

# fresh

News from AVRDC – The World Vegetable Center



14 October, 2011

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

AVRDC makes  
new connections,  
from the  
neighborhood to  
northern Europe.

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## Variety, vitality, vegetables

Tribal communities in India turn to vegetable production to vary their diets

*Two reports from  
AVRDC South Asia  
tell how the  
Center's home  
garden kits and  
tomato crop  
management  
packages have  
made vegetables a  
vital addition to  
meals in remote  
and rugged  
Jharkhand.*



### Conflict in the kitchen garden?

To the Mundari-speaking tribal community of Jharkhand in India, the word “kitchen” sounds similar to their word for fighting. So the introduction of what were first

termed “kitchen gardens” provoked confusing images of violent vegetable patches.

An enthusiastic welcome from the



Residents of Dulli village welcomed visitors from AVRDC South Asia and NGO PRADAN with music, dance, and a delicious meal prepared with vegetables grown in local home gardens. Home gardeners eat more vegetables and spend less on vegetables purchased at market.

villagers of Dulli near the city of Khunti in Jharkhand showed that fierce gourds don't exist in their peaceful and productive home gardens. Through song, dance and a meal prepared from home garden produce they recently welcomed a visiting team from AVRDC – The World Vegetable Center South Asia, and partner NGO PRADAN.

**Regional director Warwick Easdown**, site coordinator M. Ravishankar and newly appointed project coordinator Vamsidhar Reddy then visited the home gardens. Villagers recounted that before they could only afford the cheapest, sometimes rotten, vegetables from the market, but now they enjoyed fresh vegetables from their own gardens and claimed their health has improved.

The evidence confirms these views. A survey of more than 100 home gardeners in Jharkhand showed that they had tripled their per-capita vegetable consumption and halved their weekly expenditure on vegetables. More than 90% perceived improvements in family health.

The model home garden introduced

by AVRDC provides more than 24 different vegetables, about a quarter of which were new to the community. Heavy rains this year have made it particularly difficult to grow any vegetables, but the wide diversity in the home gardens has helped ensure something was always available. Some vegetables like kangkong were immediately popular, as a similar crop used to be harvested from the wild before deforestation reduced supplies. Other vegetables, such as lettuce, took longer to be accepted, but it is now being boiled or fried like all other leafy greens.

**Training to improve cooking methods to make better use of vegetables is now underway in some villages.**

Home gardens do not provide all of a family's vegetable requirements. For instance, it is cheaper to buy potato from the market. Over time, the garden designs are modified depending on what is available from local markets and what the family likes to eat.

M. Ravishankar noted the innovations introduced by farmers such as using climbers like bitter gourd and basella along garden

fences to make better use of space and to strengthen the garden's protective barriers.

Good protection is needed: Small, nimble and hungry local chickens are the biggest problem home gardeners face. Only a high, well-made brush fence will prevent the poultry from digging up seed and seedlings. The latest innovation involves using old fishing nets to strengthen the barriers. Water supply is also a major problem during the hot summer months of March to May, when even drinking water can be in short supply and many gardens suffer.

More than 1500 vegetable gardens have been established in Jharkhand, and over the next 18 months this figure is expected to reach 4000. Far from inviting conflict, home vegetable gardens can be peaceful havens of productivity for tribal communities—so long as control of the neighbors' chickens doesn't extend to frying them along with the home-grown dinner greens.

**PRADAN**

<http://www.pradan.net/>

## Tomato: the main alternative to rice



(l): **Mahadev Munda** grows tomatoes for home use and sale in Maipaddih, India.  
(r): The only transportation for the tribal farmers: bicycles.

The average weekly vegetable consumption in impoverished tribal areas of Jharkhand in northeast India is about 400 g – equal to about two cupfuls of tomato. This vegetable is one of the only additions to a bland and unhealthy diet that consists almost entirely of rice.

In the village of Maipaddih, 24 km south of the city of Ranchi in northeast India, a tenth of its 250 tribal farmers are now growing tomatoes for home use and sale. Mahadev Munda is growing an improved variety for the second time. His small 200 m<sup>2</sup> fenced patch lies isolated in overgrazed upland sandy pastureland, surrounded by low lying rice paddies and remnant trees in a deforested landscape.

Staked in neat rows separated by water-scoured channels from

recent heavy rains, his crop will return well this season, but many others were wiped out in the same storms. Its survival depended on staking, good drainage and improved disease-resistant varieties – innovations introduced as part of a management package by AVRDC in cooperation with local nongovernmental organization, Art of Living. This has increased average tomato yields five-fold and increased returns by 675%.

