

# fresh



News from AVRDC – The World Vegetable Center

February 25, 2011

[www.avrdc.org](http://www.avrdc.org)

## AVRDC forges links with Europe:

Trade and economic representatives from Austria, Czech Republic, Hungary, and Poland visit headquarters

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## Meet the *Magnificent Cube*



Vegetable-based seasoning may open new markets for Mali's farmers



**Top:** Evaluating a cube mixture for aroma, taste, and color.

**Right:** Different combinations of dried vegetables can be used to flavor foods and increase nutritional content.



In Mali, many women take great pride in their reputations as good cooks. Like busy cooks anywhere, they also seek convenience in the kitchen, and frequently add a stock

cube to the pot to season stews, soups, and other dishes. The cubes are popular recipe ingredients, but often are high in salt and artificial flavorings.

**Theresa Endres** and her colleagues at AVRDC's **Subregional Office for West and Central Africa** in Bamako, Mali have begun developing a stock

cube based on locally produced dried vegetables. The effort aims to offer cooks a healthier, more natural seasoning that's tasty, and just as quick and easy to use as traditional stock cubes.

Local women joined 15 researchers from AVRDC, the **International Crop Research Institute for the Semi-Arid Tropics** (ICRISAT), and **International Livestock Research Institute** (ILRI) in a tasting session to select Mali's most "Magnificent Cube" (*Cube Magnifique*) Ten different Magnificent Cube formulations composed of dried vegetables such as golden tomato, different varieties of onions, peppers, cabbage and indigenous vegetables were presented for evaluation. Dishes with baked and fried potatoes, skewers of beef, eggs and cucumbers were prepared with the different cube compositions. Drinking water was provided to clear the palate and refresh the taste buds before the next round of sampling. Each participant completed a questionnaire concerning the color, aroma and taste of the dishes.

Most of the participants appreciated the multiplicity of cube types and the diverse composition of ingredients, but opinions were divided on the importance of color to attract a steady clientele. Regarding aroma and taste, all participants concurred on their importance for meeting consumer preferences.

The sample "NR 10" was the favorite among the proposed cube combinations. It consists of ginger, golden tomato, 'Veronique' onion, and peppers 'Nisonidia' and 'Nafaman.' Following the tasting



*Tasting sessions to determine which Magnificent Cube combinations provide the most savor.*

*With further research and development, the Magnificent Cube could provide Mali's vegetable farmers with a new market, and encourage small-scale entrepreneurs to become involved in postharvest value-adding activities including produce drying and cube production.*

session, the participants discussed ways to keep the research moving forward to experiment with cube color and different combinations of ingredients. Market research would be useful to assess consumer preference and demand from different socioeconomic segments of the population willing to buy the Magnificent Cube.

-- Theresa Endres  
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## OMG! Gulay (vegetables) get red carpet treatment in the Philippines



(left to right) **Andrew Lin**, Executive Secretary of Taipei Economic and Cultural Office (TECO) Manila, **Dinky Soliman**, Secretary, Philippine Department of Social Welfare, **Brother Armin Luistro**, Secretary, Philippine Department of Education, and AVRDC's Regional Director for East and Southeast Asia **Robert Holmer** share an OMG! moment at the launch.

**Robert Holmer**, AVRDC Regional Director East and Southeast Asia, was invited by Philippine Senator Francisco Pangilinan, chairman of the Senate Committee on Agriculture and Food, and Proceso J. Alcala, Philippine Secretary of Agriculture, to attend the **Agriculture and Fisheries 2025 Summit** from 10-11 February 2011 in Antipolo City to contribute the Center's expertise in defining goals, strategies and priority activities for the Philippine agriculture sector in the next 15 years.

The summit was attended by 170 key players in the country's agriculture and fishery sector, who brainstormed and drafted major strategies and action plans to attain food and nutritional security and self-sufficiency, improve global competitiveness, uplift small Filipino farmers and fisherfolk from poverty, and provide Filipino families with access to adequate and affordable food.

After the summit, dignitaries and celebrities (including **Robert**

**Holmer**) met in Manila on 11 February 2011 to launch the **Oh My Gulay!** (OMG!) program to promote vegetable consumption in the Philippines.

Developed by **Sen. Edgardo J. Angara**, the program aims to popularize the growing and eating of vegetables, especially among the young.

