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Top crops for India / Seed industry needs assessed / Improving amaranth

February 2018

## WorldVeg and Taiwan to participate in Svalbard Seed Vault 10th anniversary

*More than 1000 samples of 21 vegetable species from the WorldVeg genebank headed for storage in the global seed facility*



The WorldVeg Genebank team with boxes of seed packed for shipment to Svalbard.

2018 is a special year for the Svalbard Seed Vault in Norway. This long-term seed storage facility to protect the world's agricultural diversity and heritage—known to some as the “Doomsday Vault” because it was built to withstand natural or man-made disasters—will celebrate its 10<sup>th</sup> anniversary on 26-27 February 2018.

*Read more...*

## TOP STORIES



**Can it get any better than this? Improving amaranth at WorldVeg**

Nutritious and easy to grow, amaranth is a healthy and



**Visiting the World Vegetable Center's newest office**

Partners and donors are beginning to take notice of



**WorldVeg activities in Cameroon attract the interest of neighboring countries**



**WorldVeg identifies training needs of the seed industry in India**

Plant breeders from across the subcontinent who want

profitable crop for small-scale farmers.



### Attraction in Action project attracts yard-long bean farmers in Cambodia, promotes IPM in Lao PDR

These beans mean business and better nutrition for farmers and consumers in Cambodia and Lao PDR.

WorldVeg West and Central Africa – Coastal & Humid Regions in Cotonou, Benin.



### G2P-SOL Training School

Learning where to find and how to use the diversity of the world's potato, tomato, pepper, and eggplant germplasm to breed improved vegetable varieties.

The experience of WorldVeg in Cameroon has sparked interest for an initiative to build seed systems in the Central African Republic.



### Top crops for India start at WorldVeg

From disease-resistant tomato to high-performance chili, WorldVeg is the source for improved vegetables in India.

to keep up with advancements in the discipline shared their training needs with WorldVeg.



### 5th Meeting of Pakistan's Mungbean Learning Alliance

The alliance continues to facilitate uptake of the latest technology among farmers and stakeholders.

## CORNUCOPIA

### HAVE YOU READ...

#### Vegetable Nursery and Tomato Seedling Management Guide

([https://wvc.tind.io/record/66112/files/veg%20nursery%20tomato%20seedling%20mgmt%20guide\\_web\\_s.pdf](https://wvc.tind.io/record/66112/files/veg%20nursery%20tomato%20seedling%20mgmt%20guide_web_s.pdf)) (January 2018) The production of good quality seedlings is essential for higher yields and improved crop quality. This well-illustrated manual explains the process.

#### Tapping the economic and nutritional power of vegetables

(<https://doi.org/10.1016/j.gfs.2017.09.005>) (September 2017) This groundbreaking review by Pepijn Schreinemachers, Emmy B. Simmons, and Marco Wopereis points to the urgent need for greater public and private investment in vegetable crop research. *Global Food Security*, 4 September 2017. <https://doi.org/10.1016/j.gfs.2017.09.005>

#### Guidelines for Innovation Platforms in Agricultural Research for Development

([http://www.rtb.cgiar.org/blog/publication/guidelines-innovation-platforms-agricultural-research-development/?wppa\\_open=yes](http://www.rtb.cgiar.org/blog/publication/guidelines-innovation-platforms-agricultural-research-development/?wppa_open=yes)) (June 2017) by Marc Shut et al. This publication provides a critical analysis of Innovation Platforms, their defining features, key functions, and what they can — and cannot — do.

#### 7 Steps to Connecting Farmers to New Markets: A Practical Guide

([https://avrdc.org/download/publications/from\\_the\\_field/agribusiness-value-chains/7-Steps-Practical-Guide\\_FACT-SHEET-rev2.pdf](https://avrdc.org/download/publications/from_the_field/agribusiness-value-chains/7-Steps-Practical-Guide_FACT-SHEET-rev2.pdf)) (June 2017). This 16-page guide outlines the “7 Steps of Value Chain Thinking” for farmers to follow to compete on their skills and the quality of their products, rather than offering the lowest price.