Tomatoes are usually grown in the cooler winter or *rabi* season, but over the last decade production has gradually expanded into the more risky hot, wet *kharif* season when disease and waterlogging kill many crops, but prices are two to three times higher. Marketing takes a lot of effort as the only transport is via bicycle 10 to 15 km to nearby villages or further to the largest market on the city outskirts.

Other farmers are now exploring the production of healthy seedlings in trays. Transplanted earlier than field-grown seedlings, they also produce crops that mature faster with substantially higher yields, and the trays can be reused four or five times.

While there are still many challenges to overcome, the success of tomato production in tribal communities so far has shown that there are viable sources of improved incomes and nutrition from vegetables that can help transform one of the most marginalized communities in India.

-- Warwick Easdown,  
Vamsidhar Reddy, M. Ravishankar

## CORNUCOPIA

### The Center in the news



**Reporter Martha Chindong**, also known as the “Farmer’s Friend” in Cameroon, recently featured an interview with AVRDC Seed Marketing Specialist **Takemore Chagomoka** on the Agfax radio and website. Takemore discussed the need to increase vegetable consumption to improve nutrition across Africa and explained the Center’s participatory variety selection process. He also made special note of the Center’s improved tomato lines that resist bacterial wilt and late blight, helping farmers cut the number of fungicide sprays from 30 to 6 and reducing their costs of production. Agfax covers agricultural and rural development in Africa.

<http://www.agfax.net/>



German readers in Thailand were introduced to the Center’s work in East and Southeast Asia and beyond in an article published in the September 2011 newsletter of the German Embassy in Bangkok. Regional Director Robert Holmer wrote the article, which he ended with a poem extolling the nutritional virtues of the stinging nettle: *Brennessel, verkanntes Kräutlein* by poet August Heinrich Hoffmann von Fallersleben (1798-1874). Nettles and other indigenous vegetables are among the most nutritious foods available, yet receive little research attention—an oversight AVRDC is striving to address.



The Southern Taiwan Science Park newsletter featured the visit of Deputy Director General Wei-Cheng Lin and his administrative team to AVRDC on 14 September 2011. Read more about the visit on page 11 of this issue of *Fresh*.



## IN THE SPOTLIGHT

### Theme meetings begin

At AVRDC, autumn is a time for reflection. Each year researchers working on projects and issues related to the Center's four themes—Germplasm, Production, Breeding, and Consumption—meet to discuss their progress, plan

future strategies, learn new skills, and connect with colleagues. **Theme Consumption** met from 22-23 September 2011 at headquarters; **Theme Production** held its meeting from 5-7 October at the Tainan District

**Agricultural Research and Extension Station** in nearby Xinhua. **Theme Germplasm** will meet from 20-21 October, followed by **Theme Breeding** on the 24<sup>th</sup> and 25<sup>th</sup>.



**(Clockwise from top left):** Theme Consumption team members gather 'round to post ideas during a brainstorming session moderated by Grants and Partnership Development Manager **Annelie Öberg**. The group explored fundraising, performance monitoring and evaluation, and opportunities for research and development.

Tomato Breeder **Peter Hanson** contemplates the options under discussion at the Theme Consumption meeting.

Management training consultant Neil McCracken's presentation on giving feedback to colleagues prompted Theme Production members to put their new knowledge into practice: Virologist **Lawrence Kenyon** (*r*), **Chih-hung Lin** (*c*) from Bacteriology, and **Wallace Chen** (*back to camera*) from Mycology. (*l to r*): **Mandy Lin**, Global Technology Dissemination, Socioeconomist **Madhu Bhattacharai**, and Entomologist **Srinivasan Ramasamy**.

## Moving forward with mungbean



Ram Nair visited the mungbean field at the Fruit and Vegetable Research Institute (FAVRI) in Hanoi, Vietnam.

**Ram Nair, AVRDC Legume Breeder based in Hyderabad, India, recently made a few stops in Southeast Asia to discuss**

mungbean production. In Vietnam, Ram visited the Fruit and Vegetable Research Institute (FAVRI) in Hanoi and held discussions with Director General **Trinh Khac Quang**; **Bui Quang Dang**, Head, Dept. of Science and International Co-operation; and **Nguyen Khac Anh**, Director, Consulting & Investment Development for Horticulture Production Ltd. Ram also visited the Plant Resources Center, Hanoi to speak with Director **La Tuan Nghia** and staff members **Lan Hoa** and **Hoang Hue**. At the Legume Research and Development Center in Hanoi he met with Director **Nguyen Van Thang** and Deputy Director and soybean breeder **Tran Thi Truong**. Ram had the opportunity to visit a household mungbean

sprout producer (Mrs. Yen) in a village in Hoai Duc district, a suburb of Hanoi.

