeder visited MRI from 27-30 November 2014 to assess the project's progress. **Dr. T. Bernhard** and **Prof. Dr. S. Kulling** of MRI explained how MRI is analyzing the standard chemical composition (minerals, sugar, protein) of bitter melon and pumpkin lines as well as characterizing and quantifying the important health-promoting compounds such as saponins and

carotenoids. Data from field and laboratory analyses will permit promising lines to be recommended for multilocation trials and subsequent adoption in vegetable gardens in various Asian countries.

Korea

AVRDC East and Southeast Asia and the **Rural Development Administration** (RDA), Republic of Korea have developed a research project to develop disease resistant cucurbit germplasm with the **Vegetable Research Division** of the **National Institute of Horticultural & Herbal Science**, Suwon, Republic of Korea. In 2013, **Yun Chan Huh**, the institute's Senior Cucurbit Breeder, spent one month at AVRDC's Research and Training Station in Kamphaeng Saen, Thailand to assist in the evaluation of AVRDC pumpkin lines for multiple virus resistance in the field. Dr. Yun took some AVRDC resistant pumpkin lines to Korea for testing.

Narinder Dhillon and **Supannika Sanguansil**, visited cucurbit trials at the Vegetable Research Division from 25 September to 1 October 2014. The AVRDC pumpkin lines were exhibiting good field resistance to viruses in the research plots compared with the susceptible local varieties of pumpkin. Bitter melon is becoming popular in Korea as people consider it a health-

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promoting vegetable, but powdery mildew is a serious bitter melon production constraint in Korea. Korean researchers were curious to learn about powdery mildew resistant lines developed by AVRDC and were keen to test these lines at their institute.

Supannika and Narinder made a presentation to institute staff and updated them about the status of cucurbit breeding at AVRDC and the prospects of further collaboration with RDA researchers. They also visited local pumpkin farmers' fields, vegetable sections in the supermarket, and the pumpkin exhibition at the Korea Agriculture Expo 2014 in Daegu, which helped them understand the traits stakeholders along the value chain want in pumpkin. This knowledge will help re-orient AVRDC's pumpkin breeding program.

Supannika and Narinder visited the pumpkin farm of one progressive



(top, l to r) Supannika Sanguansil sharing her cucurbit breeding experience with Korean researchers Hee-Ju Lee, Jin-Hee Kim, and Jun-Hyeok Kim. (bottom) Activities of the progressive pumpkin farmer Geun-Myoung Choi.

farmer, **Geun-Myoung Choi**, popularly known as "Master Pumpkin" in the area. He cultivates pumpkin on 14 hectares at his farm in Daesan near Seosan City, about 100 km from Suwon, and processes pumpkin on his farm. He markets pumpkin juice and pumpkin

porridge. Most of his clients are from Korea; about 2% are Korean immigrants in the USA, Australia and Japan. He also demonstrates pumpkin processing techniques to nearly 6000 Korean tourists who visit his farm and factory each year.



Harvest #33



The **33rd International Vegetable Training Course** concluded on 4 December 2014 at the World Vegetable Center's East and Southeast Asia (ESEA) Research and Training Station, Kasetsart University (KU), Kamphaeng Saen campus, Nakon Pathom, Thailand. *Module 3: Vegetables for sustainable development* (10 November - 4 December) equipped the participants with the knowledge and skills to conceptualize and implement research and development activities, and outlined how vegetable R & D contributes to the global sustainable development agenda.

Anselmo Mercado, former Director of Southeast Asia Rural Social Leadership Institute, presented asset based community development (ABCD), cooperatives, and leadership. Gender and the role of women in food and nutrition security were reviewed by **Kruewan Chonlanai**, Chairperson of Asian Women in Co-operatives Development Forum. **Sermsiri Chanprame**, KU Center of Biotechnology, tackled climate change and biotechnology, while **Komsun Hutaphaed**, Director of Khun Ta vegetable learning center, shared practices on urban agriculture. **Mark Bell**, Horticulture Collaborative Research Support Program Regional Centers of Innovation, University of California, Davis discussed scaling up extension projects. **James Phelan**, a member of AVRDC's Board of Directors, led a session on research and project development processes. **Shriniwas Gautam**, AVRDC's Monitoring and Evaluation Specialist, discussed project monitoring and evaluation, and **Maureen Mecozzi**, AVRDC Head of Communications, covered communications and development.

