fresh

News from the World Vegetable Center

Onions in Odisha / Cambodia takes up tomato grafting / Mungbean's many benefits

September 2017

Forget about gold, diamonds, or property: If you want great returns, invest in vegetables

A recent study by the World Vegetable Center discovered rates of return on vegetable research the smart money should not ignore

Although the importance of vegetables for human nutrition and smallholder incomes is generally understood, evidence for the impact vegetable research and development has at scale is lacking. WorldVeg researchers Pepijn Schreinemachers and Philipo Joseph Lukumay and consultant Teresa

Sequeros set out to investigate how the Center's research on two crops—tomato and African eggplant—affected countries in East and Southern Africa, Tanzania in particular, from 1990 to 2014. They surveyed 87 seed companies and public sector organizations around the region to collect data on seed production, distribution, and sales.

Read more...

TOP STORIES

Traditional crops for modern diets

A lack of diversity in the diet is a major cause of malnutrition in rural farming communities in Tanzania. Traditional vegetables can bridge the nutritional gap.

Drying it right

With solar dryers, farmers can avoid postharvest losses, add value to their vegetable crops, and provide consumers with nutritious food that can be stored and consumed throughout the year.

Tomato grafting comes to Cambodia

Conducted under the SNV-led CHAIN project funded by the Swiss Development Corporation (SDC), the workshop brought together 45 participants (10 women & 35 men) to learn how to graft tomato and when to apply the method.

What constitutes healthy eating?

A little knowledge about basic nutrition and a few new vegetable recipes can make all the difference in a family's diet.

Field days attract farmers in Tanzania

Nutrition discussions, field tours, and a chance to taste some intriguing amaranth dishes drew many to attend field days in Babati and Kiteto.

CRS on a horticultural learning journey with WorldVeg

To help increase the capacity of their staff in food value chains, a group of 9 Catholic Relief Services staff visited the World Vegetable Center in Tanzania on 21 August 2017 as part of a five-day “Horticultural Learning Journey”.

Onions now smell different in Odisha

Rotten onions stink, and in the past any Indian farmer who kept his crop for months after harvest was all too familiar with the smell. But thanks to a WorldVeg project in the eastern state of Odisha, India, farmers who keep their onions now experience the sweet smell of success and the promise of much higher incomes.

Mungbean: A legume with potential

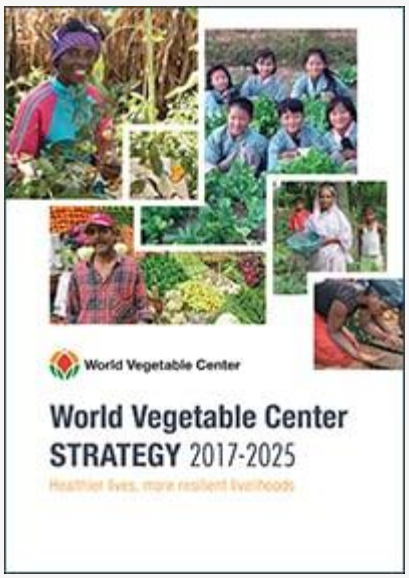
Mungbean has great potential to provide additional income for farmers and nutritious food for people. This important pulse crop in Asia can be harvested 2 months after sowing, which makes it an ideal fit for fallow periods in rice and wheat production systems.

Seeing is believing in WorldVeg bitter gourd fields

The World Vegetable Center (WorldVeg) cucurbit team proudly displayed 400 bitter gourd breeding lines plus another 400 bitter gourd F1 hybrids and early stage products of recurrent selection during Bitter Gourd Open Field Days from 14-30 August 2017 at the World Vegetable Center East and Southeast Asia Research and Training Station, located on the campus of Kasetsart University in Kamphaeng Saen, Thailand.

HAVE YOU READ...

World Vegetable Center Strategy 2017-2025



*(http://avrdc.us10.list-manage1.com/track/click?u=ee8234bfbb38ef479875e1d21&id=e3b804813d&e=b6a43bcd50)*Over the past year, **World Vegetable Center** staff, board members, and partners embarked on a series of meetings and discussions to develop a **new strategy** *(http://avrdc.us10.list-manage1.com/track/click?u=ee8234bfbb38ef479875e1d21&id=e3b804813d&e=b6a43bcd50)* that better orients the Center to realize the immense potential of vegetables to improve nutrition and incomes. This nine-year strategy introduces a new structure in which discovery research, piloting innovations, and scaling best technologies and practices continuously inform and improve the Center's work and impact.

Value Chain Thinking: A trainer's manual

This manual developed by WorldVeg and the Australian Centre for International Agricultural Research (ACIAR)

WORLDVEG IN THE NEWS

APEC Builds Natural Disaster-Resilient Food Supplies
Public, 9 September 2017

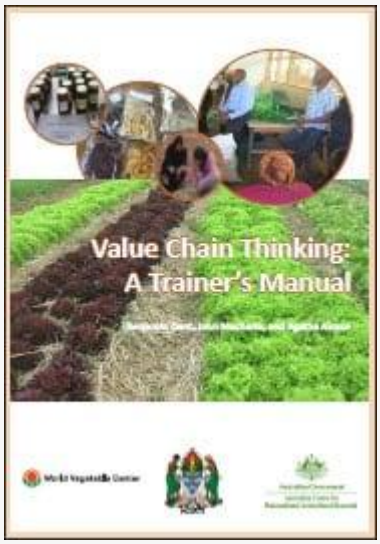
Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères s'installe au Bénin
(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)
La nation, 29 August 2017

Empowering farmers with climate information for agricultural decision making in rural Mali
(http://reliefweb.int/report/mali/empowering-farmers-climate-information-agricultural-decision-making-rural-mali)
ReliefWeb, 23 August 2017

Youth on a Mission to Fight Hunger, Malnutrition and Poverty
(http://www.icrisat.org/youth-on-a-mission-to-fight-hunger-malnutrition-and-poverty/)
ICRISAT Happenings, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培
(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket)
(WorldVeg virus-resistant pumpkin in Hualien, Taiwan)
News & Market, 24 July 2017

*(http://aciar.gov.au/)*as part of the VINESA project outlines a 7-step



approach to introducing trainers to Value Chain Thinking, which encourages farmers to find market opportunities where they compete on their skills and quality of product rather than just offering the lowest price.

BRIEFING

New office established in Benin

Cotonou, Benin -- The World Vegetable Center (WorldVeg) signed an agreement today with the Benin Ministry of Foreign Affairs and Cooperation (MFAC) to establish a regional office in the country to serve the horticulture sector in coastal West Africa. The signing took place at MFAC headquarters in Cotonou, where MFAC Secretary General, Ambassador Marc Hermanne Araba signed the agreement with WorldVeg Director General Marco Wopereis. The new office—World Vegetable Center West and Central Africa – Coastal and Humid Regions *(https://avrdc.org/about-avrdc/new-locations/west-central-africa-coastal-humid-regions/)*—is the Center's fifth regional base worldwide and its third in Africa. It is located on the campus of the International Institute of Tropical Agriculture (IITA) in Abomey-Calavi, Benin.

