

Taste test:
Sampling
healthy leafy
greens in
Fongshan

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Farmers'
Day in Mali
draws a
crowd

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Food safety: The next frontier in improving nutrition

2011: A new year, full of new opportunities for progress...and four years away from the target for achieving the Millennium Development Goals of halving global poverty, hunger, and malnutrition. As AVRDC – The World Vegetable Center and other organizations have noted, there is no food security without nutrition security—but without food safety, neither will be able to fulfill the promise of health. So says Jørgen Schlundt, director of the Department of Food Safety, Zoonoses, and Food-borne Diseases at the World Health Organization in Geneva, Switzerland. Schlundt's essay on barriers to safe eating was published in the Opinions section of the Science and Development Network (www.scidev.net). Some excerpts:



Efficient food safety interventions require coordinated action throughout the food safety chain, starting with producers.

Most scientists agree that the world's farmers produce enough food to cater for the Earth's six billion people. The fact that more than one billion people suffer from hunger and undernutrition is widely thought to be a result of inadequate distribution.

But we will never eliminate

global hunger by simply improving our capacity to spread agricultural produce among all inhabitants unless we can also guarantee the quality of supplies.

The concept of nutrition security—ensuring access to food that is nutritious as well as sufficient—is increasingly

being used to stress the importance of the quality of food for people of all ages.

Poor nutrition weakens immune systems and contributes to half the deaths associated with infectious disease among children aged under five in developing countries.

Undernutrition in the early years of life can also impair long-term cognitive development and productivity at work.

Micronutrient deficiencies also have severe health impacts—vitamin A deficiency is the leading cause of blindness in children, affecting up to half a million children each year; iron deficiency is responsible for anemia in two billion people worldwide.

But there is another aspect of food quality that is equally important: safety.

Nutrition and food safety are inextricably linked, particularly in places where food supplies are insecure. When food becomes scarce, hygiene, safety and nutrition are often ignored as people shift to less nutritious diets and consume more 'unsafe foods'—in which chemical, microbiological, zoonotic, and other hazards pose a health risk.

Unsafe food, whether arising from poor quality supplies or inadequate



International food safety standards should be non-negotiable and should apply equally to populations—an acceptable level of food contamination should not be higher for poor people than for others. The WHO is collecting data on food-borne diseases across the world by age, sex and region. It hopes to publish a global food-borne disease report and atlas in 2011–12.

treatment and preparation, increases the risk of food-borne infections such as diarrhea. These infections have a much higher impact on populations of poor nutritional status, where diarrhea can easily lead to serious illness and death.

Indeed, poor nutrition and food-borne disease often join hands in a vicious cycle of worsening health. For example, poor nutritional status weakens resistance against diarrhea, which, in turn, leads to the uptake of fewer nutrients and poorer nutritional status.

Food safety must be systematically integrated into policies and interventions to improve nutrition and food availability.

Coherent and holistic national food safety systems would not only improve health in countries with insecure food supplies—they would also help development and boost food trade. A national system that

can live up to international standards will ensure that local products can be exported to other markets.

But there are many obstacles to building efficient food safety systems, not least the lack of political awareness. Food safety as a local health and development problem is still rarely acknowledged by decision makers in many developing countries, and is often given little priority by major donors.

It is also clear that one major obstacle to improving food safety systems, particularly in developing countries, is the lack of data on the burden of food-borne diseases both globally and within nations. Such data are critical to establishing evidence-based national and international food safety policies.

We have little hope of achieving the Millennium Development Goal of reducing child mortality by two-thirds by 2015 unless developing countries—in collaboration with donor agencies—recognize the need for, and invest in, improvements in water and food safety, and nutrition security.

Producing safe food is not simply a tool for boosting agriculture or trade—it is an essential ingredient for public health.

Leafy indigenous vegetables on trial at Fongshan, Taiwan



Left: Andreas Ebert addresses at the field day held at Fongshan Tropical Horticultural Experiment Branch, Kaohsiung County, Taiwan on 16 December 2010.

Bottom, clockwise from top left:

Field trial plots at Fongshan Tropical Horticultural Experiment Branch

Freshly harvested leaf samples for assessment by participants

Cooked leaf samples ready for culinary testing

Participants listen to Dr. San-Tai Wang and examine amaranth trial plots

It was a less-than-balmy day, but nevertheless, farmers, representatives of seed companies, dealers, and scientists from research institutes ignored the cold and rainy weather to participate in a field day at Taiwan's **Fongshan Tropical Horticultural Experiment Branch** in Kaohsiung County on 16 December 2010.