Twenty-two participants presented development action plans to **Fenton Beed** (AVRDC Regional Director), **Sermsiri Chanprame** (Center for Agribiotechnology, KU), **Apita Bunsiri** (Postharvest Technology, KU) and **Sirikul Wasee** (Tropical Vegetable Research Center, KU). During the closing program, **Sombat Chinawong**, Vice President of KU Kamphaeng Saen, encouraged the participants to share their learning and experiences about AVRDC, KU and Thailand with others. On behalf of all the participants, **Aung Baw** (Myanmar) and **Kit Phearen** (Cambodia) expressed their gratitude to AVRDC and KU for the training and the conducive learning environment.

The 33rd IVTC was organized in collaboration with SATNET Asia – a project funded by European Union, and the Horticulture Innovation Lab Regional Center at Kasetsart University.

Stronger bridges link World Vegetable Center and Kasetsart University

The productive relationship between the Center and its host in Thailand, **Kasetsart University (KU)**—which has extended across three decades—has been reignited under the guidance of KU's incoming president, Associate Professor **Bordin Rassameethes**. Prof. Rassameethes shares the Center's desire to achieve real impact on development through research on vegetables. The synergy between the two institutions will help

increase the university's international profile and strengthen its access to regional research networks and donors. Opportunities to engage KU scientists in Center research will evolve, including their participation as resource providers in the Center's three-month International Vegetable Training Course, which has just completed its 33rd year. Both KU and the Center must better publicize their successes to justify further funding from the

Thai government, says Prof. Rassameethes, and he is committed to supporting collaborative research and training proposals in Thailand and across the region. Prof. Rassameethes will join the World Vegetable Center Board of Directors in 2015 and participate in the search to select a new Director General.



Prof. Rassameethes accepts some classic World Vegetable Center gifts from Director General **Dyno Keatinge**: a chili pepper tie and a basket of fresh vegetables.

Cook from the garden!

SAVORY TOMATO CORNBREAD COBLER

*Recommended by Susan Haskins
Washington Post, 14 August 2013*

Ingredients

For the filling

1 pound mixed-variety sweet cherry tomatoes, each cut in half
2 cloves garlic, minced
1/2 teaspoon hot Mexican chili powder
1/4 teaspoon celery salt
1/4 teaspoon kosher salt
1/4 teaspoon ground cumin
Finely grated zest and juice of 1/2 lime
1/4 cup minced scallions, plus 2 tablespoons minced green scallion tops for garnish

For the crust

1/2 cup flour
1/2 cup yellow cornmeal
1/4 teaspoon kosher salt
2 teaspoons baking powder
8 tablespoons (1 stick) unsalted butter
1 cup whole or low-fat milk

Directions

Place a medium (10-inch) cast-iron skillet in the oven; preheat to 350 degrees. *For the filling:* Cut each tomato in half and place all of them in a mixing bowl, along with the garlic. Combine the chili powder, celery salt, kosher salt and cumin in a small bowl, then sprinkle the mixture over the tomatoes. Stir in the lime zest and juice and 1/4 cup of the minced scallions. *For the crust:* Combine the flour, cornmeal, salt and baking powder in a mixing bowl. Once the skillet is hot, add the butter. Watch closely; when the butter is melted and bubbling, stir the milk into the flour mixture to form a somewhat lumpy batter. Transfer the skillet to the stove top just long enough to pour in the batter, spreading it evenly. Immediately top with the tomato mixture. Return to the oven and bake for 40 to 45 minutes, until the cobbler is crisped on the edges and has started to pull away from the sides of the pan. Cut into wedges; serve hot or at room temperature, garnished with the minced scallion tops.