At Los Baños, Philippines Ram presented an overview of AVRDC's legume program to the staff at the Bureau of Plant Industry, National Crop Research and Development Center. At the University of the Philippines Ram had a good discussion with legume breeder **Rodel G. Maghirang** at the Institute of Plant Breeding regarding the prospects for improving mungbean production. In Manila, Ram called in at the HQ of the Bureau of Plant Industry, where he met with AVRDC board member **Clarito Barron**.

## SEAVEG symposium: preparations continue



(l to r): Robert Holmer, Prem Nath and Grisana Linwattana

On 17 September 2011, **Prem Nath**, former Assistant Director General, Food & Agriculture Organization of the United Nations (FAO-UN) and Chairman of the Vegetable Science International Network (VEGINET) met with **Robert Holmer**, AVRDC Regional Director, East and Southeast Asia and **Grisana Linwattana**, Horticulture

Research Institute, Thailand Department of Agriculture, to discuss preparations for the Regional Symposium "High Value Vegetables in Southeast Asia: Production, Supply and Demand (SEAVEG2012)" from 24-26 January 2012 in Chiang Mai, Thailand.

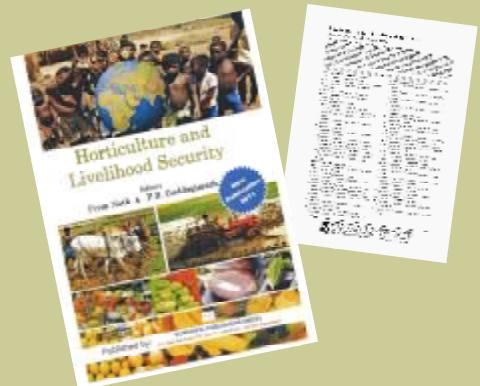
Nearly 100 abstracts submitted by scientists from Asia and Europe are presently under review by the Scientific Committee; authors will be informed of acceptance at the end of October. Dr. Nath also shared copies of his latest publication *Horticulture and Livelihood Security*, co-authored by P.B. Gaddagimath.

**More info:**

**Regional Symposium:**  
<http://www.seaveg2012.com/>

**VEGINET:**  
<http://www.pnasf.org/veginet.html>

**Horticulture and Livelihood Security:**  
<http://www.pnasf.org/books.html>

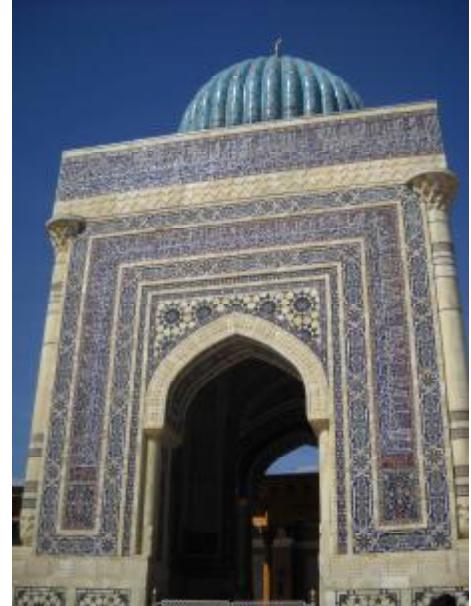


## Growing strong in Uzbekistan

Excitement over the possibilities vegetable production can provide for health and employment greeted AVRDC Director General Dyno Keatinge during a trip to Uzbekistan from 17-30 September 2011. Thanks to the hard work of partners at Tashkent State Agrarian University, the Uzbek Research Institute of Vegetable, Melon Crops, and Potato, the Uzbek Research Institute of Horticulture, and the Samarkand Agricultural Institute the country's vegetable sector is beginning to gather momentum. Ravza

**Mavlyanova**, AVRDC's Coordinator for Central Asia and the Caucasus, has been instrumental in involving farmers and researchers in participatory selection of improved varieties, organizing training in seed production, and

disseminating vital production and postharvest information. New varieties of vegetable soybean ('Sulton' and 'Universal'), mungbean ('Zilola,' 'Marjon,' and 'Durdonga'), yard-long bean ('Oltin soch'), chili ('Uchkun') and leafy cabbage ('Shark guzali') have been added to the state register of varieties due to the close collaboration of Ravza and partners.