As part of the AVRDC-led Taipei Economic & Cultural Representative Office/Council of Agriculture and American Institute in Taiwan/United States Department of Agriculture Foreign Agricultural Service-funded project on "Scaling Up Activities on Indigenous Vegetables for Nutritional Security and Sustainable Conservation of Biodiversity in Asia (Indonesia, Philippines, Taiwan)," a trial site with five indigenous vegetable crops was established in close coordination with staff of the vegetable department at Fongshan.



The field trial comprised five crops and 5 to 9 lines each of commercial varieties obtained from private seed shops and seed companies as well as lines from the AVRDC genebank. The crops included kangkong or water convolvulus (*Ipomoea aquatica*); amaranth (*Amaranthus tricolor*); edible rape (*Brassica rapa*); Chinese kale (*Brassica oleracea* var. *Alboglabra*); and basil (*Ocimum basilicum*).

About 50 people attended, coming from as far as Taipei and Taichung. Participants assessed the different varieties of leafy greens in the trial plots, and later sampled the cooked produce—a welcome activity that allowed everyone to warm up from the inside with some tasty, diverse, and nutritious vegetables.



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Safe keeping for AVRDC germplasm



Chilly reception: A truck loaded with boxes of AVRDC germplasm arriving at the Svalbard Global Seed Vault in November 2010.

The AVRDC genebank pursues a two-pronged strategy to safely duplicate its valuable, unique germplasm. The Center deposits germplasm in the **Svalbard Global Seed Vault** (SGSV), constructed deep in a mountain on a remote Norwegian archipelago near the North Pole. The SGSV currently houses more than 603,000 seed samples from 719 genera, 3727 species, 227 countries of origin, and 32 depositor institutes. If seeds are lost as a result of natural disasters, war,

or lack of resources, seed collections may be reestablished using the germplasm stored at Svalbard. In February 2008, the Center made its first deposit of 7350 accessions at SGSV, followed by a second deposit of 1752 accessions in September 2009, and a third deposit of 1925 accessions in November 2010. The latter two deposits were composed of freshly regenerated seed to ensure maximum storage life.

The Center also signed a letter of agreement with the **Rural Development Administration** of the **Republic of Korea** for safety

duplication of AVRDC germplasm at the **National Agrobiodiversity Center** in Suwon under a “black box” arrangement. AVRDC maintains the sole right of access to its materials in the vault. The first deposit of 5037 accessions comprising 13 genera was made at Suwon in May 2009; a second shipment of 5994 accessions comprising 14 genera arrived in late December 2010.

Both vaults now hold more than 11,000 AVRDC accessions each—19% of the current AVRDC genebank holdings—under optimal long-term storage conditions. Thanks to our partners in Svalbard and Suwon, the Center can continue to conserve its diverse collection of vegetable germplasm for the benefit of all humankind.

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Partners acknowledge participation



AVRDC – The World Vegetable Center and the **West and Central African Council for Agricultural Research and Development (CORAF/WECARD)** hosted a **roundtable discussion** on “Vegetable Production and Seed Trade in West and Central Africa” in early December 2010 as part of the International Symposium on Urban and Peri-Urban Horticulture in Dakar, Senegal. Our partners at CORAF kindly mentioned the Center’s participation in the event in the latest issue of their newsletter, *Echo*. More than 40 participants left the discussion with a better understanding of the impact of international agricultural/trade treaties and agreements, and the status and prospects of vegetable production and seed trade in the region.

The **Fundación Hondureña de Investigación Agrícola (FHIA)** reported on a USAID-funded HORT-CRSP project workshop from 29 November-1 December held at FHIA in Honduras—and made special note of the valuable insight and knowledge of AVRDC Pepper Breeder **Paul Gniffke** in its December newsletter, *Noticias de la FHIA*.



Call for nominations

Nominations for the **Justus von Liebig Award for World Nutrition 2011** are open for distinguished individuals who have made outstanding contributions to the science and practice of agriculture in improving world food supply, mitigating under- and malnourishment, or improving rural livelihoods while preserving natural resources. The prize of 25,000 Euro can be awarded for singular achievements or lifetime accomplishments.

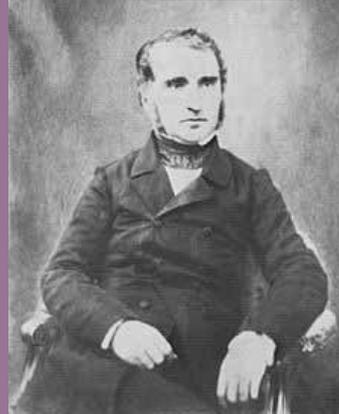
Nominations should be accompanied by:

1. Personal data (name, title, position, postal address, phone, e-mail-address)
2. Curriculum vitae
3. Brief description of achievements

The deadline for submission of nominations: 30 April 2011.

e-mail: info@stiftung-fiat-panis.de

<http://www.stiftung-fiat-panis.de/index.php>



Justus von Liebig (1803-1873), known as the "father of fertilizer" for his discovery of nitrogen as an essential plant nutrient, and his formulation of the Law of the Minimum, which described the effect of individual nutrients on crops.

