Introducing the best

From traditional leafy greens in Africa to a top tomato in Fiji, farmers have their pick of AVRDC’s improved vegetable lines

AFRICA RISING farmers savor the sweet taste and increased sales of African nightshade and other traditional crops

Leafy vegetables such as Chinese cabbage and Ethiopian mustard are available in nearly every fresh market in Tanzania. However, other leafy greens such as amaranth and African nightshade offer higher levels of vitamin A, iron and other important nutrients. (Inset): African nightshade leaves.

Farmers in Sunya village harvesting the African nightshade variety Nduruma introduced by AVRDC and HORTI-Tengeru. Local farmers especially appreciate the high drought tolerance and sweet taste of this variety. (Inset): African nightshade leaves.

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micronutrients. Increasing the intake of vitamin A is an important objective of many donor interventions in Africa, as deficiencies of vitamin A can cause night blindness for adults and may reduce bone growth for children.

Under the ‘AFRICA RISING - Enhancing partnership among Africa RISING, NAFAKA and TUBORESHE CHAKULA Programs’ for fast tracking delivery and scaling of agricultural technologies in Tanzania’ project funded by the United States Agency for International Development (USAID), AVRDC - The World Vegetable Center and HORTI-Tengeru implemented a season-long Training of Trainers for 152 vegetable farmers in nine villages in Manyara and Dodoma regions. Several new varieties of crops, including African eggplant and African nightshade, were introduced to participating smallholder farmers.

In Sunya, one of the pilot villages located in the Kiteto district, African nightshade was unknown to local farmers. They had no idea how to cultivate the crop, or how to prepare the leaves for meals. But, when Omary Poputo, one of the lead farmers in Sunya village, tasted African nightshade for the first time in his life, he said: “I never saw nightshade before, but this is definitely one of the best leafy vegetables I have ever tried.”

Nightshade’s good taste, high vitamin A content, and other qualities have made it a new star in local fresh markets. Farmers who started to grow African nightshade in their home gardens after receiving seed from the project team mentioned market demand for nightshade is booming, as local consumers can’t get enough of this tasty new vegetable.

Omary likes the sweet taste of nightshade variety Nduruma introduced by the project team. Even children under five like to eat this leafy vegetable—which may help increase their intake of vitamin A. Farmers appreciate the ability of Nduruma to thrive under harsh conditions. “With its high drought tolerance and lovely taste, Nduruma is a variety that might replace Chinese cabbage and Ethiopian mustard in many Tanzanian villages,” Omary said.

Farmers participating in the AFRICA RISING training sessions

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shared the new technologies and methods they learned—together with an AVRDC seed kit of new vegetable varieties—with nearly 650 other farmers. These farmers learned how to apply good agronomic practices (GAP) during nursery management, soil preparation, transplanting, pest and disease control, and postharvest.

The farmers requested that the project team host field days in August 2015 to promote the new practices. More than 90 farmers participated in two field days covering five villages in Babati and Kongwa districts. The field day participants were impressed by the tomato, African nightshade and amaranth varieties grown in the demonstration plots. Tengeru 2010, the tomato variety introduced, has resistance against early and late blight; its large fruit has a slightly salty taste. Unlike tomato varieties grown in farmers’ home gardens, Tengeru 2010 and other tomato lines in the demo plots were not damaged by *Tuta absoluta*, a moth pest currently spreading in Tanzania. Farmers were able to see the results of proper and timely control of this insect.

Farmers also appreciated the AVRDC-bred African nightshade variety Nduruma. This broad-leaved variety is very water efficient, and has a sweet taste adults and even small children like. Nduruma and the broad-and narrow-leafed amaranth varieties Madiira I and Madiira II’ were well-received during a cooking show and organoleptic tests conducted in all nine pilot villages. Cooking shows sensitize participants to hygienic practices during food preparation, provide tips on how to prepare vegetables to conserve the nutrient content, and introduce new recipes for nutrient-rich vegetables. Participants prepared recipes using African nightshade, amaranth, jute mallow, and African eggplant, and thoroughly enjoyed sampling the results.