*There's a way to fight this so-called 'hidden hunger' — by eating vegetables loaded with vitamins and minerals which are vital to school-age children. The key is to get kids involved in planting, growing and harvesting these veggies, whether at home or in school, so they become more eager to eat them. The link between health and academic performance is undeniable. One out of every four Filipino preschool children is malnourished, so it's no wonder that so many kids are doing poorly in school.*

-- Senator Angara

A visit to AVRDC – The World Vegetable Center headquarters in 2010 inspired Sen. Angara to develop the program. Activities will include school feeding programs, vegetable backyard and school gardening projects, distribution of vegetable seeds and seedlings in schools and communities, and teaching vegetable cultivation in elementary and high schools.

The Philippines' most popular artists, including Christine Reyes, Mark Bautista, and Sarah Geronimo have been tapped to carry the OMG! message in print, TV, music, and online media. Even world champion professional boxer

and congressman **Manny Pacquiao** is helping the effort, by promoting kangkong (*Ipomoea aquatica*) consumption as a good way to grow up strong. It's a message that must be heard: the Philippines' annual per capita vegetable consumption of 40 kilograms is one of the lowest in Asia. The country is burdened by undernourishment and malnutrition among children under 5, while rising obesity rates among adults rank the island nation third behind Malaysia and Singapore as Asia's fattest population.



(left to right) **Sen. Angara**, **Robert Holmer**, and AVRDC board member **Clarito Barron** at the summit.

View an OMG! promotional ad:

<http://www.youtube.com/watch?v=THmK7ASbPic>

<http://www.ohmygulay.org>



**Manny Pacquiao's** message packs a punch: Eat your kangkong! The World Champ and Philippine congressman is encouraging kids to consume more vegetables in the OMG! campaign.

## Top tomatoes – in Texas

In his ongoing effort to develop durable disease resistance in tomatoes, AVRDC tomato breeder **Peter Hanson** regularly shares germplasm with other researchers in universities, government agencies, and the private sector around the world who are interested in experimenting with the Center's tomato lines. Peter's work involves pyramiding—a breeding technique used to introduce multiple genes into a plant, each of which imparts resistance to a specific pest or disease. Because a pest must overcome all of the resistance genes simultaneously to survive, it is more likely the vegetable line or variety will retain its resistance over a longer period—perhaps for several decades. AVRDC breeders have developed open pollinated tomato lines with various combinations of *Ty-1*, *Ty-2*, and *Ty-3*, three genes drawn from wild tomatoes *Solanum habrochaites*, *S. chilense*, and *S. peruvianum*. Lines carrying these multiple genes have demonstrated resistance to several whitefly-transmitted

begomoviruses, a cause of tomato yellow leaf curl virus disease.

Peter sent *Ty-2* lines to **Kevin Crosby**, a plant breeder at Texas A&M University. Kevin used the *Ty-2* germplasm to develop a new tomato variety that has kept a canning company open for business in Texas. Kevin recently wrote:



**Kevin Crosby**, Texas A&M plant breeder

*The original Ty-2 lines you sent allowed us to introduce acceptable resistance into an old processor line grown by the last large tomato cannery in south Texas. They were stuck on the old, ultra-determinate, once-over harvest type, but had no defense against Tomato yellow leaf curl virus. The owner told me that without our help they would have been forced out of tomato canning in Texas. Now all of the store-brand canned tomatoes in our largest grocery chain (HEB) are from the line we developed for him. I told him about your contribution to the effort by way of Ty-2 and he was amazed that breeders were collaborating half way around the world. I really appreciate your generosity in providing materials.*



## Conference corner



### Second Asia Pacific Biochar Conference

15-18 September 2011

Kyoto, Japan

<http://apbc2011.com/>

Biochar—the carbon-rich product produced when biomass, such as wood, manure or leaves, is heated

with little or no available oxygen—is found in soils around the world as a result of vegetation fires and historic soil management practices. Modern biochar production promises additional benefits by converting agricultural waste into a valuable soil enhancer, sequestering carbon, and serving as a source of renewable energy.

## The Center in the news



Is AVRDC's **Abdou Tenkouano**, director of the Regional Center for Africa, fomenting revolution? Yes, he is.

A "revolution of greens" to increase vegetable consumption in developing countries will go beyond the goals of the Green Revolution, says Tenkouano. The world's hungry must not only be fed, but nourished as well—and vegetables are the very best source of vitamins, minerals, and micronutrients needed for good health. **Danielle Nierenberg**, project director of the Worldwatch Institute's *State of the World 2011*, emphasized the Center's revolutionary role in an interview with Abdou in her blog on the *Huffington Post* website.