Welcome



You-Kyoung Han, Visiting Scientist from National Institute of Horticultural and Herbal Science (NIHHS), Rural Development Administration (RDA), Korea, arrived at AVRDC headquarters on 22 December 2010 for two months of research. You-Kyoung will work on "The development of environmentally friendly substances to control bacterial wilt and late blight of tomato" under the supervision of Jaw-fen Wang, Plant Pathologist and Global Theme Leader-Production. Contact You-Kyoung at ext. 341 (office), e-mail: [<kala74@korea.kr>](mailto:kala74@korea.kr).



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Feedback on Facebook!



Catch up with the latest field reports from farmers and other cooperators participating in the Center’s projects around the world. On AVRDC’s **Feedback from the Field** Facebook page, hosted by the **Global Technology Dissemination** group, you can see how farmers are using and adapting different technologies for their specific needs, from growing sunn hemp (*Crotalaria juncea*) as a barrier to keep whitefly away from chili pepper in Indonesia to sun-drying tomatoes in Uzbekistan.

In Facebook, search on “Feedback from the Field.”

Vegetables on display



AVRDC staff members Mandy Lin, Kitty Hong, Jin Shieh, Chung-cheng Lin, Susan Lin, Cheewee Tan, and Shu-fen Lu offered their expertise in plant production and display design to Expo organizers to help make the overall vegetable presentation a success. The vegetable exhibition will run throughout January, featuring the following:

- Week 1 (Jan. 1-7, 2011): Cucurbits
- Week 2 (Jan. 8-14, 2011): Solanaceous crops
- Week 3 (Jan. 15-21, 2011): Legumes
- Week 4 (Jan. 22-31, 2011): Leafy vegetables

January is the month for vegetables to shine at the **2010 Taipei International Flora Expo** in Taiwan. Helping to brighten the EXPO Dome in Yuanshan Park:

Summer squash, pumpkin, cucumber, chili pepper, sweet pepper, and fresh market and cherry tomatoes from AVRDC – The World Vegetable Center.

The Flora Expo will continue through April 25, 2011.

Vegetable producers gather in Mali's famed Dogon country



Dogon villages such as Anakanda and Bandiagara on Mali's central plateau are renowned for their architecture, mask dances, and wooden sculpture. AVRDC – The World Vegetable Center hopes they will be recognized for their vegetables as well. Thirty-five vegetable producers representing seven villages recently participated in a **Farmers' Day** hosted by the Center to see new varieties of amaranth, African eggplant, tomatoes, pepper, onion, okra, and hibiscus. The chief of the host villages welcomed the farmers, the AVRDC team (Theresa Endres and Sidy Lamine Coulibaly), and officers of the three nongovernmental organizations that monitor vegetable production in the field.

As the group viewed the field plots, regional radio reporters asked the producers to explain the process of vegetable production. The

producers outlined the route from the nursery to flowering, fruiting, and harvest, emphasizing that no mineral fertilizers or chemical treatments had been made to date in the plots. They pointed out that although the local variety of tomato had more fruit at the moment than the new variety 'Bèbiyèrèyé' (high beta-carotene orange tomato), the 'Bèbiyèrèyé' plants had more flowers than the local variety. The producers opted for the new variety due to the strong flower production, which promises good yields for the future.

A plot of African eggplant featured a local variety, new variety 'N24' (a white eggplant), and 'Keur Mbir Ndao.' The participants analyzed the development of the different types of eggplant, especially of the new varieties planted for the first time in this area.

One producer mentioned the possibility of replacing *niébé*

(beans) with amaranth if he could get enough seed, and encouraged others to do the same. Three thriving onion varieties growing in Anakanda village drew envious glances from other producers; a producer from Bandiagara asked an Anakanda onion farmer for his secret in raising good quality onion.

After the field visits, the participants enjoyed a dinner featuring hibiscus, two varieties of pepper, 'Nafama' and 'Nisondia,' and the *cube magnifique du Mali*, a savory dish of local spices and vegetables. Farmers appreciated the fresh taste of the vegetables and the fact that no artificial condiments were used in preparing the recipes. The farmers also saw a display of AVRDC products: new vegetables varieties, processed vegetables, photos, and recipe brochures.



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