(r) Beautiful tile and strapwork adorn a gate.  
(center, l to r) Greenhouse staff; **Laziza Gafurova**, Tashkent Agrarian University; **Ravshan Musaev**, Tashkent Agricultural College.



(left) **Rafik Khakimov** (l), Director General, Uzbek Research Institute of Vegetable, Melon Crops and Potato, Tashkent with AVRDC Coordinator **Ravza Mavlyanova**. (right) **Ekaterina Lian** (l), Head of Protected Agriculture, Uzbek Research Institute of Vegetable, Melon Crops and Potato, Tashkent and AVRDC Director General **Dyno Keatinge**.

## The ITC seed planted



**Module I: From Seed to Harvest of AVRDC's 30<sup>th</sup> International Vegetable Training Course ended on 7 October 2011 with the presentation of development action plans from the 14 participants (see sidebar).**

**Module II: From Harvest to Table**, with 11 participants, started on 10 October 2011, with lectures and hands-on exercises on postharvest, human nutrition, and good manufacturing practices, vegetable marketing, and economics of vegetable production.

**The 31<sup>st</sup> International Vegetable Training Course will be conducted from 10 September to 30 November 2012. Mark your calendar now!**

### 30<sup>th</sup> International Vegetable Training Course

#### Module 1: From Seed to Harvest

#### Participants' Development Action Plans

	Name	Plan Title
1	Mr. Md. Faruk Hossain	Improving health and income generation through homestead vegetable gardening in Bangladesh
2	Mr. Mohammad Amdadul Haque	Improving farm productivity and food security of marginal farmers through modern vegetable crop production technologies in Jamalpur District
3	Mr. Mahamad Hossain Al Mamun	Increasing tomato production through integrated crop management practices in the salinity affected areas of Bangladesh
4	Mr. Mohammed Khalid Akbar	Improving quality seed production through drip irrigation and plastic mulching to farmers in two villages of Larmonirhat District
5	Ms. Ramimun Akther	Introducing grafting to vegetable growers in Magrocjorca as a preventive strategy to reduce bacterial wilt infection of tomato
6	Mr. Abu Zafar Md. Khorshed Alam Chowdhury	Judicial use of pesticides for a healthy crop and minimizing production costs
7	Mr. Abul Monsur	Integrated pest management of tomato insect pests at Mymensing, Bangladesh
8	Ms. Evy Latifah	Adaptation assessment of new tomato varieties and grafted tomatoes in Kediri, East Java
9	Mr. Keo Chenda	Improve model farming knowledge to provide better advice to farmers on seed health, seedling management and pest and disease management for vegetables in Kompot, Takeo, and Kompong Thom
10	Mr Chen Yew Luen	Increased vegetable production and improved local health in Singapore
11	Mr. Marijn Zandee	Introduction high quality vegetable seeds and seed production in remote Nepalese hill communities
12	Ms. Philam Seta Waken	Importance of proper vegetable production skills for farmer seed sustainability and improved living in Laloki, Papua New Guinea
13	Mr. Saurabh Rathi	Increasing vegetable production by GAP and IPM in Karura, Raipur
14	Mr. Hugo Ramirez Guerrero	Introducing new vegetables and the transition to ecological horticulture in Quibor Valley, Venezuela

## Siblings attend AVRDC's training program



In December 2008, Chandy Keo (top left) from Cambodia participated in "Module II: Good Agricultural Practices - Growing a Healthy Crop" held during AVRDC's 27<sup>th</sup> Regional Training Course. Her participation was supported by the Regional Economic Development, German Technical Cooperation (RED-GTZ), where she worked as a Value Chain Facilitator until September 2011. Starting this month, she will serve as the country coordinator for East-West Seeds, Cambodia. This year, Chandy's younger brother,

**Chenda Keo**, was a participant in "Module I: From Seed to Harvest" of the 30<sup>th</sup> International Vegetable Training Course (formerly the regional training course). Chenda works as an Agricultural Adviser on the Cambodia Agricultural Value Chain Program, a project supported by the Australian Centre for International Agricultural Research. According to Chenda, the topics covered in Module I will help him promote efficient vegetable production technologies in Cambodia.