RECENT RESEARCH

- + Impact of training vegetable farmers in Bangladesh in integrated pest management (IPM)
- + International research on vegetable improvement in East and Southern Africa: Adoption, impact and returns
- + Resistance to tomato leaf curl New Delhi virus in melon is controlled by a major QTL located in chromosome 11
- + Efficiency and productivity analysis of vegetable farming within root and tuber-based systems in the humid tropics of Cameroon
- + Identification of mungbean lines with tolerance or resistance to yellow mosaic in fields in India where different begomovirus species and different Bemisia tabaci cryptic species predominate.

- Carbon isotope discrimination (Δ13C) as a physiological marker for shade tolerance in black pepper (Piper nigrum L.).
- Vegetable soybean: A crop with immense potential to improve human nutrition and diversify cropping systems in eastern India: a review.
- Local and regional spread of banana xanthomonas wilt (BXW) in space and time in Kagera, Tanzania.
- Screening recently identified whitefly/spider mite-resistant wild tomato accessions for resistance to Tuta absoluta.
- Analysis of good agricultural practices in an integrated maize-based farming system.
- Emergency vegetable seed interventions: Can we expect improved nutrition or income generation among beneficiaries?
- Resistance to Phytophthora infestans in tomato wild relatives.
- The potential of traditional leafy vegetables for improving food security in Africa.
- Connecting smallholder tomato producers to improved seed in West Africa.
- Vegetable production, diseases, and climate change.

PHOTO OP

NEW PROJECTS

Building the Genesys Catalog of Phenotypic Datasets

WorldVeg will work on five morphological characterization datasets and one resistance evaluation dataset, which represent significant information relevant for breeding and other research.

VISITORS

VISITORS: August – September 2017

September 12th, 2017 | Comments Off

VISITORS: August - September 2017 27 July 2017: (left to right) Allan White, Advisor, Business Development Advisor for Plant & Food Research (PFR) New Zealand, and Ben Lupton from Innovate, a consulting [...]

(https://avrdc.org/visitors-august-september-2017/)

WELCOME

Roselyne Houeto has joined WorldVeg West and Central Africa – Coastal and Humid Regions in Benin as an Administrative Assistant. She holds a Master's Degree in English Language from the National University of Abomey-Calavi. Roselyne previously worked as a Secretary for AfricaRice Benin-Cotonou Station on the Policy, Innovation Systems, and Impact Assessment program (2012-2016), and as an Administrative Assistant at the Benin Ministry of Health (2006-2001).

Komla Azoma is the new Training and Outreach Assistant at WorldVeg West and Central Africa – Coastal and Humid Regions in Benin.

New VegView

WorldVeg featured on Taiwan TV

Success in the field and garden

High quality onion production begins with high quality onion seed

CONTRIBUTORS

Kathy Chen, Willie Chen, Narinder Dhillon, Inviolate Dominick, Warwick Easdown, Radegunda Kessy, Shernabi Khan, Alaik Laizer, Sorawit Limsiriwat, Vanna Liu, John Macharia, Roseline Marealle, Ramakrishnan Nair, Arshad Pal, Srinivasan Ramasamy, Roland Schafleitner, Felician Tillya

DONORS

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United States Agency for International Development (USAID)
Australian Centre for International Agricultural Research (ACIAR)
Germany
Thailand
Philippines
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CONSIDER THIS

Can we really afford for one in three children in the world not to thrive and become the healthy, productive adults all babies should have the potential to be? — Lucy Lamble, "Surviving without Thriving *(https://www.theguardian.com/global-development/2017/sep/07/surviving-without-thriving-but-all-is-not-lost-for-the-worlds-stunted-children?utm_source=Global+Health+NOW+Main+List&utm_campaign=cff99052d0-EMAIL_CAMPAIGN_2017_09_07&utm_medium=email&utm_term=0_8d0d062dbd-cff99052d0-2797145)*"

World Vegetable Center

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A recent study by the World Vegetable Center discovered rates of return on vegetable research the smart money should not ignore.

Mrs. Diallo is pleased with her family's harvest!

WorldVeg in the news

APEC Builds Natural Disaster-Resilient Food Supplies *(http://www.publicnow.com/view/8FE32E73E1DC354D399D33D6CD7BC81204C22907)* *Public*, 9 September 2017

Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères s'installe au Bénin *(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-*

The Center's 40 years of research to develop tropically adapted tomato is producing significant dividends in East and Southern Africa.

Showing donors how their investments in research resonate throughout communities and economies is essential for nonprofit institutions such as the World Vegetable Center (WorldVeg).

The Center, the only international nonprofit organization that develops improved vegetable lines for the public domain, regularly demonstrates its value through community impact evaluations. Increasingly, however, donors want to know if the financial support they provide has long-lasting structural influence. And although the importance of vegetables for human nutrition and smallholder incomes is generally understood, evidence for the impact vegetable research and development has at scale is lacking.

WorldVeg researchers Pepijn Schreinemachers and Philipo Joseph Lukumay and consultant Teresa Sequeros set out to investigate how the Center's research on two crops—tomato and African eggplant—affected countries in East and Southern Africa, Tanzania in particular, from 1990 to 2014. They surveyed 87 seed companies and public sector organizations around the region to collect data on seed production, distribution and sales.

Their results, published in the July 2017 issue of *Agricultural Economics*, revealed some stunning figures regarding the distribution and adoption of vegetable seed and the economic value it has generated.

Read more: Schreinemachers P, Sequeros T, Lukumay PJ. 2017. International research on vegetable improvement in East and Southern Africa: adoption, impact, and returns. *Agricultural Economics*. DOI: 10.1111/agec.12368.

The study shows that tomato varieties developed by the World Vegetable Center now account for 50% of the tomato seed sold commercially in the region. The Center has been developing improved tomato breeding lines for Africa since the early 1990s in collaboration with Tanzania's Horticultural Research and Training Institute (HORTI-Tengeru) and with support from the Agriculture Seed Agency (ASA), a direct link to seed companies. Distribution of improved varieties 'Tanya' and 'Tengeru-97' began in

ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)
La nation, 29 August 2017

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ICRISAT Happenings, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培 *(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket)* (WorldVeg virus-resistant pumpkin in Hualien, Taiwan)
News & Market, 24 July 2017

Tanzania in 1997 and expanded to other countries in the region through the networks of Alpha Seed, a private company. Other companies then added the seed to their portfolios. By 2003, nearly 70% of Tanzania's tomato farmers had adopted the improved varieties.

The figures are even higher for African eggplant. Once a subsistence crop, African eggplant seed is now marketed commercially—and 98% of commercial seed sold in the region today comes from lines developed by WorldVeg and HORTI-Tengeru that were released in 2007.

For Tanzania alone, an investment of approximately USD 10 million in crop research and development generated economic gains of USD 255 million for tomato and USD 5 million for African eggplant. That amounts to an internal rate of return of 26% for tomato and 12% for African eggplant. Given the comparatively short period of time the improved African eggplant seed has been available, returns are expected to increase to 26% by 2024.

Every dollar invested in tomato research and development returned 12.5 dollars in economic gain.

"The returns to investment will continue to be attractive because of the large unexploited potential in vegetable production," said Pepijn Schreinemachers, WorldVeg Socioeconomist.