Farmers from five different villages participated in two field days organized by AVRDC and HORTI-Tengeru in the Babati and Kongwa districts. Farmers were particularly impressed by the new tomato, amaranth and African nightshade varieties. (Photos by Hassan Mndiga)
There’s a new tomato in Fiji that has farmers talking: AVRDC fresh market tomato line CLN 3150A-5, dubbed ‘Melrose’, was introduced to the public in an official launch at the Sigatoka Research Station on 30 September 2015. Selected after three years of field trials because it performed very well under Fiji’s growing conditions, Melrose is a high yielding variety that produces tasty, well-shaped fruit. With excellent disease resistance—it is homozygous for the Ty-2 and Ty-5 genes for resistance to tomato yellow leaf curl disease caused by begomoviruses, and for the Tm2 allele for resistance to Tomato mosaic virus—Melrose is a tomato to watch.

The line was evaluated under the Australian Centre for International Agricultural Research (ACIAR)-funded ‘Strengthening integrated crop management research in the Pacific Islands in support of sustainable intensification of high-value crop production’ (ICM) project, with partners AVRDC – The World Vegetable Center (AVRDC), Secretariat of the Pacific Community (SPC), Fiji Ministry of Agriculture (MOA) and the University of Queensland (UQ).

SPC/AVRDC project staff and MOA research officers based at Sigatoka Research Station coordinated the event. The chief guest was Assistant Minister for Agriculture, the Honorable Joeli Cawaki. Ellen Iramu, AVRDC’s Project Coordinator-Pacific Islands, and Fereti Atumurirava of SPC attended, along with 116 people (23 women and 93 men) representing the private and public sectors, farmers, and farmer groups from different parts of the main island of Viti Levu. AVRDC’s role in the distribution of improved vegetable germplasm in the Pacific region was noted, along with the ongoing evaluation of Solanaceous crops under the ICM project to introduce open-pollinated varieties of tomato in Fiji and other Pacific island countries.

For the official launch, Assistant Minister Cawaki unveiled tapa cloth-wrapped Melrose fruits. Participants then toured demonstration plots to see how the new variety was performing in the field. Most farmers admired the firmness of ripe Melrose fruit, an important characteristic that may contribute to reducing fruit damage during handling and transport to market.

“The plants in the field grew very healthy and looked wonderful, so I want to grow this variety,” said Seini Derenalagi, a farmer from Nawaka participating in the ACIAR-funded Participatory Guarantee Systems (PGS) project. “Currently, I’m only growing corn, okra and lettuce.” Another PGS participant,
Meli Moliniwai from Narata in the Sigatoka Valley, is a tomato grower. He compared Melrose to the popular local variety he grows on his farm: “Melrose produces fruits of very good size and shape; I have also tasted the fruit and it was very good. Therefore, I would like to replace the variety I am currently growing on my farm with Melrose.”

Shalendra Prasad, the Principal Research Officer of Sigatoka Research Station, said Melrose is now the best variety in the country. “Nevertheless, farmers need to maintain good agricultural practices and timely management of their crop to achieve optimum production,” he noted. Although the variety is open pollinated and farmers can save their own seeds for small-scale planting, Shalendra reminded them to source foundation seeds from research officers at least after three generations of planting to maintain true-to-type characteristics of the variety.

Participants received pamphlets on “Growing Tomato for Cash” prepared by MOA and a Research Release Note containing information on crop management practices and gross margin calculations for Melrose jointly prepared by AVRDC and MOA. A total of 211 seed packets of Melrose were distributed.

To continue foundation seed production and distribution, the demonstration plots with a total of 1200 plants at the flowering, fruiting and harvesting stages were handed over to the Principal Research Officer. Research staff have started processing seed from the plots, and interested farmers can obtain Melrose seed from Sigatoka Research Station.
On 15 October 2015, AVRDC Entomologist Srinivasan Ramasamy spoke to colleagues about the latest pest to afflict crops in Africa: *Tuta absoluta*, the South American tomato leaf miner. The moth damages both fruit and leaves, and can cause 100% yield loss if left uncontrolled. Prices of tomato have soared in Tanzania—up 375% within a month—in the wake of *T. absoluta* infestations. The pest is rapidly evolving resistance to chemical pesticides. Current integrated pest management strategies include monitoring and mass trapping using sex pheromones, and various biological controls such as entomopathogenic fungi, parasitoids, predators and *Bacillus thuringiensis*. Breeding for host plant resistance is a future goal.

Head of Communications and Information Maureen Mecozzi discussed the latest trends in altmetrics in a seminar on 22 October 2015. Altmetrics—“alternative metrics” as compared to standard benchmarks such as journal impact factors—are data collected about people, journals, books, data sets, presentations, videos, source code repositories, web pages, social media, software tools and more to measure the dissemination of scientific research and infer impact. Anything that can be viewed, cited, saved or discussed can be tracked as altmetrics by donors and other institutions. Participation in social media platforms can generate a cascade of altmetrics and extend research to a broader audience.