### Applications open for Module III: "Vegetables for Sustainable Development" for the 30<sup>th</sup> International Vegetable Training Course

Interested participants are welcome to submit applications for the third module of AVRDC's 30<sup>th</sup> International Vegetable Training Course. This module focuses on enhancing participants' awareness of the relevant issues affecting global food and nutrition security. Emphasis is on the skills necessary for effective proposal writing, project monitoring and evaluation, and development communications.

Application forms can be downloaded at <http://www.avrdc.org/index.php?id=743>

## Seminars



Pepper breeder Paul Gniffke took the long view to give colleagues perspective on a decade of work in a seminar

entitled "Pepper Breeding at AVRDC: Progress and Prospects, 2002-2011" on 29 September 2011. The Center's pepper breeding program began in the 1980s and Paul is the fourth pepper breeder to dedicate his effort to developing host plant resistance as the most cost-effective method for poor farmers to control viruses, fungi, bacteria, and insects. He discussed the challenges of breeding anthracnose-resistant peppers, seed dissemination in sub-Saharan Africa, the use of cytoplasmic male sterility to lower the costs of pepper seed production, and the distribution and impact of AVRDC's international sweet and chili pepper nurseries. To date more than 40 improved AVRDC pepper lines have been released in 16 countries.

## Tracking Vietnam's mungbean viruses



(l): Bui Huyen preparing samples for virus testing

(r): Bui Huyen received the internship certificate from IR Nagaraj, Director of Human Resources.

**Bui Thi Thu Huyen**, a researcher from the Plant Resources Centre, Vietnam (PRC) and recipient of the Vavilov-Frankel Fellowship 2011 “*Identification of the causal agent of mungbean yellow mosaic disease in Vietnam and resistance screening of the Vietnamese mungbean germplasm collection*” continued her study tour (See *Fresh*, 26 August 2011) with a month at AVRDC headquarters (1-29 September 2011).

Huyen was encouraged and supported in her application for the fellowship by **Andreas Ebert** (Head, Genetic Resources & Seeds), who, with **Roland Schafleitner**

(Head, Biotechnology & Molecular Breeding) and **Lawrence Kenyon** (Head, Virology) acted as her study supervisors. While at HQ Huyen helped to prepare DNA from Vietnamese and AVRDC mungbean accessions for Diversity Array Technologies (DArT) analysis in Australia—the next stop on her study tour. In the AVRDC genebank she learned about collecting and documenting accessions, and managing and maintaining genebanks for legume species. Most of Huyen’s time was spent in Virology, where she received hands-on training and experience in molecular and serological methods for plant virus identification and diagnosis. She

also learned about virus genome sequence analysis and construction of phylogenetic trees.

Preliminary results from testing mungbean samples from Huyen’s field collection in Vietnam (imported to Taiwan under special permit) indicate that mungbean mosaic disease in southern Vietnam is caused by a begomovirus. The few samples received from northern Vietnam indicate that the cause there is a potyvirus, though more samples are required to confirm this. Different breeding targets and different disease management strategies may be required for mungbean depending on where it is grown in the country.

-- Lawrence Kenyon



Mungbean showing mosaic symptoms in the field, northern Vietnam (left); and showing yellow mosaic symptoms, southern Vietnam (right)



## PEOPLE

### Visitors



(l): DG Dyno Keatinge receives a gift from Wei-Cheng Lin, Deputy Director General of the Southern Taiwan Science Park.

(r): Wu Deng-lin guided the visitors through the Vegetable Demonstration Garden.

**Neighbors came to call on 14 September 2011 when Deputy Director General Wei-Cheng Lin and a team of division**



representatives from the Southern Taiwan Science Park (STSP) toured the Center on 14 September 2011. The AVRDC campus is situated just outside the borders of the 2,578-acre STSP, where more

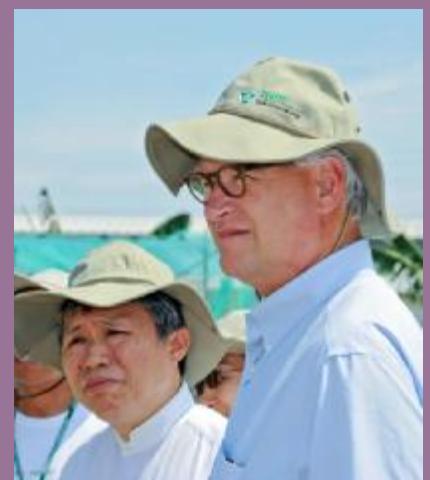
than 400 companies carry out research and development in biotechnology and telecommunications, and manufacture integrated circuits, electro-optical equipment, precision machinery, and computer peripherals.