With average farm-level tomato yields in Tanzania at just 12 tons per hectare, but average on-station yields at 50 tons per hectare (and up to 80 tons per hectare in Taiwan, the location of WorldVeg headquarters), there is scope for new, well-adapted varieties with better resistance to pests and diseases combined with better production practices to generate future economic gains in developing economies.

The primary objective of agricultural development in the past was to increase yields and production of staple crops. Today, as the nutritional challenges developing countries face increase, the focus is gradually shifting to an emphasis on providing more nutritious and diverse diets. The study by Schreinemachers, Sequeros, and Lukumay provides evidence for greater investment in vegetable research to achieve this goal.

World Vegetable Center

Traditional crops for modern diets

A lack of diversity in the diet is a major cause of malnutrition in rural farming communities in Tanzania. Traditional vegetables can bridge the nutritional gap.

A lack of diversity in the diet is a major cause of malnutrition in rural farming communities. The problem is particularly acute for women of child bearing age and children under 5 years, who are susceptible to different diseases due to weak immune systems brought about by a lack of nutrients. Statistics from the Ministry of Health and Social Welfare in Zanzibar show that 69% of children under 5 age are anemic, while one-third of women age 15-49 years are deficient in iron, vitamin A and iodine, two-fifths of women are anemic, and one in ten women are undernourished.

In general, malnutrition is high in Tanzania, particularly among people in low-income groups who consume a diet of mainly carbohydrate-rich staples low in minerals and vitamins.

The USAID-funded Homegarden Scaling Project has raised awareness throughout communities to better understand the causes and solutions to malnutrition in Tanzania. Under this project, household gardens approximately 6 m x 6 m have been promoted to increase production and consumption of traditional vegetables. Participants learn how to establish and maintain gardens, receive seed kits to get their gardens started, and learn the proper preparation of vegetables with recipes designed to retain nutrients.

WorldVeg in the news

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ReliefWeb, 23 August 2017

Youth on a Mission to Fight Hunger,

Nachian Makame Haji showing nightshade leaves from her home garden.

Farmers from Mzuri and Mahonda villages in Unguja (Zanzibar) said they like the easy access to fresh vegetables their home gardens provide. They also earn some income from selling the excess garden produce they can't consume at home.

"I used to suffer from anemia, difficult vision as well as high blood pressure, but currently I am better since I started to consume vegetables frequently from my garden at home," said Ms. **Nachian Makame Haji** from Mzuri village. "I feel this is a great benefit and I am proud to be a participant in this project."

Ms. **Tekla Mzee Ali** from Mahonda village had this to share: "I used to wake up very early in the morning to make snacks and go around the village to sell them, but I could not get enough money to feed my children. After the introduction of this project in my village, I planted some vegetables to feed my family and sell the excess on the open market or door-to-door. I have been able to earn TSh 15,000 to 20,000 per day and am now better compared to the past."

Malnutrition and Poverty *(http://www.icrisat.org/youth-on-a-mission-to-fight-hunger-malnutrition-and-poverty/)* *ICRISAT Happenings*, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培 *(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket)* (WorldVeg virus-resistant pumpkin in Hualien, Taiwan) *News & Market*, 24 July 2017

Traditional vegetables grown in the project area include amaranth, African nightshade, African eggplant, spider plant, cowpea, okra and jute mallow. Some farmers have started to save their own seed for following seasons (photo 2 below). Ms. **Rehema Issa**, a Community-based Trainer (CBT) in Mzuri village, harvests seed, stores it, and uses the seed to sow in the next season. She also raises seedlings, which she distributes to group members to plant in their home gardens.

Story and photos: Radegunda Kessy

September 11th, 2017 | Categories: Articles, Eastern and Southern Africa, SEP2017 | Tags: home gardens, traditional vegetables

Drying it right

fresh
News from the World Vegetable Center

With solar dryers, farmers can avoid postharvest losses, add value to their vegetable crops, and provide consumers with nutritious food that can be stored and consumed throughout the year.

A family solar dryer puts the sun's rays to work to preserve the vegetable harvest.

Setting out vegetables to dry in the sun is an age-old practice, and now the World Vegetable Center is exploring ways to improve on this method of household food preservation. By using simple but effective solar dryers, farmers can do the sun one better. Solar dryers use the sun's rays more efficiently, so food dries faster and more evenly, and retains more nutrients. Plus, the food inside the dryer is protected from dirt, dust and other contaminants.

To encourage uptake of solar dryers, WorldVeg conducted training of trainers sessions from 17 – 27 July 2017 in Tanzania. In Lushoto and Tanga districts, 123 farmers and traders were trained (78 women; 45 men), while 90 farmers were trained (49 women and 41 men) in Babati and Manyara.

Roseline Marealle explains to participants how a solar dryer works.

Participants at Magugu with trainer **Mary Temu** demonstrating how to prepare leafy vegetables for drying.

WorldVeg in the news

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During the sessions, WorldVeg trainers introduced different styles of dryers: direct, indirect, mixed, UC Davis, and Family. The focus was on the Family Dryer, which is simple and inexpensive to construct.

Each session involved three days of training. The first day covered theory; the second day was devoted to practical sessions in the field, and the third day for packaging dried produce. Crops dried included tomato, African eggplant, onion, amaranth, African nightshade, okra, Ethiopian mustard, and carrots.

This technology was new to all participants and they received it in a positive way. All promised to construct their own solar dryers, especially farmers from the OKOA group in Magugu and Mwamboa group in Mwangoi, Lushoto.

District Agricultural and Irrigation Commission Officer Mr. Ayubu Omary and Agricultural Officer Mrs. Sophia Sheibaka were invited to close the training sessions in Boheloi village and Lushoto town. They were very happy to see the dryers and encouraged the participants to use the knowledge they gained and to share with others in the community. These and other local government officials took a great interest in the dryers, which were used to dry tomatoes, onion, pumpkin leaves and carrots for the important NANE NANE national agricultural show.

With practical methods like solar dryers, farmers can avoid postharvest losses, add value to their vegetable crops, and provide consumers with nutritious food that can be stored and consumed throughout the year.

Trainer **Samweli Nassary** demonstrates how to arrange tomatoes in a tray. Hygiene is important for a wholesome final product — participants wore hair nets and gloves.

economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)
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Story and photos: Roseline Marealle

September 8th, 2017 | Categories: Articles, Eastern and Southern Africa, SEP2017 | Tags: postharvest, solar dryers

Tomato grafting comes to Cambodia

Conducted under the SNV-led CHAIN project funded by the Swiss Development Corporation (SDC), the workshop brought together 45 participants (10 women & 35 men) to learn how to graft tomato and when to apply the method.

Cutting rubber tubes to connect the grafted seedlings.

"Cambodia will be a dot on the map of tomato grafting activity starting from today!" said WorldVeg researcher **Willie Chen** to participants in a tomato grafting workshop on 23 August 2017 at the Provincial Department of Agriculture Fishery and Forestry (PDAFF) office in Stung Treng province.

Conducted under the SNV-led CHAIN project funded by the Swiss Development Corporation (SDC), the workshop brought together 45 participants (10 women & 35 men) to learn how to graft tomato and when to apply the method.

Multiplying rootstocks of line VI041945 for seed multiplication.

Seedlings inside the chamber.

