

fresh

News from AVRDC – The World Vegetable Center



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An Order of the Brilliant Star with Violet Grand Cordon awarded to **Paul M. H. Sun** from the Taiwan government

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AVRDC research proposal wins prestigious fellowship



Visiting scientist on a Vavilov-Frankel Fellowship to research disease threatening Vietnam's mungbean crop

Thi Thu Huyen Bui from the Plant Resources Centre, Hanoi, Vietnam has been awarded one of two highly coveted **Vavilov-Frankel Fellowships** for 2011 and will conduct part of her research under the auspices of **AVRDC – The World Vegetable Center**. Huyen will carry out a study entitled “Identification of the causal agent of mungbean yellow mosaic disease in Vietnam and resistance screening of the Vietnamese mungbean germplasm collection” at Center headquarters in Taiwan and in **South Asia** in Hyderabad, India under the supervision of

AVRDC Genebank Manager **Andreas Ebert**, and at the **Department of Employment, Economic Development and Innovation**, Queensland Government, Warwick, Queensland, Australia under the supervision of **Col Douglas**.

Mungbean (*Vigna radiata* (L.) is a traditional legume food crop in Vietnam. Mungbean yellow mosaic disease (MYMD), which causes yield losses of 20-70%, threatens production of the crop. Chemical control is not practical and poses high risks to the environment. Disease-resistant varieties could offer a more

effective and sustainable way to manage the disease.

Thi Thu Huyen Bui's research will be a first attempt to identify the virus species and strains causing MYMD in Vietnam and to compare them to those from other countries. It is also the starting point for identifying MYMD resistance in the Vietnamese mungbean collection and the subsequent development of virus-resistant breeding lines. Huyen expects her research to make a significant contribution toward the selection and development of improved MYMD-resistant mungbean lines, ultimately

benefiting the small-scale farmers and consumers in Vietnam. This fellowship is supported by the **Grains Research and Development Corporation** (GRDC), Australia.

Bioversity International established the Vavilov-Frankel Fellowship Fund in 1989 to commemorate the unique and pioneering contributions to plant science made by Academician Nikolai Ivanovich Vavilov of Russia and Sir Otto Frankel of Australia. The fund aims to encourage the conservation and use of plant genetic resources by enabling outstanding young scientists from developing countries to carry out relevant,

innovative research outside their own countries for a period of between three months and one year. To date, fellowships have been awarded to 35 scientists from 23 countries from all regions of the world. Research covers a range of topics related to the conservation and use of plant genetic resources. Many studies have focused on crops and species of significant economic, nutritional and cultural importance to the fellows' home countries.

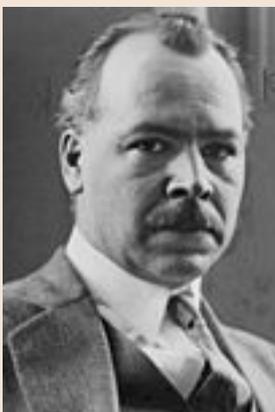
Vavilov-Frankel Fellowships

http://www.bioversityinternational.org/training/re-search_fellowships/2011_vavilov_frankel_fellowship_winners_announced.html

N.I. Vavilov Research Institute of Plant Industry

<http://www.vir.nw.ru/>

Vavilov and Frankel: Outstanding contributors to plant research



Nikolai Ivanovich Vavilov (1887-1943) was one of the first scientists to recognize the value of genetic diversity in domesticated crop plants and their wild relatives to crop improvement. In the 1920s and '30s, while developing his theory on the centers of origin of cultivated plants, Vavilov organized a series of botanical-agronomic expeditions, collected seeds from every corner of the globe, and created the world's largest collection of plant seeds in Leningrad.



Sir Otto Frankel (1900-1998) was an early advocate of the importance of landraces for plant breeding and played a major role in raising international awareness of the need to conserve plant genetic resources. His pioneering book *Conservation and Evolution* published in 1981 placed the genetic resources movement within the wider context of the conservation of biological diversity.