Jean Ristaino, Director of the Emerging Plant Disease and Global Food Security Cluster at North Carolina State University, gave a seminar on “Tracking worldwide migrations, evolutionary relationships, and re-emergence of Phytophthora infestans: A threat to global food security” on 28 October 2015. Late blight, the disease responsible for the Irish potato famine in the 1840s, has increased in incidence; its geographic range is expanding and number of hosts is increasing. More than US$7 billion is spent worldwide to control the disease. With its ability to shift hosts, exploit new niches, disperse through the air and through plant material, and resist fungicides, the disease is increasingly difficult to control, particularly in monocultures of susceptible host plants such as potato and tomato. Better tracking of disease outbreaks through a global disease alert and genotyping system will help.
Recent research


The effects of a biodegradable polyester mulch and a standard polyethylene (PE) mulch on kangkong (Ipomoea aquatica) were compared in a first observational experiment conducted at AVRDC (The World Vegetable Center) headquarters in Taiwan from April to August 2014. After four weeks, degradation could be perceived in the biodegradable mulch; after 18 weeks, it had become torn into large pieces while the PE mulch remained intact. This resulted in apparently lower yields of kangkong as a broken mulching layer had a lower ability to retain soil water and heat, and to control weed growth. Implications for the environment and women’s labor are considered.


Crop wild relatives are an inestimable source for vegetable improvement to tackle both biotic and abiotic stresses. Wild relatives of tomato have been crucial in the improvement of cultivated tomato through classical breeding, providing traits for pest and disease resistance, abiotic stress tolerance, and to a much lesser extent, fruit quality. Methods usually applied in molecular breeding, such as quantitative trait loci (QTL) analysis, can help detect genes in wild species that may improve yield- or quality-related traits in elite varieties.


Lack of a strong and stable restorer-of-fertility (Rf) allele in sweet pepper (Capsicum annuum L.) has been a hurdle in commercial exploitation of cytoplasmic male sterility (CMS) system for cost-effective production of sweet pepper hybrid seeds. A known sequence characterized amplified region (SCAR) marker (CRF-S870) associated with a fertility restoration phenotype (Rf locus) in hot pepper was validated in a strong restorer hot pepper inbred line (AVPP9905). The CRF-S870 marker was successfully used in marker-assisted backcrossing (MAB) to transfer the Rf allele from hot pepper line AVPP9905 to several sweet pepper genotypes.


Among the legume family, mungbean (Vigna radiata) has become one of the important crops in Asia, showing a steady increase in global production. It provides a good source of protein and contains most notably folate and iron. Beyond the nutritional value of mungbean, certain features make it a well-suited model organism among legume plants because of its small genome size, short lifecycle, and close genetic relationship to other legumes. There have been several efforts to develop molecular markers and linkage maps associated with agronomic traits for the genetic improvement of mungbean and, ultimately, breeding for cultivar development to increase the average yields of mungbean.

LEGUMES IN THE LIMELIGHT: The Jiangsu Academy of Agricultural Sciences (JJAAS) and the Chinese Academy of Agricultural Sciences (CAAS), People’s Republic of China invited AVRDC Legume Breeder Ram Nair to attend the First International Legume Workshop from 19-22 October 2015 in Nanjing, Jiangsu Province. He gave a presentation on “Progress in Mungbean Improvement at AVRDC - The World Vegetable Center.” The workshop covered various topics including the genome sequence difference between Vigna radiata and Vigna angularis; discovery of new factors acting in legume nodulation; research progress on Soybean mosaic virus; and mapping of a major QTL for resistance to Cercospora leaf spot in yard-long bean. Participants from China, Korea and Thailand expressed interest in joining a proposed International Mungbean Improvement Network.
Visitors

Four United Nations ambassadors—Zwelethu Mnisi, Permanent Representative of the Kingdom of Swaziland; Makurita Baaro, Permanent Representative of Kiribati; Caleb Otto, Permanent Representative of Palau; and Rubén Zamora, Permanent Representative of El Salvador—accompanied by Greg G.D. Lee, Deputy Director, Taipei Economic and Cultural Office in New York, were briefed on the Center’s activities on 29 October 2015 by Jackie Hughes and Yin-fu Chang, and also toured the genebank and demonstration garden. Dr. Ristaino met AVRDC Director General Dyno Keatinge and held discussions with Plant Pathologist Jaw-fen Wang, Tomato Breeder Peter Hanson, and researchers Marti Pottorff and Wallace Chen.