WorldVeg in the news

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Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères

The World Vegetable Center provides capacity building for CHAIN partners (public, private and NGOs) that deliver vegetable production techniques to homestead and commercial farmers and farmer groups in Kratie, Stung Treng, Preah Vihear and Oddar Meanchey provinces of Cambodia.

Grafting was not originally included in the CHAIN project, but, because of the sudden appearance of bacterial wilt disease in tomato in some of the target provinces, a a training of trainers (ToT) workshop on the method was added into the third year of project activities toward the end of the phase 1. Seed of three newly identified bacterial wilt resistant eggplant rootstocks were multiplied for this training course as well as for use during training in phase 2.

Grafted tomato can overcome the problem of soil-borne diseases such as bacterial wilt, Fusarium wilt, and root-knot nematode, and may overcome waterlogging problems during rainy seasons. Yield and quality improvement are also expected with good scion/rootstock combinations and management practices.

Hands-on practice.

Participants raised many questions at the beginning of the workshop. “They were keen to know every detail about tomato grafting,” Willie said. “‘What are the benefits of grafting?’ ‘How to screen rootstocks?’ ‘Which soil-borne diseases can be managed?’”

“There were so many questions, I had to stop them and told them that each of their questions would be answered in my presentation,” said Willie. His slides and videos demonstrated step-by-step how to graft tomato.

s’installe au Bénin *(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)* *La nation*, 29 August 2017

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After the method was clearly explained, the participants practiced cutting rubber tubes and grafting tomato seedlings. Hundreds of tomato scion seedlings and eggplant rootstock seedlings were provided for practice.

Prior to the hands-on grafting practice, the group built a grafting chamber to fit 10 seedling trays. Space (2 m x 2.5 m) under a mango tree was selected for the chamber. Bamboo was cut into strips and used to form arches for the frame. The arches were stabilized by horizontal girders. Bamboo arches and girders were tied with plastic string to secure the structure. The bamboo frame was covered with one layer of clear plastic sheeting and two layers of shade net (30% shade). The floor was covered with wood boards to raise the seedling trays off the ground and prevent direct contact with soil.

In the final step, the ground soil was watered to raise the relative humidity of the air in the chamber, and grafted seedlings were placed in the chamber to be evaluated under field conditions.

Constructing a simple but effective grafting chamber. The humid, dark environment helps grafts heal properly.

Story: Willie Chen and Srinivasan Ramasamy

Photos: Willie Chen

Field days attract farmers in Tanzania

Nutrition discussions, field tours, and a chance to taste some intriguing amaranth dishes drew many to attend field days in Babati and Kiteto.

Participants at the demonstration garden in Dudiye village, Babati.

In July 2017 WorldVeg and partners hosted a series of farmer field days in six villages in two districts of Tanzania —three each in Babati (Mamire, Gidabagara and Dudiye villages) and Kiteto (Magungu, Kimana and Matui villages). The events were held in collaboration with Helen Keller International *(http://www.hki.org/)*, district councils of Babati and Kiteto, KINAPA, and local politicians. About 568 participants (313 women and 255 men) from Kiteto and 491 participants (211 women and 280 men) from Babati attended.

Each field day featured short seminars about the symptoms and effects of malnutrition and the importance of consuming vegetables as part of a balanced diet. District nutrition officers emphasized that vegetables are a cheap and affordable means to address for malnutrition. HKI representatives guided visitors through demonstration

Local leaders read vegetable recipe leaflets in Kimana village, Kiteto.

Participants sampled vegetables prepared for maximum nutritional benefit.

WorldVeg in the news

APEC Builds Natural Disaster-Resilient Food Supplies *(http://www.publicnow.com/view/8FE32E73E1DC354D399D33D6CD7BC81204C22907)* *Public*, 9 September 2017

Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères s'installe au Bénin

gardens and to the plots of nearby beneficiaries to see how local residents and farmers are adopting home garden practices. A WorldVeg staff member gave an update on the Homegarden Scaling Project in Tanzania, showing the achievements vs. targets in the respective district.

Cooking demonstrations and tastings tickled the taste buds of participants, who had the opportunity to try several vegetable dishes including different products made with amaranth seed. Visitors also engaged in lively Q&A sessions, where they could discuss matters related to vegetable production, preparation, and nutritional values.

Visit to a home garden in Gidabagara village, Babati.

Story and photos: Radegunda Kessy

(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)
La nation, 29 August 2017

Empowering farmers with climate information for agricultural decision making in rural Mali
(http://reliefweb.int/report/mali/empowering-farmers-climate-information-agricultural-decision-making-rural-mali)
ReliefWeb, 23 August 2017

Youth on a Mission to Fight Hunger, Malnutrition and Poverty
(http://www.icrisat.org/youth-on-a-mission-to-fight-hunger-malnutrition-and-poverty/)
ICRISAT Happenings, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培
(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket) (WorldVeg virus-resistant pumpkin in Hualien, Taiwan)
News & Market, 24 July 2017

World Vegetable Center

CRS on a horticultural learning journey with WorldVeg

Catholic Relief Services (CRS) was founded in 1943 by the Catholic Bishops of the United States to serve World War II survivors in Europe. Since then, the organization has expanded to reach more than 120 million people in more than 100 countries on five continents including Africa. To help increase the capacity of their staff in food value chains and further develop CRS' strategy in value chain programming, a group of 9 CRS staff visited the World Vegetable Center in Tanzania on 21 August 2017 as part of a five-day "Horticultural Learning Journey".

CRS participants attend a briefing at WorldVeg Eastern and Southern Africa.

Thomas Dubois, WorldVeg Regional Director for Eastern and Southern Africa, welcomed the visitors and stressed the importance of working with communities to promote consumption of more and diverse vegetables, such as

Genebank manager **Tsvetelina Stoilova** explains the use of vegetable seed kits.

Participants met farmers to learn about vegetable production and marketing constraints — and opportunities.

WorldVeg in the news

APEC Builds Natural Disaster-Resilient Food Supplies *(http://www.publicnow.com/view/8FE32E73E1DC354D399D33D6CD7BC81204C22907)* *Public*, 9 September 2017

Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères

nutrient-dense traditional vegetables. “Vegetables grow rapidly and offer a real-time opportunity for farmers to make quick money,” he said. “About 65 percent of vegetables consumed in Tanzania have been developed from germplasm collected and distributed by WorldVeg.”

In its efforts to increase support for vulnerable youth, CRS is collaborating with WorldVeg to help young participants from the VINESA (Improving Income and Nutrition in Eastern and Southern Africa by Enhancing Vegetable-based Farming and Food Systems in Peri-urban Corridors) project grow and market their vegetables collectively. This new model, called the **Youth Vegetable Business Hub,** will be piloted in Arumeru District, Arusha to assist young people in increasing the sustainability and profitability of their farming activities at group and community levels. The approach will help to scale out successive outcomes from the VINESA project by introducing a combined model that will provide education to farmers, promote collective marketing to strengthen group business relationships, and encourage saving and credit through a Savings and Internal Lending Communities (SILC) approach.

Members of the Bangata Young Farmers group show their communal crop of cabbage.