AVRDC Board of Directors meets in Taipei



Board of Directors and Observers, April 2011
AVRDC - The World Vegetable Center



The 44th meeting of the **AVRDC Board of Directors** took place in Taipei from 11-15 April 2011. Board members learned more about the Center's work during a special **Science Day** on 11 April, when theme leaders and other staff presented updates on research progress and outreach activities. **Samson Tsou** was appointed as new board chair to replace outgoing chair **Paul M. Sun**, who held the post since 2003. Dr. Tsou, Director General of AVRDC from 1994 to 2002, is currently Senior Advisor to the Science & Technology Policy Research and Information Center, National Applied Research Laboratories (NARL) of Taiwan.

On the afternoon of 13 April, board members took a break in their busy schedule to visit the 2010 Taipei International Flora Exposition and attend an award ceremony for Dr. Sun hosted by the Taiwan Ministry



Spouses of board members and spouses of diplomats enjoy a salsa dance class in Taipei.

of Foreign Affairs (MOFA). Spouses of board members were invited by MOFA's **Welcome to Taipei International Club** to enjoy a

day of salsa dance, tai chi and Chinese knotting with the spouses of diplomats in Taipei.

Outgoing AVRDC board chair honored by Taiwan

Timothy Yang, Taiwan's Minister for Foreign Affairs, presented outgoing AVRDC Board Chair **Paul M. Sun** with the Order of the Brilliant Star with Violet Grand Cordon in recognition of Dr. Sun's contributions to the country's agricultural development and international stature on Wednesday, 13 April 2011 at the Ministry of Foreign Affairs offices in Taipei. The AVRDC board of directors and management attended the ceremony.

Dr. Sun previously served as chairman of Taiwan's Council of Agriculture and as a government policy advisor on key agricultural issues. At AVRDC he served as Deputy Director General from 1980-1987, acting Director General from 1987-1988, board vice-chair from 1998-2003, and board chair from 2003-2011.



Timothy Yang (l), Taiwan's Minister for Foreign Affairs, presented AVRDC Board Chair Paul M. Sun (r) with the Order of the Brilliant Star with Violet Grand Cordon at the Ministry of Foreign Affairs offices in Taipei.

Fund drive launched by Japanese trainee



On Thursday, 7 April 2011 Director General **Dyno Keatinge** presented a donation of NT\$36,400 to the Red Cross Society on behalf of the victims of the March 11 earthquake and tsunami in Japan. The fund drive to collect contributions from staff was launched by **Risa Nakane**, an undergraduate student from Tokyo University of Agriculture in Pepper Breeding. The AVRDC Goodwill Club assisted her in the effort. Risa returned to Japan on 23 April. We wish her the best in the future.

- Source: Lydia Wu / Secretary, AVRDC Goodwill Club

Welcome



Hak-Soon Choi, visiting scientist from the National Institute of Horticultural & Herbal Science (NIHHS), Korean Rural Development Administration (RDA) arrived on 12 April 2011 for a two-month stay at AVRDC under the supervision of genebank manager Andreas Ebert. During this period, Dr. Choi will be involved in research activities under the RDA-AVRDC collaborative project "Multiplication and evaluation of tomato genetic resources for breeding for disease resistance and food-related functional traits."

Transitions



M. L. Chadha and his wife (front row, the 3rd to the right) on his farewell party together with AVRDC-South Asia staff



Warwick Easdown

AVRDC - The World Vegetable Center said farewell to a vegetable pioneer with the retirement of **M.L. Chadha**, AVRDC Regional Director for South Asia on 1 May 2011. More than any other person, Dr. Chadha was responsible for building the Center's regional presence in Africa and South Asia.

Dr. Chadha began his career with AVRDC in 1991, pioneering the use of home gardens to improve family nutrition and incomes in Bangladesh. He then went on to consolidate and expand AVRDC's African work from a base in Tanzania before returning to South Asia in 2006 to establish a permanent AVRDC presence hosted at the headquarters of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Hyderabad, India. "I enjoyed excellent relationships with ICRISAT and extraordinary support from Dr. Willie Dar in establishing our office," Dr. Chadha said. "Since then we've been able to work together on several successful joint projects, including tomato breeding and training."

Dr. Chadha promoted home gardens for improved nutrition and income in Punjab and Jharkhand with support of a Sir Ratan Tata Trust grant. "In the last five years we've implemented a large number of pro-poor farmer technologies in the region due to our public-private collaborations," he said. "Our home garden projects alone have already directly impacted over 25,000 farmers."