VINESA marks its first birthday

Twenty-three representatives from partner institutions, project consultants and financial partners in Ethiopia, Malawi, Mozambique and Tanzania met on 4-6 November 2014 in Addis Ababa, Ethiopia, to evaluate the first-year progress of the **VINESA project**, which aims to improve income and nutrition in eastern and southern Africa by enhancing vegetable-based farming and food systems in peri-urban corridors. The project is funded by the Australian International Food Security Research Centre (AIFSRC) through the Australian Centre for International Agricultural Research (ACIAR).

Project team members shared their experiences on what worked well, what did not work so well, and why in 33 presentations delivered in seven plenary, group and outdoor sessions. Year One successes included setting up Best Practice Hubs in the four focus countries as centers for crop trials, experimentation and training. Farmers were equipped with skills to identify and respond to high value market opportunities, develop packages to correct deficiencies in crop nutrients, and raise healthy seedlings under protected environments. The use of drip kits as a low-cost strategy to address the shortage of irrigation water, identifying other value chain players to work with, collection of baseline data, and preparing trainees to be peer farmers in their communities on good agricultural practices were other notable successes.

Not all things worked out as anticipated. Adult farmers in some hubs struggled to find the time to attend the six-month training. Young participants need post-graduation support—particularly credit and further training in entrepreneurship and group dynamics. These challenges can be overcome if there is a more proactive approach to engage strategic stakeholders, programs and projects that may be willing to team up with VINESA. Such partnerships would support the trainees in buying farm inputs and equipment required to undertake profitable, sustainable enterprises.

As Year Two begins, project teams and trainees will take a closer look at gender diversity in the hub communities. There is a need to build harmonious relationships among women and men, and boys and girls, and to ensure project benefits are more equally distributed among different genders. For example, in one hub, cultural norms prevent men and women from mingling in public, while in another hub, more women than men are available to attend training. In the first situation, taking the best practice hub to where women are, and in the second, recruiting more men than women to attend training, may remedy these challenges. Sharing information on nutrition, recipes and health benefits of vegetables existing in VINESA partner institutions such as the World Vegetable Center and ACIAR can help create greater awareness of the need for healthy diets among

families around the hubs, and help the project save time and costs of developing, packaging and disseminating nutritional messages.

Throughout Year Two, project progress will be reviewed against set targets, and joint planning and problem resolution will take place more frequently. More and effective partnerships for dissemination and scaling up/out of best practices and technologies will be forged. Then the dream of youth with more cash in their pockets, healthier families and households, and more progressive farming communities around the hubs will become a reality.



IITA visits Humidtropics home gardens in Uganda



IITA's Board was intrigued by the prospect of diversifying Uganda's farms with traditional vegetable crops. Ethiopian mustard is a particular favorite among farmers and consumers.

The **International Institute for Tropical Agriculture (IITA) Board of Trustees** visited Uganda for their annual general meeting from 24 to 28 November 2014—and during their stay, they visited a farm in Mukono, where AVRDC had previously distributed vegetable seed kits. Although some of the vegetables grown from the kits were going to seed at the time of the visit, the Ethiopian mustard (“Sukuma wiki”) and a few other crops were still productive. Farmers in Mukono mainly grew tomato as a cash crop, but with home garden seed kits from AVRDC distributed under the Humidtropics project, the farmers were able to diversify into traditional vegetable production.

Mr. Kigoonya (the farmer whose garden was visited) is the chairman of Tukolerewamu Farmers' Group, which has 30 farmers who produce

different crops. Nine farmers from the group (seven women and two men) chose to participate in vegetable production. AVRDC provided vegetable home garden kits with seed of four traditional vegetables (amaranth, spider plant, African eggplant and Ethiopian mustard) and tomato. The farmers harvested some of the vegetables for sale to the visitors and a good amount of Ethiopian mustard was sold during the board tour.