During their learning journey participants visited the WorldVeg Genebank, crop plots for breeding and seed increase, and the Postharvest Training and Services Center. They then met with two VINESA farmer groups in Arumeru District to discuss the opportunities and challenges of vegetable farming. The young farmers cited the lack of a shared facility to sort, grade and pack their vegetables; the high cost of transporting vegetables to markets; and delay in getting their payments from contract

s’installe au Bénin *(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-maraicheres-s-installe-au-benin)* *La nation*, 29 August 2017

Empowering farmers with climate information for agricultural decision making in rural Mali *(http://reliefweb.int/report/mali/empowering-farmers-climate-information-agricultural-decision-making-rural-mali)* *ReliefWeb*, 23 August 2017

Youth on a Mission to Fight Hunger, Malnutrition and Poverty *(http://www.icrisat.org/youth-on-a-mission-to-fight-hunger-malnutrition-and-poverty/)* *ICRISAT Happenings*, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培 *(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket)* (WorldVeg virus-resistant pumpkin in Hualien, Taiwan) *News & Market*, 24 July 2017

companies. They hope the new CRS-financed approach will help them to resolve these issues.

The farm visits provided CRS participants with a field-based learning platform for action and reflection. During the five-day event, the participants visited other horticultural farms and agro-processing facilities, and held interviews with farmer organizations, government officials, private sector companies and other organizations engaged in horticultural value chains in the region.

Story and photos: John Macharia

September 7th, 2017 | Categories: Articles, Eastern and Southern Africa, SEP2017 | Tags: agribusiness, CRS, youth

World Vegetable Center

What constitutes healthy eating?

fresh
News from the World Vegetable Center

A little knowledge about basic nutrition and a few new vegetable recipes can make all the difference in a family's diet.

Joining in a Q&A session on vegetables and nutrition.

Participants placing pictures of various food types based on recommended groups on a food cycle.

WorldVeg Eastern and Southern Africa in collaboration with Friends In Development (FIDE) with support from the Africa RISING project organized a three-day Nutrition Message Training Course for 125 (58% women; 42% men) farmer group members, extension agents, and primary school teachers in Matufa, Shaurimoyo and Seloto villages in Babati District, Tanzania from 25-29 July 2017.

The objective of the training was to help participants understand the nutritional characteristics of different food groups and make the right choice on what type and quantity of food to eat based on commonly available food in their areas to prevent malnutrition.

The course emphasized four nutrition messages:

1. Which foods to eat
2. How much of each food group is needed by specific age groups

WorldVeg in the news

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Production maraîchère en Afrique de l'Ouest et du Centre: Le Centre mondial des cultures maraîchères s'installe au Bénin *(https://www.lanationbenin.info/index.php/economie-2/144-economie/13759-production-maraichere-en-afrique-de-l-ouest-et-du-centre-le-centre-mondial-des-cultures-*

3. How to develop a weekly meal plan with recipes for traditional vegetables
4. General dietary guidelines

How to create a healthier diet: Try new vegetables, and try new recipes for old favorites.

The trainees discussed the relationship between plant and human nutrition. Plants need nutrients, water, and good management to produce a healthy crop. Human beings need to produce and consume a diversity of crops, including vegetables, to have healthy diets.

Three cooking demonstrations emphasizing food safety and hygiene were conducted and three recipes (amaranth, nightshade, and African eggplant with okra) were prepared for lunch. Participants enjoyed the vegetables together with other food types from different groups and safe water for drinking.

WorldVeg staff **Inviolate Dominick** and **Alaik Laizer** collaborated with Babati District Nutrition Officer **Mr. Jackson Nyella** to coordinate the training.

Based on the pre-evaluation done before the training only 2% of 125 participants were aware of food types based on food groups for healthy eating.

Post-training evaluation showed that 95% of the participants were aware of the food groups and their importance for the body.

At the end of the training, a farmer from Seloto village commented: “Most of the food groups we have learned about today are available in our villages, but we need more training on proper ways to improve nutrition for our family members. The nutrition messages we have learned from this training are very useful and need to be shared with more people so that they change eating their behaviors. If people are not aware of what healthy eating is, increasing productivity with greater income or improved quality and variety of food may not result in improvements in diets and health in the community. ”

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maraicheres-s-installe-au-benin)
La nation, 29 August 2017

Empowering farmers with climate information for agricultural decision making in rural Mali *(http://reliefweb.int/report/mali/empowering-farmers-climate-information-agricultural-decision-making-rural-mali)*
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News & Market, 24 July 2017

Story and photos: Inviolate Dominick, Alaik Laizer, Felician Tillya

September 7th, 2017 | Categories: Articles, Eastern and Southern Africa, SEP2017 | Tags: nutrition

World Vegetable Center

Onions now smell different in Odisha

Rotten onions stink, and in the past any Indian farmer who kept his crop for months after harvest was all too familiar with the smell. But thanks to a WorldVeg project in the eastern state of Odisha, farmers who keep their onions now experience the sweet smell of success and the promise of much higher incomes.

Duryodhan Hati from Kalimati village in Nuapada district, who has successfully stored onions for two months following WorldVeg practices.

In India, onions are a daily dietary staple for almost everyone, but massive price fluctuations that anger both farmers and consumers are the norm.

Odisha farmers only grow onions during the dry winter or *Rabi* season because they lack good storage. Fearing the usual gluts when everyone else harvests (and the consequent price drops) they harvest as early as possible to try to beat others to market.

fresh
News from the World Vegetable Center

Sprouted and spoiled onions.

WorldVeg in the news

APEC Builds Natural Disaster-Resilient Food Supplies
(http://www.publicnow.com/view/8FE32E73E1DC354D399D33D6CD7BC81204C22907)
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La nation, 29 August 2017

Empowering farmers with climate information for

If farmers could only keep their onions for one month after harvest, they could double returns, from Rs 5-7/kg to Rs 10-12. If they could keep them for at least three months, they could get at least four or five times the price, from Rs 20-45/kg.

But they can't, because their crops are harvested immature.

With a lack of curing, sorting and grading, not only do farmers lose out—so do traders and consumers who buy inferior products that won't keep.

Well-aerated WorldVeg onion storage trial in Kalahandi district (after 2 months of storage).

"This year I invested a big amount of money in onion and also bought a huge quantity of onions from small farmers," said Mr. Shanta Susree Sarabit, a progressive farmer and trader from Patra village in Titilagarh district. "I stored 3350 bags with a capacity of 50 kg each, but after two months of storage, most of the onions were spoiled and I could recover only 150 bags. This is a huge loss for me."

Storage losses of onions depend on how the crop is grown, the timing of harvest and how bulbs are dried, and on storage conditions.

In early 2016, WorldVeg started a project on "Onion value chain improvements in Odisha state," funded by the Odisha Department of Horticulture with the support from the Central Government's National Agriculture Development Scheme (RKVY). It is led by Dr. Arshad Pal. Five project officers based in the project districts work directly with farmers to introduce the best times and methods for onion harvesting, curing, sorting, grading, and storage.