Dr. Chadha will continue his work as Vice President of the Indian Society for Horticultural Science, and is already in demand for many speaking and consultancy engagements. "I'll continue to promote the importance of safe and healthy vegetables, and their essential role in improving nutrition and incomes," he said. Best wishes, Dr. Chadha!

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Warwick Easdown has been appointed to lead **AVRDC – The World Vegetable Center South Asia** in Hyderabad, India. As Regional Director, Warwick will collaborate with donors and partners, develop new projects, and extend the research, development, and capacity-building work of AVRDC through networks to benefit farmers and consumers all along the region's vegetable value chain. His areas of expertise include agronomy, communications, and rural internet applications. He joined the Center in 2006 as Head of Communications, and previously held a similar position at the World Agroforestry Center in Kenya. A native of Australia, Warwick managed extension training and research at the University of Queensland and worked in extension agronomy in subtropical Australia. He holds a PhD from the University of Illinois, USA. He replaces **M.L. Chadha**, who retired after serving the Center for 20 years in various management capacities.

Success! Theses defended



(l): **Joseph Mandeng** (center) receives the award of Second Class Upper Grade for his thesis by the jury, (l to r) **Dr. Bell Joseph**, **Prof Dr. Amougou Akoa**, **Dr. Mbolo Marie** and **Njoh Wanduku**.



(r): **Aimé Kamga** (center) receives the award of Second Class Upper Grade for his thesis from the jury, (l to r) **Dr. Moulende Thérèse**, **Njoh Wanduku**, **Aimé Kamga**, **Prof Dr. Mpoame Mbida** and **Dr. Tchindjang Mesmin**.

Congratulations to AVRDC interns **Joseph Mandeng** and **Aimé Kamga** for defending their theses. Joseph presented his thesis on 5 April at the Department of Plant Biology, the University of Yaoundé; Aimé defended his thesis on 14 April at the Centre Régional d'Enseignement Spécialisé en Agriculture Forêt-Bois (CRESA Forêt-Bois), University of Dschang, Cameroon.

Joseph was awarded the Diplôme

D'Etudes Supérieures Spécialisées (DESS) in Seed Technology. He worked on the topic "The effects of conservation and treatment on dormancy breaking of jute mallow seeds." Joseph was supervised at AVRDC by Christophe Kouamé, Njoh Wanduku, and Esther Pegalepo.

Aimé was awarded the Professional Master's degree in Environmental Impact Study. He worked on the Volkswagen-sponsored LUNA

project on the topic "The impact of urbanisation on vegetable production systems along the rural-urban continuum of Bamenda in the North West Region of Cameroon." Aimé was supervised by Christophe Kouamé and Regine Kamga.

-- Njoh Wanduku
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New Theme Consumption leader



Victor Afari-Sefa has been appointed as the new Global Theme Leader - Consumption. A socioeconomist, Victor is based at the Center's Regional Center for Africa in Arusha, Tanzania. **Ray-yu Yang** will remain as Deputy Theme Leader. Victor assumes his new duties from **Robert Holmer**, Regional Director, East and Southeast Asia, who has guided the theme since June 2010.

Visitors at HQ

A Staff Delegation from the United States Congress

visited Center headquarters on 23 April 2011 to meet with AVRDC vegetable breeders Peter Hanson and Paul Gniffke, and tour the Demonstration Garden. Hosted by the **Taipei Economic and Cultural Representative Office (TECRO)** in Washington D.C., the 10-member delegation was led by **Benson Wang**, TECRO Congressional Liaison. Legislative Assistant **Travis T. Lumpkin**, representing U.S. Senator Patty Murray, was part of the delegation; he is the son of former AVRDC Director General Tom Lumpkin.

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A lively group of seventh-grade students from the **Morrison Academy** in Kaohsiung made a whistle-stop at AVRDC headquarters on 26 April 2011. Garden manager Deng-lin Wu and Greg Luther, head of Global Technology Dissemination, guided the students around the Demonstration Garden.