The farmers pointed out that their families and other consumers like Ethiopian mustard for its softness and taste—it is softer than kale. The farmers are saving seed from amaranth, spider plant and African eggplant for next season. “Many members in the group want to join the vegetable project because it adds to the family income and nutrition,” said Mr. Kigoonya. “Vegetables like Sukuma wiki are

easier to grow and manage than tomato.” The farmers said the traditional vegetables have added variety to their diets and increased their incomes as well. At the time of the board visit, Mr. Kigoonya had reaped about UGX 30,000 (USD 10.00) from his 50-square-meter plot of Ethiopian mustard, and he is still harvesting the leaves.



CGIAR genebank managers in Arusha, Tanzania for annual get-together

Every year, all the genebank managers of the CGIAR centers get together for an annual meeting, held this year in Arusha, Tanzania from 6-10 October. AVRDC was instrumental in coordinating the logistics of this important meeting, and Regional Director **Thomas Dubois**, Genebank Manager **Andreas Ebert** and Scientist **Tsvetelina Stoilova** attended on behalf of the Center. The Global Crop Diversity Trust organized the meeting; this independent international institution works to guarantee the conservation of crop diversity into the future, and maintains the Svalbard Global Seed Vault.

The collections kept by the CGIAR and affiliated centers represent about 10% of global holdings of crop diversity, by total numbers of accessions. These collections underpin the crop improvement work of the international agricultural research centers and of public sector breeding programs in developing countries. During this year's meeting, links were made with the national genebanks of Kenya, Tanzania and Uganda.

On 8 October, more than 40 meeting participants took a field trip to AVRDC's Eastern and Southern Africa campus, where they received an in-depth tour of the Center's activities. The seed repository featuring traditional crops was a major highlight, but participants also visited the postharvest training center, the demonstration garden, and the many crops growing in the field. Alpha Seed Company, Kibo Seed Company, and East African Seed

Company arranged displays of their seeds, and neighbors HORTI-Tengeru and the International Institute of Tropical Agriculture offered tours of their field work.

After the visit to AVRDC, **Margaret Mollel**, Head of the Tanzanian Genebank, led the group on a tour of her facilities. At the official gala dinner that same night, in a picturesque restaurant on the slopes of Mount Meru, the participants burst into a spontaneous sing-along of songs from all nationalities present, which was probably heard all over Arusha. The meeting was a great success, in large part due to the excellent organizational skills of the AVRDC Eastern and Southern Africa team!



(top) **Roseline Marealle** explains harvesting methods to participants. **Tsvetelina Stoilova** (blue shirt) gives an overview of the seed repository. **Genebank managers** find plenty to sing about!

(bottom) **Hassan Mndiga** explains regional training activities.

Radio for VegOneX

AVRDC Eastern and Southern Africa staff met with Farm Radio International (FRI) and Radio 5 for possible collaboration on the VegOneX project to track seeds and share vegetable marketing information.

Srinivasulu Rajendran

Postdoctoral Scientist (Agricultural Economics), **Eliaza Mkuna** Research Associate (Agricultural Economics), **Fides Nsingi** (Consultant) and **Zablon Ernest** (Consultant) from AVRDC, and staff from Farm Radio International **Karen Hampson** (Senior Program manager), **Terevaeli** (Project Coordinator) and **Kassim Sheghembe** (ICT staff) attended the first meeting on 5 November 2014 at AVRDC in Arusha, Tanzania. Fides, Zablon, Eliaza, and Karen met again on 7 November at Radio 5, where they were joined by **Terevael Aremu** (Agricultural Value Chain Officer) from FRI, and **Angela Maina** (Commercial Manager) and **Mathew Philips** (Program Manager) from Radio 5.