They taught farmers to delay harvesting until 70-75% of leaves bend and fall over the bulbs, and then to field cure

agricultural decision making in rural Mali *(http://reliefweb.int/report/mali/empowering-farmers-climate-information-agricultural-decision-making-rural-mali)* *ReliefWeb*, 23 August 2017

Youth on a Mission to Fight Hunger, Malnutrition and Poverty *(http://www.icrisat.org/youth-on-a-mission-to-fight-hunger-malnutrition-and-poverty/)* *ICRISAT Happenings*, 11 August 2017

抗病毒南瓜培育成功！耐病毒可晚春種植，不需多肥適合友善栽培 *(https://www.newsmarket.com.tw/blog/98089/?utm_source=facebook&utm_medium=social&utm_campaign=newsmarket)* (WorldVeg virus-resistant pumpkin in Hualien, Taiwan) *News & Market*, 24 July 2017

them for 2-3 days until the leaves yellow. Following neck cutting they are stored under shade to further dry and cure for 10-13 days. Bulbs are then sorted and graded to remove those that are thick-necked, bolted, damaged or sprouted. They are then stored in low-cost, well-aerated structures to wait for the inevitable price rises at the end of the season.

The onions harvested, cured, graded, and stored under the guidance of the WorldVeg team look (and smell) remarkably different from those in conventional storage. Farmers are delighted with the results.

“Previously I wouldn’t store onions as I didn’t know about postharvest handling and used to sell my crop immediately after harvest,” Mr. Duryodhan Hati from Kalimati village in Nuapada district said. “WorldVeg staff trained us about proper harvesting, curing, sorting and storage techniques and this year I’ve been storing my onions for the past two months and not a single onion has spoiled till now. I’m expecting a storage life of 2-3 more months to get a better price.”

Having been shown what is possible, farmers are now keen to store their onions for longer, and sell for higher prices during the off-season. In the long term, improved handling and postharvest practices will help balance seasonal supplies and demand, ensuring a more even and fairer price – and fewer rotten onions.

Story and photos: Arshad Pal and Warwick Easdown

September 7th, 2017 | Categories: Articles, SEP2017, South Asia | Tags: onions, postharvest

Mungbean: A legume with potential

Mungbean is an important pulse crop in Asia. It can be harvested 2 months after sowing, which makes it an ideal fit for fallow periods in rice and wheat production systems. Grown between two cereal crops, mungbean provides additional income for farmers and nutritious food for people. As a legume crop, mungbean associates with nitrogen-fixing bacteria and improves soil fertility, lowering the need for nitrogen fertilizers and increasing yield and quality of subsequent cereal harvests.

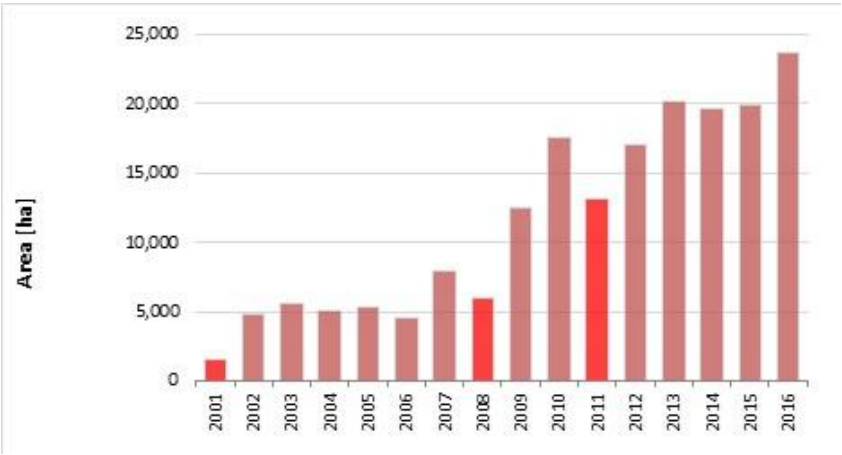
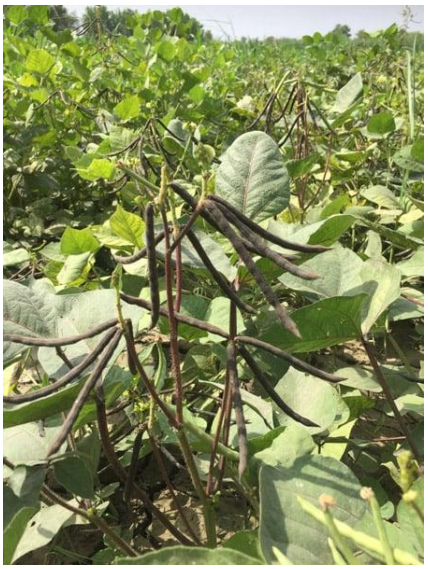


Fig. 1. Development of the mungbean growing area in Uzbekistan since 2001. "Low water" years are labeled in dark red. Lack of irrigation water generally led to an area reduction, while the mungbean cultivation area tripled over the last 10 years. *Source:* Dr. Shavkat Kenjabaev, Uzbek Research Institute of Plant Industry



Promising high yielding mungbean lines produced by the National Agricultural Research Center (Islamabad).

Dr. Aslam, mungbean breeder at the Arid Zone Research Center (Bhakkar, Pakistan) with his line TM1611 with excellent yield, tolerance to high temperatures and dry conditions.

Mungbean: Actions to increase farmer's income and improve food security

Demand for pulses is high, especially in South Asia, where there is great potential to expand the mungbean cultivation area. In Uzbekistan, for example, the export potential of mungbean to India and changes in agricultural policies led to a sharp increase in land area planted to mungbean. The area tripled during the last ten years to 24,000 hectares (Fig. 1). Official figures for 2017 are not yet available, but

local sources indicate that due to the economic success of exporting mungbean, the area planted with this crop in 2017 will be 4 to 5-fold higher than in 2016.

Pakistan spends on an average USD 400 million per year to import pulses such as chickpea, lentils and a moderate quantity of mungbean. Expanding short duration mungbean cultivation to new areas is an option to increase availability of pulses. Pakistan has sought to raise low yields obtained in the current cropping areas by introducing improved varieties and optimized production methods. The income generated through augmented mungbean production will benefit the local economy and make the country less dependent on food imports.

identified and then channeled through variety development processes.

Prof. Zahir A. Zahir's team prepares mungbean seed inoculant with beneficial bacteria.

Rapid expansion of mungbean cultivation is an excellent opportunity for farmers to increase their income, but planting a new crop also presents risks. To benefit from mungbean, farmers must have reliable access to quality seed of adapted cultivars when they need it, be able to apply suitable production methods, and be able to successfully market their product.

The BMZ/GIZ funded project "Beans with Benefits" involves partners from Pakistan, Uzbekistan and Germany and is led by the World Vegetable Center. The project team mobilizes the potential of mungbean to contribute to food security and generate income. It provides improved mungbean lines for field testing and variety development, strengthens capacity in seed production and inoculation, and develops cultivation methods to achieve good yields and improve soil fertility.

1) **International collaboration** benefits mungbean research and must be continued. Sharing information and materials between partners in different countries is a key for the success of this crop to generate income and contribute to food security.

2) Development of **short duration heat tolerant varieties** with multiple disease resistances and high nutritional value should be prioritized.

3) New resistance sources for ***Cercospora* leaf spot disease** are required to produce varieties with genetic resistance to this disease.