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Wim Chang, Deputy Executive Director, and **Cary Liu**, Environment and Energy Program Officer from the **Delta Electronics Foundation** came to campus on 27 April 2011 to learn more about the Center's disaster relief seed kit effort from Deputy Director General - Administration and Services Yin-fu Chang, Greg Luther and Mandy Lin of Global Technology Dissemination, and Jenny Huang, Public Relations and Partnership Consultant.

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Seminar series: Modeling plant growth

Tsu-Wei Chen, graduate student in the Institute of Biological Production Systems, Department of Vegetable System Modeling, Leibniz University in Hannover, Germany, gave a talk on "Functional-Structural Plant Models in Vegetable Production" to AVRDC headquarters staff on 27 April 2011. Tsu-Wei, a resident of Taipei, is researching the use of computer modeling to evaluate the impact of different light environments on the growth of cucumbers and other plants.



Scholarships in Southeast Asia

The Southeast Asian Regional Center for Graduate Study and Research in Agriculture

(SEARCA) invites applications for its graduate scholarship (MS and PhD) in agriculture and related fields (including biological sciences, social sciences, economics and statistics, forestry and fisheries, environmental sciences, agro-industrial technology and engineering, biochemistry, and development management) for 2012-2013.

The scholarship is open to nationals of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines,

Singapore, Thailand, Timor-Leste, and Vietnam who are regular employees of academic or research institutions or government agencies and not older than 35 years old.

Applications must be submitted by 30 July 2011.



SEARCA

<http://www.searca.org>

or email the SEARCA Graduate Scholarship Department at

<gsd@agri.searca.org> or
<ecc@agri.searca.org>.



Dealing with the Diamondback Moth



AVRDC – The World Vegetable Center organized the **Sixth International Workshop on Management of the Diamondback Moth and Other Crucifer Insect Pests** in collaboration with Cornell University (USA) and Kasetsart University (Thailand). The workshop was held at Kasetsart University's Kamphaeng Saen campus, Nakhon Pathom, Thailand from 21-25 March 2011. About 120 participants from 22 countries attended. The workshop opened on the afternoon of March 21 at the Kamphaeng Saen Convention Center. **Robert J Holmer**,

Regional Director, AVRDC – East and Southeast Asia, welcomed the delegates. In his inaugural address, **Sombat**

Chinawong, Vice-President, Kamphaeng Saen campus, Kasetsart University noted the overuse of agrochemicals in Thailand's vegetable production systems and emphasized the need for integrated pest management approaches to protect the health of farmers, consumers, and the environment. **Jackie Hughes**, Deputy Director General for Research, AVRDC – The World Vegetable Center, delivered the keynote address in which she detailed integrated pest management programs promoted by the Center in South Asia and Southeast Asia to manage the

diamondback moth and other brassica pests. Participants gave 48 oral presentations and 19 poster presentations in seven scientific sessions during the workshop. Participants also visited Kasetsart University's Insect Park and the National Biological Control Research Center. Robert Holmer delivered the concluding remarks on the afternoon of March 25. Thanks to Sombat Chinawong, Sermsiri Chanprem, Sirikul Wasee, Thammasak Thongket and Kanokwan Laoaroon of Kasetsart University, and Robert Holmer and Steve Kebasen of AVRDC East and Southeast Asia for providing the excellent logistical support that made this workshop a success.

-- Srinivasan Ramasamy
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Producing more—and better—vegetables in Indonesia



(l): **Joko Mariyono** leads discussion



(r): Question from **Kuntoro Boga**

The inception workshop for a **United States Agency for International Development (USAID)**-funded research and development project on “Mobilizing vegetable genetic resources to enhance household nutrition, income and livelihoods in Indonesia” was held on 24-25 March 2011 in Malang, East Java, Indonesia to familiarize partners with the scope of the project, establish collaborative relationships, and decide on the priority geographical areas and vegetable crops for the project. Seven national partners—the **Indonesian Vegetable Research Institute (IVEGRI)**, **Udayana University**, the **Assessment Institute for Agricultural Technology (AIAT or BPTP)** and **Agricultural Extension Services (Dinas Pertanian)** of East Java and Bali provinces, and **FIELD Foundation Indonesia**—were represented at the workshop. **Sanath Reddy**, USAID Senior