Staff from FRI explained how they disseminate information to farmers with the help of local station Radio 5. Using audience surveys, they can find out the information farmers need most. Info is shared through an SMS program and database, which provides farmers with immediate market updates; farmers also can text their questions for assistance. The FRI team believes that information from VegOneX can be disseminated effectively through the various channels they offer, and agreed to collaborate



(top) **Eliaza Mkuna** presenting the VegOneX Project to staff of Radio 5 and Farm Radio International. (bottom, left to right) **Fides Nsingi**, **Zablon Ernest**, **Mathew Philips**, **Karen Hampson**, **Terevael Aremu**, **Eliaza Mkuna** and **Angela Maina**.



with AVRDC in providing market information to farmers.

The Radio 5 team highlighted their experience in designing and broadcasting agricultural programs such as “Fahari yangu”, and discussed the consistency, quality and reliability of the information

that will be shared through the VegOneX project. The team was impressed with the project and looks forward to the first trial of the data collected from the project.

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Srinivasulu Rajendran, Postdoctoral Scientist (Agricultural Economics) and **Eliaza Mkuna**, Research Associate (Agricultural Economics) met **Dr. Firmin Mizambwa**, CEO of the Agricultural Seed Agency (ASA), and **Dr. Hamis Mtwaenzi**, Director of the Tanzania Official Seed Certification Institute (TOSCI) on 3 November 2014 at ASA and TOSCI headquarters in Morogoro. A Memorandum of Agreement (MoA) for the VegOneX initiative, a new seed tracking system for Tanzania, was signed with ASA on 2 December 2014.

(left top; left to right, front row) **Eliaza Mkuna**, **Hamis Mtwaenzi**, and **Srinivasulu Rajendran**. (right) **Srinivasulu** (left), **Dr. Firmin Mizambwa**, and **Eliaza**.

(left bottom) **Srinivasulu** gives a presentation at TOSCI headquarters.

Garden study in Bangladesh

Socioeconomist **Pepijn Schreinemachers** and Service Provider **Marie Antoinette Patalagsa** recently conducted a survey in Jessore and Barisal, Bangladesh to evaluate the impact of women's training in home gardens. Through a questionnaire survey of 582 women and smaller focus group discussions, the researchers determined that training increased the per capita production of vegetables (mostly leafy greens) from 20 to 37 kg per year (+86%).



(above) **Marie** (left) and **Pepijn** (right) with women in a focus group.

(right) **Marie** meets a young member of the community.

(left) Proud home gardeners learned practical vegetable growing methods during training courses.



Central Asia steering committee meets



The Central Asia and the Caucasus Regional Network for Vegetable Systems Research and Development, established by AVRDC in 2006, fosters the development of market-oriented vegetable production systems and promotes vegetable research strategies for National Agricultural Research Systems (NARS) serving the region's 82 million people. Although vegetable production has increased in the region over the past two decades, many challenges remain: There is little crop diversification, a lack of vegetable supplies during winter and early spring, poor understanding of marketing, and a lack of knowledge about consuming a diversity of vegetables for a balanced diet.

Ravza Mavlyanova, AVRDC's Regional Coordinator, brought together national vegetable system coordinators for the network's Seventh Steering Committee Meeting in Tashkent, Uzbekistan on 21-23 October 2014. The coordinators reported on current

research, achievements, and constraints to vegetable production. Participants reviewed arrangements for seed multiplication of promising and released vegetable varieties to supply farmers with quality seed. They also discussed ways of developing policy options to support integrated pest management, new technologies, crop diversification, micronutrient security, cold season production, and distribution channels.

New varieties released in 2014 include sweet pepper 'Loshtak' and hot pepper 'Atsiv' in Armenia; tomato 'Alsou' in Azerbaijan, and sweet pepper 'Shodlik' in Uzbekistan. Seed is distributed through training courses and farmers' days to promote adoption of improved varieties and good agricultural practices.