<http://www.huffingtonpost.com/danielle-nierenberg/the-nutritional-and-economic-potential-of-vegetables.html?ref=tw>



The work of AVRDC tomato breeder **Peter Hanson** and plant pathologist **Jaw-fen Wang** in developing disease-resistant tomato lines was noted on the **New Agriculturist** website:

<http://www.new-ag.info/news/newsitem.php?a=1900>

**Newtonkids**, a Taiwan magazine for children, recently published a special issue to educate readers about the importance of eating vegetables in line with the "Against Fatness-Move Together!" effort organized by Bureau of Health Promotion, Department of Health. AVRDC - The World Vegetable Center was featured in a photo spread and interview illustrating activities at the genebank, indigenous vegetables, and disaster seed kits. **Huang Yung-kuang** was one of several AVRDC staff interviewed.





**Bitter gourd** made the big time in Europe. The warty cucurbit received a special mention for its antidiabetic characteristics in the March 2011 issue of *mein schöner Garten*, a German garden magazine with a monthly circulation of 500,000.

**M.L. Chadha**, director, AVRDC Regional Center for South Asia, outlined the Center's future strategies for vegetable research and development in the region in a keynote presentation at a meeting of the South Asian Association for Regional Cooperation in Dhaka, Bangladesh; his talk was recounted in the *SAARC AgriNews*.



## Transitions



**Takemore Chagomoka** has been transferred from the Regional Center in Africa, Arusha, Tanzania to take up the position of **Liaison Officer for Cameroon**. In addition to his new duties he will continue to serve as RCA's Seed Business Specialist.

## Errata



In the last issue of *Fresh*, we misidentified new tomato variety 'Tengeru 2010', which was developed from AVRDC line LBR 11. This is the correct photo.

## Welcome

**Bong Nam Chung** from the Horticultural and Herbal Environment Division, National Institute of Horticultural and Herbal Science, Rural Development Administration, Korea, will work with the Center's Virology unit from 11–20 April 2011 to learn transmission pathways of *Tomato yellow leaf curl virus*.

**Sandra Habicht** will join the Center on 1 March 2011 for a two-year posting as a postdoctoral fellow in Biochemical Nutrition. She is seconded from Justus Liebig University Giessen, Germany to participate in "A better bitter gourd: Exploiting bitter gourd (*Momordica charantia* L.) to increase incomes, manage type 2 diabetes, and promote health in developing countries"—a GIZ-funded project led by nutritionist Ray-yu Yang.

## Visitors



**Randolph Barker**, Professor Emeritus, Cornell University USA and former board chair of the International Institute of Tropical Agriculture, gave a seminar to AVRDC staff on “Asia faces growing water scarcity: Increasing water productivity in agriculture” on 14 February 2011. His talk prompted a lively exchange on the need to save water at a system or basin level, and how plant breeding can help deliver more “crop per drop.”



**Steven Underhill**, Associate Professor and Project Leader of the Pacific Agribusiness Research for Development Initiative, visited AVRDC headquarters from 14-17 February 2011 to meet with researchers and explore possibilities for collaboration. He gave a presentation on the project’s recent activities, noting the need to identify supply value chains with growth potential in horticulture, forestry and fisheries for six Pacific island nations, and some of the cultural challenges the project has encountered.



(top left, left to right) **Juraj Koudelka**, **Gerhard Götz**, **Marek Wejtko**, and **Ádám Terták** plant a little bit of Europe in Taiwan; (top right) **Gerhard Götz**, AVRDC DG Dyno Keatinge, and **Marek Wejtko** examine seed packaging; (bottom right) **Gerhard Götz** enjoys the brisk -20°C atmosphere inside a genebank freezer.

Four European trade, economic, and cultural representatives based in Taipei came to southern Taiwan on 23 February 2010 for an AVRDC campus tour and talks with management and staff. **Ádám Terták**, Hungarian Trade Office, **Gerhard Götz**, Austrian Office Taipei, **Juraj Koudelka**, Czech Economic and Cultural

Office, and **Marek Wejtko**, Poland Trade Office, discussed the current donor climate in their respective countries and offered ideas on how the Center could raise its profile on the international stage. The group planted a tree along AVRDC Visitor’s Row before returning to Taipei.

## DG in India

### Cross-regional research highlighted



(l to r) **Sanjeet Kumar**, **Ram Nair**, **Dyno Keatinge**, **M.L. Chadha**, and **Warwick Easdown** at the Regional Center for South Asia.