Economic Growth Advisor, noted in his opening address that vegetables are high value commodities, and that Indonesia is importing more than 60% of the produce sold in supermarkets. The project is expected to increase the potential for production of better quality vegetables and create market opportunities for Indonesia’s farmers. **Iin Luther**, Project Manager, presented an overview of AVRDC – The World Vegetable Center, and partner representatives introduced their institutions and the specific strengths they will bring to the project consortium. **Greg Luther**, Principal Investigator, presented a detailed overview of the project and led a question/answer session to clarify the project scope. **Joko Mariyono**, Project Site Coordinator, presented a plan for monitoring and evaluation to ensure smooth conduct of the project activities. In East Java, Kediri and Blitar districts were selected as the project locations,

with chili pepper, tomato, shallot and eggplant as the priority vegetables. In Bali, Tabanan and Bangli districts were selected to focus on chili pepper, tomato, carrot, and chickenspike (*Sphenoclea zeylanica*), an indigenous vegetable. Next steps: Participatory appraisals and planning workshops will be conducted 23-27 May 2011 in East Java and 30 May – 3 June 2011 in Bali, and a training workshop on experimental design and multilocation variety trials will be held on 25-29 July 2011 in Bali.

Growing bottle gourd without rain



Clockwise: Paddle pumping to irrigate bottle gourd; examining bottle gourd fruit; assembled farmers; and water harvesting pit



Bottle gourd is normally a summer crop, but learning how to grow it out of season is one of the innovations being fostered by the AVRDC – **Sir Ratan Tata Trust** (SRTT) project in Jharkhand state, northeast India.

By growing bottle gourd in the dry season between November and May, poor tribal families can earn higher incomes, but a lack of water is a major constraint. This year the problem has been acute, with water shortages in Jharkhand for both drinking and irrigation purposes.

A field day hosted by local farmer **Paulis Munda** on 19 April in the Khunti district of Jharkhand highlighted how an innovative irrigation system makes it possible to successfully grow improved bottle gourds. About 80 farmers from nearby villages viewed demonstrations and joined in discussions facilitated by **Alam** from NGO partner **PRADAN**

(Professional Assistance for Development Action) and AVRDC site coordinator **M. Ravishankar** and technical officer **Bharat Bhushan**.

Farmers not only saw bottle gourd successfully growing out of season, but also selected their preferred variety for wider local promotion: the hybrid line 'Kaveri' developed by AVRDC partner, **Namdhari Seeds**.

The key innovation was Mr. Munda's water harvesting system developed with support from PRADAN and a grant from **Swarnjayanti Gram Swarozgar Yojana**. A 2-3 meter-deep pit collects rainfall runoff from terraced fields for use during the dry season. Bottle gourd was planted both within the water harvesting pit and in neighboring fields, and a paddle-operated pump distributed water to the crops.



The success of the SRTT project depends on good varieties and watershed management, close integration with other projects, and above all, the enthusiasm of innovative farmers and partners.

M. Ravishankar
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Energy and enthusiasm characterize the Center's cucurbit breeding program



Narinder Dhillon trains staff in bitter melon breeding techniques.

Inset: Bitter melon from the AVRDC genebank is being evaluated by Dhillon and his team in AVRDC's East and Southeast Asia office, Thailand.

Under the leadership of **Narinder Dhillon**, AVRDC's **cucurbit breeding program** was shifted from headquarters to **AVRDC East and Southeast Asia** in May 2010. Bitter melon (*Momordica charantia* L.) and pumpkin (*Cucurbita moschata* L.) are the major target crops with less emphasis on cucumber (*Cucumis sativus* L.). The bitter melon breeding objectives include the development of open pollinated varieties (OPs) and hybrids with superior yield and fruit quality, improved disease and insect resistance, earliness, ability to high temperature fruit set and high concentration of nutrients and antidiabetic compounds. The pumpkin breeding activities focus on developing OPs and hybrids possessing short vines, superior yield, earliness, fruit size and shape uniformity, thick flesh, high intensity of carotenes, and field resistance to viruses and drought.