4) Farmers must be made aware of the importance of using **quality seed** of improved varieties to increase mungbean yields. At the same time, seed availability needs to be guaranteed through partnerships with private seed companies and through seed village concepts.

5) Farmers need to be informed about available **biofertilizers** such as bacterial inoculants for mungbean seed, and at the same time a Pakistani National Biofertlizer Policy should be developed.

6) **Mechanical harvesting methods** must be developed to overcome labor shortages during mungbean harvest. Specifically, an environmentally friendly

Prof. Zahir A. Zahir and his team from the University of Agriculture in Faisalabad, Pakistan, organized an international workshop entitled “Beans with Benefits – Potential and limitations for mungbean production” in August 2017. Eighty researchers and farmer representatives participated in the workshop, during which they were informed the progress of project, saw mungbean-related technologies, and discussed bottlenecks research must address to realize the full potential of the crop.

Participants joined in sessions on mungbean breeding, production technologies, cultivation techniques to optimize soil improvement, pest management, and value addition. Special emphasis was given to mungbean seed production and seed inoculation methods; previous consultations with farmers revealed that lack of quality seed is a major bottleneck for successful mungbean production in the region. Mungbean seed inoculation with bacterial consortia comprising nitrogen-fixing *Rhizobia* strains and plant growth promoting rhizobacteria was demonstrated. Inoculation of mungbean seed ensures the growing root can recruit beneficial bacteria that promote growth and enhance the vigor of the plant, making it more tolerant to drought, heat, soil salinity, and other stress.

After the workshop, the project team visited the Beans with Benefits research program mungbean trial sites, where promising materials produced by the mungbean breeding programs at the National Agricultural Research Center and by the World Vegetable Center mungbean breeding program led by Dr. Ramakrishnan Nair are identified and then channeled through variety development processes.

On a mother-baby field trial site in the Pothwar region of Pakistan. Promising mungbean materials developed in the BMZ/GIZ – Beans with Benefit project are tested on an experimental station under the management of scientists (mother trial) and on farmer fields under farmer management

method to desiccate plants before mechanical harvest that avoids contamination of the grain with herbicide residues is required.

7) **Integrated pest management** methods for pod borer and espanola bug should be developed.

8) **Value addition** in mungbean must be promoted to generate income opportunities along the value chain. Biofortification of cereal products and introduction of mungbean sprouts should be encouraged to open up new market channels for mungbean.

9) Government policies to increase **price stability** and control of export and import of mungbean should be implemented to make production more profitable for farmers.

10) **Youth and women** should be empowered through community mobilization programs to learn modern production technologies, become more familiar with the use of information technologies in agriculture and marketing of agricultural products, and be trained in value addition and postharvest technologies for mungbean.

(baby trial) to compare crop performance under different management conditions. From left to right: Shernabi Khan, Country Coordinator Pakistan of the BMZ/GIZ-Beans with Benefit project; Dr. Shahid Riaz Malik, Pulses Program Leader, National Agricultural Research Center, Pakistan; Mr. Raja, farmer and owner of the trial field; Mr. Israr Hussain, Field Manager of the National Agricultural Research Center, Pakistan.

Story and photos: Roland Schafleitner, Shernabi Khan and Ramakrishnan Nair

September 6th, 2017 | Categories: Articles, SEP2017, South Asia | Tags: mungbean, Pakistan, Uzbekistan

World Vegetable Center

Seeing is believing in WorldVeg bitter gourd fields

Aerial view of bitter gourd demonstration trial.

The World Vegetable Center (WorldVeg) cucurbit team proudly displayed 400 bitter gourd breeding lines plus another 400 bitter gourd F_1 hybrids and early stage products of recurrent selection during Bitter Gourd Open Field Days from 14-30 August 2017 at the World Vegetable Center East and Southeast Asia Research and Training Station, located on the campus of Kasetsart University in Kamphaeng Saen, Thailand.

A breeder from Bharat Nursery takes a photo for reference of lines from an early stage of recurrent selection.

Rukui Huang (blue jacket) and colleagues from Guangxi Academy of Agricultural Sciences, Nanning, observing the powdery mildew resistant bitter gourd lines.

What participants said about Bitter Gourd

Narinder Dhillon (*left*) describes traits of WorldVeg improved bitter gourd lines to breeders from Bharat Nursery, Daftri Agrobiotech and Somani Seeds.

The successful event attracted 41 seed industry staff including breeders, product development managers, marketing and sales managers, R & D heads, and managing directors representing 21 seed companies from across Asia.

The WorldVeg Cucurbit team, led by breeder **Narinder Dhillon,** discussed the specific horticultural traits of WorldVeg's unique lines and F1 hybrids with seed industry staff, explored methods to address the narrow genetic base of current commercial hybrids, and mapped out a way forward to create new market segments of bitter gourd to satisfy the needs of growers, distributors, retailers and consumers.

Bitter gourd is an important cucurbitaceous vegetable of immense medicinal value in Asia, where more than 400,000 hectares are devoted to its cultivation. In India alone, the bitter gourd seed market is 700 tons (hybrid seed = 250 tons and OP seed = 450 tons). WorldVeg has organized a bitter gourd support group for seed companies so that breeders can access the Center's breeding research to develop new, genetically improved high quality bitter gourd cultivars with enhanced fruit yield and built-in resistance to diseases. Breeders can invent new market segments by combining the dominant unique traits of lines from two heterotic groups into a F_1 hybrid; seed industry breeders are now exploiting this approach, developed at WorldVeg, to produce superior F_1 bitter gourd hybrids.

"Sound vision, utmost dedication, and superior breeding skills coupled with our field team's high level of motivation has brought this marvelous breeding success," Dhillon said. "The super management skills of my current Assistant Specialists **Supornpun Srimat** and **Suwannee Laenoi** (and previous Assistant Specialists **Supannika Sanguansil** and **Supunsa Phethin**) made it possible."

The event attracted considerable attention across Asia — so much so that others are planning to follow the Bitter Gourd Open Field Days model in their own countries. **Rukui Huang**, Director, Vegetable Research Institute, Guangxi Academy of Agricultural Sciences, Nanning, Guangxi, China flew to Thailand to visit Bitter Gourd Open Field Days along with four colleagues to better understand the event and replicate it at her institute in China in 2018.

Open Field Days

For seed company breeders and marketing persons it offers an immersive experience, where participants can step into a field and see hybrid trials, breeding lines derived from landraces from various countries, powdery mildew resistance evaluation, recurrent selection program, etc. It was the perfect showcase of new WorldVeg hybrids and lines for bitter gourd lovers and breeders!

Kamal Kumar Yadav
Noble Seeds Pvt Ltd, India

To be very honest, I have never seen such vast diversity in an institute or university collection. From my perspective, this is the best platform an international organization can take to lead a public-private partnership/collaboration.

Chauhan KM
Kaveri Seeds Pvt Ltd, India

The demonstration of the field trials was impressive. The set-up captured diseases of various types that revealed interesting materials with resistances. The discussions with you (Narinder Dhillon) were very helpful to help us understand where we are at the moment and what needs to be explored. Your output

A plant breeder from Ajeet Seeds evaluating fruit traits of WorldVeg's improved bitter gourd lines.

Pretty in pink: The WorldVeg cucurbit team in Thailand!