Director General **Dyno Keatinge's** ten-day visit to India in early February 2011 began with a stop at AVRDC's Regional Center for South Asia in Hyderabad, located on the campus of the International Crops Research Institute for the Semi-Arid Tropics. The DG discussed future research and development strategies with regional director **M.L. Chadha**, researchers **Warwick Easdown** and **Ramakrishnan Madhavan Nair**, and **Sanjeet Kumar**, AVRDC vegetable breeder based in Niger who was visiting the ICRISAT campus. Discussions highlighted the importance of expanding the Center's vegetable legume effort, increasing vegetable seed production, postharvest work, food safety and irrigation management. Drs. Nair and Kumar briefed the DG about ongoing breeding work on vegetable legumes and okra, and opportunities for cross-regional collaboration.

### Partners in chili production

Partnerships with family seed

companies across India are helping AVRDC make its anthracnose-resistant chili peppers widely available to farmers. **Ankur Seeds** located in Nagpur, the geographical heart of India, is a core supporter of the Center through the Asia and Pacific Seed Association (APSA). DG Keatinge, M.L. Chadha, and Warwick Easdown spent a day viewing trials and facilities at



*Dyno views AVRDC chili accessions with chili breeder **Divya Ashish** (right) and **Manju Vishwakarma**, General Manager, Ankur Seeds R&D.*

Ankur's 160-hectare research center. The company has 42 senior scientific staff, 100 technicians, and first-rate facilities for conventional and molecular breeding. It is the Indian market leader in hybrid eggplant production, a major player in hybrid chili and tomato and also breeds gourds, lab-lab bean, cotton, and rice.

AVRDC's anthracnose-resistant chili lines are an important component of Ankur's hybrid development. Each year more than 15,000 farmers visit their main research farm to view new vegetable lines under development. Thousands more visit the 12 trial sites located across the country. Viruses are a growing problem for



*Ankur Seeds chili varieties. The Indian chili market is highly diverse. Preferences for less pungency are emerging in urban areas, and regional preferences such as sweet chilies in Gujarat are also significant markets.*

eggplant, tomato, and chili producers in India and companies need help from AVRDC to find resistance. The DG noted that the Center's global connections could introduce commercial companies to new types of vegetables and provide awareness of new marketing opportunities.

### Scientific collaboration



*Reviewing chili trials at the Indian Institute of Vegetable Research, Varanasi*

The DG, M.L. Chadha, and Warwick Easdown visited the **Indian Institute of Vegetable Research** at Varanasi and the **Indian Institute of Pulse Research** at Kanpur. Both institutes have national research responsibilities for the whole of India. With excellent facilities and highly trained and experienced staff they are valuable scientific partners

for the Center's work in South Asia, and have previously worked with AVRDC in tomato, chili and mungbean breeding and selection. The visits helped to strengthen the Center's relationships with these major scientific partners, and will enhance opportunities for project collaboration in the future.

### **Linking agriculture, nutrition, and health**

The **International Food Policy Research Institute's** conference on "Leveraging Agriculture for Improving Nutrition and Health" held from 10-12 February 2011 in New Delhi, helped to put nutrition and health back on the agricultural policy agenda. More than 1100 delegates representing international agricultural research centers, donors, and NGOs from 60 countries met for intensive discussions about the growing problem of malnutrition. Indian Prime Minister Manmohan Singh opened the conference, with

participation by H.E. John Kufuor, former president of Ghana, and Hillary Rodham Clinton, U.S. Secretary of State. Dyno Keatinge, AVRDC Director of Human Resources **Nagaraj Inukonda**, M.L. Chadha, Warwick Easdown, and Sanjeet Kumar represented the Center at the event.

The DG gave a presentation and participated in a panel discussion on "Science and Technology Levers" to help influence policies. "It was clear from all the presentations that malnutrition is a major concern for many players and we are one of them," Dyno said. The AVRDC team renewed old contacts and made new connections with potential collaborators.

Many speakers noted the importance of vegetables and the valuable role of home gardens as a means to help overcome malnutrition. Participants recognized the need to design agriculture, nutrition, and health programs with cross-sectoral

benefits, and to better incorporate nutrition into food value chains. It was a positive affirmation of the integral part that nutrition and health have always played in the work of AVRDC.