Both parties are interested in building a closer relationship to share facilities and enrich staff experiences through seminars and social events.



**Thomas Harttung, Director and Chairman of the International Centre for Research in Organic Food Systems (ICROFS), Denmark, visited the Center on 3-4 October 2011, accompanied by John Yang of CSA, an association that advocates for community-supported agriculture in Taiwan, Juliana Hou of Chinatrust Bank, and Suen-yo Chin, an organic farmer. The visitors met with AVRDC researchers and staff to**

explore areas for collaboration. To sustainably feed a growing global population, ICROFS aims to create farming systems that follow an 80-20 rule: 80% plants, 20% animals, and also promotes 80-20 diets. Harttung noted that the emphasis on yield maximization is giving way to a new focus on resource optimization, and also observed that demand for organic produce is increasing in Europe and North America, creating export



(l): Thomas Harttung visited the Vegetable Demonstration Garden.

(r): Thomas was accompanied by John Yang (left).

opportunities for farmers in Africa. The approximately 95,000 commercial and small-scale farmers participating in organic production programs such as the Export Promotion of Organic Products from Africa in East Africa and Helvetas in West Africa benefit from price premiums and improved productivity due to training in organic resource management.

## Farewell



On 30 September 2011, Somkiat "Kiat" Suphantarat, Information Technology & Communications Assistant at AVRDC East and Southeast Asia, left the Center after more than 5 years of dedicated service to join Thailand's Department of Agriculture and Extension in Lopburi Province.

Kiat's contributions to enhancing the Center's promotional materials, his skill in fixing the nastiest and most intransigent of computer bugs, and his kind and calm manner will be missed. We say *la-goon* (goodbye) to Somkiat and wish him all the best for his future endeavors.

**Simone Kathrin Kriesemer**, Postdoc in Socioeconomics, returned to Germany with husband Christian and infant daughter Anne after a two-year posting with the Center. Kathrin's research brought her to India, where she surveyed farmers about their pesticide application practices and experiences in training programs, and evaluated customer opinion on how "safely produced" labels on vegetables might alter their buying habits. She also developed a framework for evaluating the efficacy of the Center's training programs. The new family will settle near Cologne. Best of luck Kathrin, Christian, and little Anne!

Kathrin's e-mail: [simonekriesemer@gmx.de](mailto:simonekriesemer@gmx.de)



## Condolences



The Center lost a good friend and partner when Dr. Lois Englberger, Executive Director of the Island Food Community (IFCP) of Pohnpei, Federated States of Micronesia, passed away on 29 September 2011. Lois's energetic grassroots advocacy to improve islanders' diets by promoting the increased consumption of local foods will have a lasting impact on health throughout the 22 Pacific Island countries and territories. Under her direction, IFCP's *Go*

*Local campaign* stressed the 'CHEEF' (culture, health, environment, economic and food security) values of local fruit and vegetables such as bananas and yams to island communities. AVRDC is an life member of the IFCP and will continue to support the activities of this vital organization. Our condolences to Lois's family, the IFCP staff, and all those who benefited from her tireless effort to raise awareness of nutrition and health in the Pacific.

## 40 years of service to tropical agriculture



*Four decades ago, a research and development institute dedicated to alleviating poverty and malnutrition in Asia by increasing the supply and quality of vegetables was established in Taiwan. Today, AVRDC – The World Vegetable Center operates on a global scale across Asia, Africa, and Oceania. Future issues of Fresh will follow the Center's history and progress in photos.*

### Building a board



The Charter of the new Center originally called for one representative from each of the seven founding countries (Japan, Korea, Philippines, Taiwan, Thailand, USA, and Vietnam) plus a representative of the Asian Development Bank to sit on the board. While these government officials understood the need for a vegetable research institute, most did not have a scientific focus or a background in research for development. To fill the gap, the board expanded its membership by four, making space for representatives to be selected for their agricultural research

knowledge and experience rather than their national affiliation. Through this action, distinguished scientists such as Klaus J. Lampe, former Director General of the International Rice Research Institute; James McWilliam, former Director of the Australian Centre for International Agricultural Research (ACIAR); and soil scientist Yoshiaki Ishizuka were able to participate in directing AVRDC's research activities.