Eight officials and staff members from the Philippines Department of Agriculture and the International Rice Research Institute made a stop at AVRDC headquarters on 28-29 October as part of a study visit to learn about Taiwan’s agricultural technologies and extension system. The group discussed topics of interest with Dyno Keatinge, Jackie Hughes, Deputy Director General Administration and Services Yin-fu Chang, and Technology Dissemination Specialist Greg Luther.
Field day in Cameroon for traditional African vegetables

Vegetables such as jute mallow may be traditional in Africa, but that doesn’t mean they are well-known or widely consumed. To promote their use, the Center for Assistance to Sustainable Development (CASD) in collaboration with AVRDC’s Cameroon Liaison Office organized a field day for traditional African vegetables in Ebolowa, South Cameroon on 21 October 2015 under a project funded by the West and Central Africa Council for Agricultural Research and Development (CORAF/WECARD).

During the event, farmers got a close look at improved varieties of amaranth, jute mallow, African nightshade, and African eggplant in the field. Demonstrations of best practice production techniques included how to prepare raised beds and lay out fields, choose correct planting distance and plant density, and manage pests with the use of wood ash. Farmers evaluated different soil fertility treatments, such as chicken manure, chicken manure + urea, chicken manure + NPK 20-10-10, and NPK 20-10-10 alone and compared those with zero fertilizer application. Fifty people (28 women, 22 men) representing producers, traders, processors, consumers, public service, common initiative groups, NGOs and the media attended the field day.

CASD Coordinator Achu Tambe opened the event, followed by AVRDC Socioeconomist Jean Claude Bidogeza of AVRDC’s Cameroon Liaison Office, who stressed the importance of cultivating and consuming vegetables for income generation and nutrition. The Divisional Delegate of Agriculture and Rural Development, Gaston Oyono Esamma, took the floor and expressed his happiness with the outcomes of the Traditional African Vegetable project, which are tangible on the ground. He thanked CORAF/WECARD and AVRDC for their extension work and dissemination of research results, and expressed his hope for the good work to continue, as it contributes to the government’s ongoing effort to improve livelihoods.

At the demonstration plot, Achu Tambe and his team explained the nursery set up, the different treatments, and the results. Participants asked plenty of questions and there was a lively exchange of information. Farmers were impressed by the improved techniques on display. “We thank Mr. Ashu Tambe, who offered us this opportunity to improve our agricultural knowledge by participating in this farmers’ field day,” said Mrs. Elvire Sali, a local farmer. “We hope that such actions can be regular, to strengthen our capabilities, boost our production and ensure income and nutrition for the South Cameroon region, and finally the whole of Africa.”
Innovation for traditional African vegetables

It takes more than a good harvest of African eggplant or amaranth to make markets work. Understanding how best practices and market information circulate among farmers, traders, consumers and policymakers is essential for establishing vegetable value chains to benefit all. A preliminary assessment of the Traditional African Vegetable (TAV) project supported by the West and Central African Council for Agricultural Research and Development/Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF/WECARD) revealed gaps in the knowledge of the project coordination team regarding methods such as innovation platforms to engage multiple stakeholders.

An innovation platform is a group of individuals (who often represent organizations) with different backgrounds and interests: growers, marketers, food processors, researchers, government officials, etc. The members come together to diagnose problems, identify opportunities and find ways to achieve their goals. They may design and implement activities as a group, or coordinate activities by individual members. “Innovation platforms are vital to integrated agricultural research for development,” said Regine Kamga, AVRDC Research Associate in Cameroon. “Smallholder farmers should be able to compete favorably in logistically complex markets and address changes in consumer preferences to develop demand-driven production—provided there is good information flow through a multi-stakeholder innovation platform.”

To address the gap, CORAF/WECARD allocated additional funds to AVRDC to strengthen stakeholders’ capacity to analyze value chains using an innovation platform. From 12-15 October 2015 in Cotonou, Benin, fifteen people (13 men and 2 women) including the regional project coordinator, national coordinators from Burkina Faso, Cameroon, Ghana, and selected facilitators met to explore ways to access and disseminate inputs, market knowledge, and products. The group members exchanged their experiences on the project, within their countries, and with other development institutions. During a field visit to Aplahoué in the Coufo division, the participants learned how to identify and characterize performance indicators to measure the effectiveness and reach of an innovation platform. With the knowledge they have gained, the participants are expected to set up innovation platforms to strengthen the business and institutional relationships necessary to deliver the benefits of increased vegetable production, marketing, and consumption.
NEWS FROM THE REGIONS

Intercrop for a bumper crop

When grown together under cover, bitter gourd and cucumber can produce good incomes for farmers in Pakistan. AVRDC – The World Vegetable Center is introducing disease resistant, high yielding lines of these crops that thrive in protected environments.