<http://2020conference.ifpri.info>

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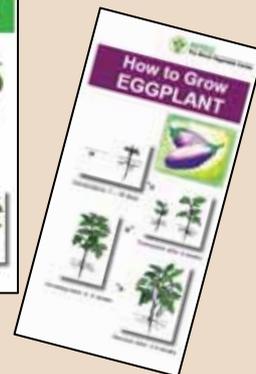
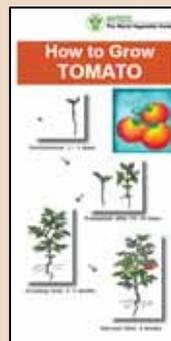
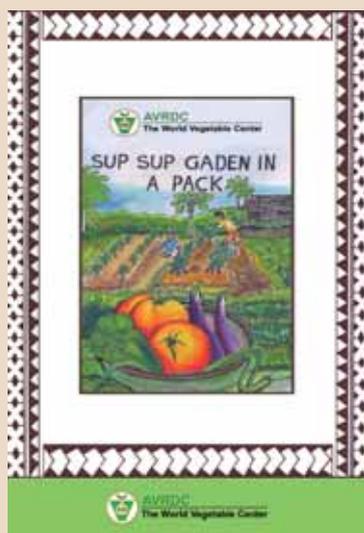
Local newspaper report on the DG's visit to the Indian Institute of Vegetable Research at Varanasi

**Left:** DG Dyno Keatinge participates in a panel discussion at the IFPRI conference.

**Bottom:** Booth at the IFPRI conference displaying AVRDC posters and information.



# *Sup Sup Gadens* grow in Solomon Islands



As more vegetable varieties are introduced to the Solomon Islands, farmers need easy-to-follow advice on all aspects of cultivation, from bed preparation, transplanting, mulching, fertilizing, watering, and pest scouting to harvest and seed saving. To supply the information, AVRDC's Smallholder Gardens Project Coordinator **Suz Neave** developed the "Sup Sup Gaden in a Pack" with partners **Vois Blong Mere Solomons, Kastom Gaden Association, Don Bosco**

**Rural Training Centre, Solomon Islands Development Trust (SIDT), the government Ministry of Health and Ministry of Agriculture, and Australia's Department of Primary Industry, New South Wales.** Each pack includes vegetable seed and colorful "how to grow" leaflets illustrated by local artist **Fred Oge**. The leaflets provide cultivation instructions, directions for saving seed, a recipe, and the lyrics to "Grow and Eat

Vegetables" a song to promote vegetable consumption in the Pacific islands. About 500 kits already have been distributed with the help of the SIDT drama group, which regularly performs the "Grow and Eat Vegetables" play. Another 500 kits will be distributed at upcoming AVRDC market field days and through our partners. "Farmers are our main target group, but the leaflets are available to anyone interested in growing vegetables," says Suz.

# Southeast Asian indigenous vegetables promoted in Thailand

Since 2006, **AVRDC East and Southeast Asia** has been conducting experiments and surveys within the five-year research program “Physiological Functionalities of Indigenous Vegetables in Southeast Asia” with financial support of the Japan International Research Center for Agricultural Sciences (JIRCAS).

The contents of the studies were synthesized in five extension brochures for rice paddy herb (*Limnophila aromatica*, common Thai name ‘phak-kayang’), Vietnamese cilantro/coriander (*Polygonum odoratum*, common Thai name ‘phak-paew’), sweet basil (*Ocimum basilicum*, common Thai name ‘horapa’), sacred basil (*Ocimum sanctum*, common Thai name ‘ka-prao’) and climbing wattle (*Acacia pennata* subsp. *Insuavis*, common Thai name ‘cha-om’). The Thai language brochures contain general production information and details on the nutritional value of each crop.

On 17 February 2011, AVRDC East and Southeast Asia research assistant **Somchit Pruangwitayakun** turned over a set of brochures to **Areephan Upanisakorn** of Thailand’s Department of Agriculture and Extension (DOAE) at the DOAE head office in Bangkok. Somchit and **Surin Supplup**, agriculturist at the Kamphaeng Saen Agricultural Office and alumna of AVRDC’s 2007 Regional Training Course, handed over 500 brochures to **Suradej Kanpee**, the village head of Huaykhwang sub-district, for distribution among vegetable growers in the area. Further distribution activities are scheduled.



(top left) AVRDC’s **Somchit Pruangwitayakun** (left) hands over the brochures to **Areephan Upanisakorn** of Thailand’s Department of Agriculture and Extension (DOAE)

(top right) Farmers receive copies of the brochures.



At a farmers’ field school, **Somchit Pruangwitayakun** (green shirt) presents the brochures to village head **Suradej Kanpee** at No. 1 Moo 10, Huaykhwang sub-district, Kamphaeng Saen district, Nakhon Pathom, Thailand