Story: Narinder Dhillon

Photos: Sorawit Limsiriwat

will certainly stimulate bitter gourd breeders to further review/scrutinize their respective programs.

Venus Salutan
East-West Seeds, Philippines

There was an excellent range of hybrids representing the ASEAN market. We selected about 60 out of 405 hybrids from the preliminary evaluation in different segments for Indian markets. There is also scope to select products for overseas markets as well. The level of resistance/tolerance to fungal diseases was excellent, and we can use these as a source of resistance/tolerance in in-house breeding programmes.

Shashi Kataria
Kumar Bioseeds, India

We were really impressed with the overall demonstration program, especially the diverse germplasm lines and their use in the development of hybrids and inbred lines. I observed that most of the hybrids and advanced lines had good tolerance to foliar diseases. Fruit characters such as firmness, uniform color, shape and size for all segments were excellent. It was very interesting to select the hybrids and advanced breeding lines from this huge open field day program.

Surendra Deshmukh
Ajeet Seeds Pvt. Ltd.
Aurangabad, India

We could see clearly a diverse and very good set of elite bitter gourd breeding lines. Many entries showed a good level of field resistance to mildews and other foliar diseases. These lines provide opportunities for bitter gourd breeders of any organization to develop new and improved cultivars with desirable characteristics, which includes both yield related traits and disease resistance.

Manish Bhatnagar
Enza Zaden

It was indeed our pleasure to visit World Veg's bitter gourd breeding programme. *We have been visiting this* programme *from the very beginning and have seen it* maturing. *This* programme *has potential to address the current and future needs of the farming community in our region.*

Parag Agarwal
VNR Seeds, India

September 6th, 2017 | Categories: Articles, East and Southeast Asia, SEP2017 | Tags: bitter gourd, breeding, field days

WASH in Cambodia

Following proper WASH practices in the "Deploying Vegetable Seed Kits to Tackle Malnutrition in Cambodia" with project partner **Action for Development** *(http://www.action-for-development.org/index.php/en/)*(AFD)

September 13th, 2017 | Categories: PHOTO OP, SEP2017 | Tags: Action for Development, Cambodia

Farewell, Philipo!

Philipo Joseph, who has been working with WorldVeg Eastern and Southern Africa since February 2013 as a Research Assistant in Socioeconomics and Postharvest, recently began a new chapter of life: He is now pursuing an MSc in Agricultural and Natural Resource Economics at the University of Delaware, USA. His studies are supported by the Borel Global Fellows Program. Regional Director **Thomas Dubois** presented Philipo with a certificate and thanks for his years of effort on behalf of the Center. Best of luck, Philipo!

September 13th, 2017 | Categories: PHOTO OP, SEP2017 | Tags: Philipo Joseph

Colleagues catch up in Uzbekistan

COLLEAGUES CATCH UP IN UZBEKISTAN (*left to right*): **Ravza Mavlyanova**, WorldVeg Regional Coordinator, Central Asia and Caucasus; **Ram Nair**, Legume Breeder South Asia, and **Tatyana Kalimulina**, Secretary, WorldVeg Central Asia and Caucasus at the WorldVeg office in Tashkent.

September 13th, 2017 | Categories: PHOTO OP, SEP2017 | Tags: Uzbekistan

SAARC-CGIAR Consultative Meeting, India

WorldVeg Director General **Marco Wopereis** at the SAARC-CGIAR Consultative Meeting in India.

September 13th, 2017 | Categories: PHOTO OP, SEP2017 | Tags: India

World Vegetable Center

VISITORS: August – September 2017

27 July 2017: (*left to right*) **Allan White**, Advisor, Business Development Advisor for Plant & Food Research (PFR) New Zealand, and **Ben Lupton** from Innovate, a consulting firm, visited WorldVeg headquarters to learn about the Center's activities and meet with Deputy Director General – Research **David Johnson**.

4 September 2017: A delegation from the South Pacific island country of Kiribati visited WorldVeg HQ for a briefing and tour of the genebank. (*left to right*) **Yuang-kuang Huang** from the WorldVeg Genebank explained operations to the **Hon. Alexander Teabo**, Minister of Environment, Land and Agriculture Development; **Madame Oreiti Teabo**; **Ms. Reei Tioti**, Acting Director, Land Management Division, Ministry of Environment, Land and Agriculture Development; and **Mrs. Kinaai Kairo**, Director of Agriculture and Livestock Division, Ministry of Environment, Land and Agriculture Development.

28 July 2017: 13 American and 18 Taiwanese university students participating in a 3-week **Taiwan-America Student Conference (TASC)** leadership conference stopped by WorldVeg headquarters. After a briefing by Maureen Mecozzi, Head of Communications and Information, the students toured the Demonstration Garden.

5 September 2017: 35 students from the Department of Tropical Agricultural and International Cooperation, **National Pingtung University of Science and Technology** (NPUST).

9-10 August 2017: Xin Zhao (*3rd from left*), Associate Professor, Department of Horticultural Sciences and **Craig Joseph Frey** (*1st from left*), Graduate Assistant from the University of Florida, USA, visited WorldVeg headquarters to learn more about the Center's current activities and facilities. They met with Deputy Director General – Research David Johnson, Deputy Director General – Administration and Services Yin-Fu Chang and the Center's scientists – Peter Hanson, Lawrence Kenyon, Mandy Lin, and Vicky Cherng. **Willie Chen** (*2nd from left*) guided them to the Demonstration Garden, genebank and fertigation greenhouse with **Eric Shen** (*4th from left*), Principal Research Assistant, Genetic Resources. Dr. Zhao also gave a seminar to the Center's staff.

22-23 August 2017: (*left to right*) Four professors from Korea — **Sung-Chur Sim**, Department of Bioresources Engineering, Sejong University; **Joonyup Kim**, Pusan National University, Life and Industry Convergence Research Institute; **Young-Hoon Park**, Department of Horticultural Bioscience, Pusan National University; and **Geunhwa Jung**, Stockbridge School of Agriculture University of Massachusetts, Amherst MA , USA visited WorldVeg headquarters to explore opportunities for cooperation with the Center's scientists.

6 September 2017: 60 students led by **Professor Zhi-ming Miao** and **Yi-cheng Hsu** from the Department of Bio-mechatronics Engineering, National Pingtung University of Science and Technology (NPUST) toured the Demonstration Garden with **Shiu-luan Lu**, WorldVeg Visitor Coordinator. They saw the Demo Garden Team constructing new "keyhole gardens."

7 September 2017: Kazuki Saito (*left*), Agronomist, Sustainable Productivity Enhancement Program, Africa Rice Center, Ivory Coast with **Yuang-kuang Huang**, WorldVeg Genebank.

7 September 2017: Marco Wopereis (*left*), WorldVeg Director General and **Lutfo E. Dlamini**, Former Minister of Foreign Affairs & International Cooperation, Kingdom of Swaziland, in the WorldVeg Genebank.

24 August 2017: A 17-person agricultural study delegation from **Tokyo University of Agriculture**, Japan visited WorldVeg headquarters. They were accompanied by 2 staff from Agricultural Extension Center, College of Agriculture and Natural Resources of National Chung-Hsing University.

September 12th, 2017 | Categories: SEP2017, Visitors | Tags: visitors