As part of the CGIAR Collaborative Program (CRP 1.1.), AVRDC partners in Central Asia engage with researchers from the

International Center for Agricultural Research in Dry Areas (ICARDA), International Water Management Institute (IWMI) and International Center for Biosaline Agriculture (ICBA) on variety adoption, seed systems and water saving technologies.

Regional Varietal Trial Partners

Armenia: Research Center of Vegetable, Melon and Industrial Crops

Azerbaijan: Azerbaijan Research Institute of Vegetable Growing

Georgia: Research Center of Agriculture

Kazakhstan: Kazakh Research Institute of Potato and Vegetable Growing

Kyrgyzstan: Research Institute of Crop Husbandry

Tajikistan: Research Institute of Horticulture and Vegetable Growing

Turkmenistan: Research Institute of Crop Husbandry

Uzbekistan: Uzbek Research Institute of Plant Industry, Uzbek Research Institute of Vegetable, Melon Crops and Potato Tashkent State Agrarian University

To date, 35 varieties of 12 vegetable species are undergoing state variety trials in the eight countries. A total of 41 new varieties of 8 vegetable crops, including tomato (9), hot pepper (10), sweet pepper (8), eggplant (1), vegetable soybean (5), mungbean (5), bean (2) and cabbage (1) were developed through

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collaborative research with the partner institutes, and have been registered with the State Variety Testing Commissions of Armenia, Azerbaijan, Georgia, Kazakhstan and Uzbekistan.

Steering committee participants with jars of pickled peppers. There is plenty of opportunity across Central Asia and the Caucasus to develop processed vegetable products that will attract the interest of consumers and bring more income to farmers and small agribusinesses.

Ali receives award for research



The Pakistan Council for Science and Technology Ministry of Science and Technology awarded AVRDC Legume Agronomist **Asghar Ali** (left) with its Research Productivity Award for 2012-2013 in a ceremony held on 22 October 2014 at the National Agricultural Research Center in Islamabad.

Asghar's recent publications include *Identification of resistance in mungbean and mashbean germplasm against mungbean yellow mosaic virus* and *Evaluation of pre- and post-emergence herbicides for weed management in lentil (*Lens culinaris* Medik.)*, both published in the Pakistan Journal of Agricultural Resources, Vol. 27 No. 2. Congratulations, Asghar!

The passing of a pioneer



Mr. Luh in the early 1970s. His extensive knowledge about vegetable production in Taiwan and Southeast Asia and his deep insight into Taiwan's political and social environment were valuable assets to the young institution.

Mr. Chi-Lin Luh, one of the pioneers of the Center and also its first Deputy Director General, passed away on 24 November 2014.

Mr. Luh was born in Tai-Chong County, Kaing-Shu Province, China in 1919. He graduated from the University of Nanking, where he majored in horticulture science. Upon graduation in January 1945, he served as an assistant in the Department of Horticulture at the same university. In 1948, he received his M.A. from Texas Agriculture and Mechanical College, U.S.A. and then entered the National Agriculture Research Institute in Nanking, China as a specialist. In 1949, he moved to Taipei and joined the Taiwan Agriculture Research Institute (TARI) and then worked for the Joint Commission for Rural Reconstruction (JCRR) as a technical specialist; he later was promoted as the Chief of the Department of Plant Industry (PID/JCRR).

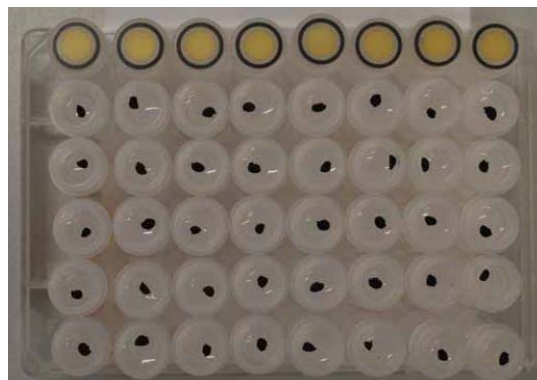
In 1964, he went to Cornell University for advanced study where he drafted a project proposal for the establishment of the Asian Vegetable Research and Development Center (AVRDC) with USAID. In January 1971, AVRDC was legally established and started operation in October 1973. Mr. Luh was designated as the first Deputy Director General of the Center in 1971 and left the post in 1980. All the Center's major buildings, labs, facilities, and experimental fields were constructed during his tenure.