“I am earning a handsome amount from the intercropping of bitter gourd and cucumber as both the crops are managed at the same time, yielding a noticeable income for me,” said Abdul Shakoor, a farmer from Chevanda.

Abdul Shakoor is one of 10 farmers in a group known as the “Chevanda Cluster” that has shifted to the protected cultivation of vegetables. This year he intercropped bitter gourd line 888 with cucumber line 2833 on one acre (0.4 hectare) of land, and earned US$ 20,671 for his effort—an outstanding return from a single acre.

With support from the USAID-funded Agricultural Innovation Program (AIP) for Pakistan, bitter gourd varieties Prachi, Palee and Bejo-034 have been introduced in the area. Palee is the leading variety with the highest yield per acre in the region, verified by demonstration experiments conducted in nine farmers’ fields in the cluster. Palee produces higher yields as an intercrop. Among four demonstration varieties, cucumber 5555 proved to be the best option to replace variety Nobel in the region. As new vegetable lines are introduced to the cluster, farmers can choose the most compatible crops to suit their needs.

To help farmers expand into protected cultivation of vegetables, AVRDC staff members provide seed, work with cluster farmers to plan intercrop schedules using improved varieties, and conduct training session on successful crop management and postharvest methods. Yields are increasing and so are farmers’ incomes.

Protected cultivation crosses borders

Distance proved to be no obstacle when AVRDC South Asia ran the first virtual cross-border training program on protected cultivation technologies for Pakistan from India via video link from 5-9 October 2015. The course, conducted by the Agriculture Innovation Program (AIP) in Islamabad, Pakistan and Punjab Agriculture University (PAU) Ludhiana, India, introduced 25 participants to advances in protected culture in India, and explained how protected culture is transforming agriculture in Pakistan.

Key lectures were delivered by Dr. Rakesh Sharda and Dr. M.S. Dhaliwal from PAU. Dr. Sharda discussed the technologies available at PAU and how they could be replicated in Pakistan, offering suggestions for improvements with examples. He noted the importance of using drip irrigation systems in protected culture, and discussed the role of these systems in controlling the microenvironment inside the structures and reducing pesticide use in protected vegetable production.

Dr. Dhaliwal shared PAU’s recommendations for crop and variety selection for protected cultivation, mentioned the varieties available through PAU, and discussed relevant research work currently underway at the university. Videos of Indian farmers practicing protected cultivation were shared with the participants. Throughout the course, participants worked on short- and long-term action plans for protected cultivation in various regions of Pakistan. As they discussed existing practices, the group identified issues and improvements for structural design and cultural methods.

The Agricultural Innovation Program (AIP) for Pakistan project is funded by the United States Agency for International Development (USAID) and supported by the International Maize and Wheat Improvement Center (CIMMYT) and the Pakistan Agricultural Research Council (PARC). The sessions were facilitated by AVRDC staff Asrar Sarwar, Sheeraz Ahmad, and Bharathi Lakshmi.
Spanish conquerors encountering tomato in Central America in the 15th century thought the suspicious-looking berries must be poisonous. Five centuries later, a Hmong woman in the northern uplands of Vietnam was equally suspicious of the tomato plants in her backyard garden. Never having eaten tomato before, she thought the fruit was sour and malodorous at first.

The plants were introduced as part of a pilot to test improved home gardens for isolated communities of ethnic minorities in the northern uplands of Vietnam. Hmong ethnic people typically live in remote areas with limited market access, and only collect vegetables from the borders of their fields or from the forest. Vegetable consumption is low and more than 25% of children under five are malnourished.

Against this background, AVRDC - The World Vegetable Center and the Fruit and Vegetable Research Institute (FAVRI) piloted the concept of encouraging people in the area to grow a diverse range of fruit and vegetables near their homes year-round. The pilot took place in Thong village, Muong Bon commune, Mai Son district, Son La province, Vietnam. An open-pollinated variety of tomato was tested as part of the intervention, as tomato is rich in vitamin C and lycopene.