Located on the campus of **Kasetsart University** in Kamphaeng Saen, Nakhon Pathom province, AVRDC's research and training station is ideally situated to achieve these breeding objectives. In the absence of typhoons, bitter melon can be grown throughout the year, while two pumpkin crops can be sown, in May and November. The presence of geminiviruses as well as leaf spot, mildews, gummy stem blight and fruit fly allow screening of germplasm against these major economic pests. Thailand also hosts several international and local seed companies with cucurbits in their portfolio that have expressed keen interest in closer cooperation with AVRDC.

The overall objective of the AVRDC cucurbit breeding program is to develop genetically broad-based and superior germplasm best suited to the needs of growers and consumers by (1) building an elite germplasm base

using commercial varieties and AVRDC genebank collections, (2) developing OPs and hybrids, (3) conducting mainly field selection with emphasis on improved yield, fruit quality, field disease resistance, and (4) scoping to improve nutrient content. The latter aspect is one of the components of the new **AVRDC-Gesellschaft für Internationale Zusammenarbeit (GIZ) project**, "A better bitter melon: Exploiting bitter melon to increase incomes, manage type 2 diabetes, and promote health in developing countries," which attempts to identify bitter melon lines with high and stable concentration of antidiabetic compounds and other health-promoting nutrients.

After arriving in Thailand, Narinder sought to create a solid cucurbit research group by training staff in various aspects of cucurbit breeding, such as field layout, agronomy, crossing techniques, seed harvest and processing, documentation, and database management. Research fields were enhanced by using laser leveling and improving the existing irrigation facilities. The program hopes to breed better bitter melons and tropical pumpkins for resource-poor farmers of developing countries that meet the nutritional needs of consumers as well. "The technical skills and innovative approach of the cucurbit field staff and Ms. **Supunsa Phethin**, my research assistant, are admirable," said Narinder. "It is my pleasure to work with such hard working, polite staff members that have a firm belief in team work."

inside insight

Waste not: The Sustainable Sanitation Alliance

*AVRDC – The World Vegetable Center recently joined the **Sustainable Sanitation Alliance** (SuSanA), an informal network of more than 140 partner organizations that share a common vision of sanitation systems that protect and promote human health by providing a clean environment and breaking the cycle of disease.*

What is the scope of the problem SuSanA aims to address?

Globally, 2.6 billion people lack access to any kind of improved sanitation. The lack of facilities leads to 2.2 million deaths annually caused by sanitation-related diseases and poor hygienic conditions. The most affected group: children under the age of 5.

Progress toward the Millennium Development Goals in sanitation has been much too slow, particularly in sub-Saharan Africa and Asia. Despite its impact on many other sectors, sanitation rarely receives attention and priority from politicians and civil society. The political will has been largely lacking when it comes to placing sanitation higher on the international development agenda.

How long has the alliance been active?

SuSanA, whose secretariat is hosted by the Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany, came into existence in early 2007 and works as a coordination platform and contributor to the policy dialogue on sustainable sanitation.

What does SuSanA hope to achieve?

The main objective of SuSanA is to promote the implementation of sustainable sanitation systems in large-scale water and sanitation programs in line with the strategies of the World Health Organization (WHO), United Nations Development Program-Poverty Environment Partnership (UNDP-PEP), United Nations Secretary General's Advisory Board on Water and Sanitation (UNSGAB), United Nations Educational, Scientific

and Cultural Organization (UNESCO) and other international organizations.

How can those goals be reached?

SuSanA has established several thematic working groups to cover a variety of different sanitation aspects. AVRDC will contribute its expertise to working group 5, “*Food Security and Productive Sanitation Systems*,” which focuses on reuse-oriented sanitation systems to close the nutrient cycle in agricultural production systems and can address global development issues such as “peak phosphorous” and food and nutritional security.

What are some of the other partnerships going on in the sanitation field?

The Bill & Melinda Gates Foundation recently provided a grant of US \$3 million to support a project by the Swiss Federal Institute of Aquatic Science and Technology (Eawag) and the eThekweni Water and Sanitation utility (EWS) in South Africa to develop practical, community-scale nutrient recovery systems to use human urine as fertilizer for crops.

More info:

Sustainable Sanitation Alliance

www.susana.org

Peak Phosphorous

<http://phosphorusfutures.net/peak-phosphorus>

Eawag project

http://www.eawag.ch/medien/bulletin/20101014/index_EN