Mr. Luh was always concerned with the Center's development, even after he left the Center. Last year, at the age of 95, he came back to the Shanhua campus to attend the Center's 40th Anniversary. We deeply grieve for the loss of a man so instrumental to the Center's creation and growth.

Seminars



Sebastian Bopper, from the Division of Seed Science and Technology, University of Hohenheim, Germany, discussed methods to measure the oxygen consumption of seeds during germination and the storage potential of bitter gourd seed in a presentation to AVRDC researchers on 25 November 2014. The most important purpose of seed testing is to determine germination capacity, but testing is typically done by evaluating seedlings—a time-consuming and labor-intensive practice. Germinating seeds have higher oxygen consumption than dead seeds. Consumption of oxygen is an indirect indicator for metabolism, and high-quality and fast germinating seeds show a particularly rapid increase in consumption.



Kang Le, from the Vegetable Crops Laboratory, Crop Science Division, Taiwan Agricultural Research Institute (TARI), shared the results of his study on the evaluation of grafting compatibility of cherry tomato on 27 November 2014. The distinction between a compatible and an incompatible graft union is not always clear-cut, he said. Frequently the graft will initially unite with apparent success, but then fail over time. Based on his analysis of biomass, tomato rootstocks have higher yield potential than eggplant rootstocks, which are commonly used because of their tolerance to soil-borne diseases and wet soils.



Welcome



Cristina Caltagirone, Training Specialist, joined AVRDC on 15 December 2014. She brings more than 20 years of international experience in education, training and capacity building to the position. Cristina holds a Master's degree in International & Intercultural Management from the School for International Training, Vermont, USA. Most recently she served as a Vocational Agricultural Education Specialist with the USAID Food Enterprise Development Program in Liberia; she also has been a training and capacity-building advisor for the Ministry of Rural Rehabilitation and Development in Kabul, Afghanistan, and managed a Youth Accelerated Education & Skills Training program for USAID Afghanistan. At AVRDC, Cristina will assess, coordinate and develop the Center's global training activities.



Eliaza Mkuna, an Agricultural Economist with a MSc. in Agricultural and Applied Economics from Sokoine University of Agriculture in Tanzania, recently joined the team at AVRDC Eastern and Southern Africa. His areas of interest include agricultural policy analysis, project management, monitoring and evaluation, farm systems, and value chains. Prior to joining AVRDC, Eliaza researched non-tariff barriers and agribusiness SME trade in East Africa through the African Agribusiness Academy and the University of Wageningen, The Netherlands.



Margaret (Maggie) R. Douglas, Graduate Student from the Department of Entomology, Pennsylvania State University, USA, began a six-month internship at headquarters on 4 November 2014 on a fellowship sponsored by the university's U.S. Borlaug Fellows in Global Food Security Program. She is working on "Reversing the pesticide treadmill: Safe and effective management of key insect pests of lablab bean (*Lablab purpureus*) in Bangladesh using biopesticides and natural enemies" with the USAID Bangladesh project, the Entomology Lab at AVRDC headquarters in Taiwan, and at the Bangladesh Agricultural Research Institute (BARI). Ms. Douglas is under the supervision of Srinivasan Ramasamy, Entomologist.



Anne-Katrin Baatz, Graduate Student from Humboldt University, Berlin, Germany, arrived at headquarters for a three-month internship starting 1 December 2014 to work on "School gardening: A promising concept to improve food and nutrition security in developing countries" for the Vegetables Go to School project under the supervision of Pepijn Schreinemachers, Agricultural Economist. She is on a grant from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany.

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