Small-scale home gardening was introduced in August 2015 in a training program that targeted women, as they are in charge of food preparation for the family. The women learned how to grow various vegetables and prepare them in ways to preserve their nutritive value. Recipes for tomato salads, tomato soup, and fried egg with tomato—a popular dish in lowland areas of Vietnam—were shared and the women tasted the new dishes together. Most liked the new recipes and were eager to grow more tomatoes in their gardens.

The introduction of novel crops with nutritive value, in combination with training on nutrition and food preparation, can create enthusiasm for home gardens and promote greater diversity in diets.

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**Tomato Egg Drop Soup (Canh Ca Chua Trung)**

With eggs and tomatoes on hand, you can make this tasty soup in 10 minutes.

Serves 4

**Ingredients**

- 2 tbsp cooking oil
- 1 spring onion, thinly sliced
- 3-4 tomatoes, coarsely chopped
- 2 tbsp fish sauce
- 1 tsp salt or seasoning
- 5-6 cups of water
- 2 eggs, lightly beaten
- 5 cilantro leaves, chopped

**Preparation**

- Heat a medium saucepan over medium heat. Add oil and onion. Cook for 1-2 minutes or until soft, translucent and fragrant.
- Add tomatoes, fish sauce, and salt. Continue to cook for about 4-5 minutes or until the tomatoes have turned into a thick mixture. Lower the heat to prevent the tomatoes from sticking.
- Add the water and bring to a boil over high heat. Skim and discard any foam.
- Continue to cook and simmer for about 5-6 minutes or until the broth is fragrant. Turn off the heat.
- Before serving, reheat the soup. Taste, and if necessary, add more salt. Turn off the heat and pour the lightly beaten egg into the soup. Stir gently to break it up into smaller pieces.
- Serve the soup in a bowl. Garnish with chopped cilantro and spring onion leaves.
Welcome

Svein Øivind Solberg (Norway) will be the World Vegetable Center’s next Genebank Manager. He will join the Center on 30 November 2015 to work with current Genebank Manager Andreas Ebert, and will assume his full duties on 1 January 2016 after Dr. Ebert’s retirement. Dr. Solberg managed the vegetable collection at the Nordic Genetic Resource Center in Alnarp, Sweden for eight years, the last four years as genebank coordinator with overall responsibilities for regeneration, seed storage and various research and development projects. He led a national pilot project on the production of organic seed for the Farmers Union of Vestfold, Norway, integrating the needs and views of individual growers, farmers’ organizations, seed companies and national authorities. Extensive experience on pan-European projects through the European Union and work on the operations of the Svalbard Global Seed Vault round out his background. Dr. Solberg received a PhD for his work in bulb onion from the Agricultural University of Norway.

Senthil Kumar (India) takes up a postdoctoral position in Entomology on 1 December 2015 at AVRDC headquarters. Dr. Kumar has more than seven years of experience in insect/pathogen molecular biology, with expertise in crop-insect/microbe interaction through signaling transduction. He holds a PhD in plant biology from the Institute of Plant Biology, National Taiwan University, Taipei, Taiwan. His research interests include transcriptomic and metabolomic analysis to improve crop growth and development.

Kerstin Schulz (Germany) is participating in a three-month research internship at AVRDC headquarters from 26 October 2015 to 25 January 2016. Kerstin is working on a briefing paper about the legal status of AVRDC from the perspective of international and Taiwan law under the supervision of Guat Hong Teh, AVRDC’s Legal and Intellectual Property Consultant, and Jackie Hughes, Deputy Director General for Research.

Farewell

Lucy Lin, Research Assistant in Biotechnology / Molecular Breeding, retired in October 2015 after 39 years of service at AVRDC headquarters. Lucy’s dedication and willingness to learn new skills were essential to her successful long career, as biotech was a relatively unknown field in the early 1970s and is one of the most rapidly advancing disciplines today. Now that’s she’s free from her lab bench, Lucy plans to travel and enjoy time with family and friends. Good luck, Lucy!
### New projects

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**Webinar:** The Informal Seed Sector

AVRDC Socioeconomist Victor Afari-Sefa will participate in a webinar on “The Informal Seed Sector: A Behind the Seeds Look” hosted by Agrilinks, Feed the Future, and USAID on 12 November 2015 from 9:30-11:00 am EDT. Informal seed systems contribute to the food security of a region, but farmers may also encounter barriers to accessing good quality seed, including quality controls and storage issues. Join the discussion!