#### Proceedings of the 1st International Symposium on Moringa (<http://www.actahort.org/books/1158/>) (May 2017)

### WORLDVEG IN THE NEWS

#### WORLDVEG IN THE NEWS

#### Jessore cabbage world market

(<http://www.prothomalo.com/economy/article/1428141>) যশোরের বাঁধাকপি বিশ্ববাজারে *Prothomalo*, 10 February 2018

World Vegetable Center takes up tomato pest research in Madanapalle (<http://www.thehindu.com/news/national/andhra-pradesh/world-vegetable-center-takes-up-tomato-pest-research-in-madanapalle/article22493537.ece>) *The Hindu*, 23 January 2018

#### Solar driers for chili peppers

Traditional crops for modern diets  
Onions now smell different in Odisha  
*Appropriate Technology*

([https://wvc.tind.io/record/65999/files/Appropriate%20Technology\\_Dec%202017.pdf](https://wvc.tind.io/record/65999/files/Appropriate%20Technology_Dec%202017.pdf)), Vol 44, No 4

#### Thinking ‘beyond the farm’—On Germany’s longstanding commitment to agricultural research for development

(<https://clippings.ilri.org/2017/11/30/thinking-beyond-the-farm-on-germanys-longstanding-commitment-to-agricultural-research-for-development/>) *ILRI Clippings*, 30 November 2017

#### Sustainable agriculture: Key species in the seed bank

(<https://news.tvbs.com.tw/life/824949>) *TVBS Television* (Chinese), 25 November 2017

### BRIEFING

WorldVeg and partners hosted a symposium in 2015 to explore the many uses and benefits of *Moringa*, the multi-purpose tree. Acta Horticulturae 1158.

### WorldVeg parentage in high-yielding, triple-disease resistant 'Arka Rakshak' tomato

Tomato is India's second most important vegetable crop, next to potato. And now 'Arka Rakshak', a new F1 fresh market and processing tomato hybrid with resistance to three major tomato diseases, is available for farmers eager to supply India's growing demand. The variety was developed by the Indian Institute of Horticultural Research (IIHR) by crossing one of their advanced breeding lines with an advanced breeding line sourced from the World Vegetable Center. Tomato leaf curl virus, bacterial wilt and early blight are among the most difficult tomato diseases to manage as there are no chemical treatments available to stop their spread. Building resistance into a variety is the most effective -- and cost-effective -- approach to tomato disease management. 'Arka Rakshak' produces medium to large (80-100 g), deep red, very firm fruits with good keeping quality (15-20 days) and transportability. Farmers can expect yields of 90-100 t/ha. WorldVeg provides the important breeding materials partners need to produce vigorous, pest-and disease-resistant varieties with tolerance to heat, drought, flooding and other environmental conditions farmers typically encounter in the field. Congratulations to IIHR!

## RECENT RESEARCH

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- + Bitter gourd reduces elevated fasting plasma glucose levels in an intervention study among prediabetics in Tanzania

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- + A roadmap for breeding orphan leafy vegetable species: A case study of *Gynandropsis gynandra* (Cleomaceae)A roadmap for breeding orphan leafy vegetable species: A case study of *Gynandropsis gynandra* (Cleomaceae)

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- + Rapid identification of candidate genes for resistance to tomato late blight disease using next-generation sequencing technologies

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- + Gender, vegetable value chains, income distribution and access to resources: Insights from surveys in Tanzania

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- + Determinants of dietary diversity and the potential role of men in improving household nutrition in Tanzania

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- + Selection and dissemination of vegetable cultivars in the Sahel

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- + African nightshades: genetic, biochemical and metabolite diversity of an underutilised indigenous leafy vegetable and its potential for plant breeding

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- + Towards developing an integrated pest management strategy for striped flea beetle on radish

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- + Screening mungbean (*Vigna radiata* L.) lines for salinity tolerance using salinity induction response technique at seedling and physiological growth assay at whole plant level

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- + Protected cultivation of vegetable crops in sub-Saharan Africa: limits and prospects for smallholders. A review

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- + Tapping the economic and nutritional power of vegetables

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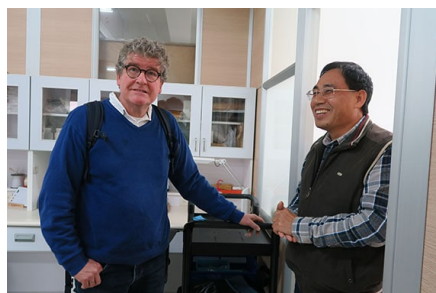
### NEW PROJECTS

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**Tajikistan nutrition-sensitive vegetable technologies: Phase II**  
Introducing new nutritious vegetable crops as well as new production methods to increase vegetable production and consumption in 12 districts of Khatlon Province.

**VISITORS**



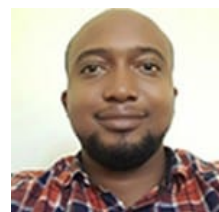
Visitors from South Africa, the Netherlands, USA, Korea, India and Taiwan were introduced to WorldVeg activities.

**WELCOME**



**Dr. Tae-Cheol Seo**, a research scientist with the Vegetable Research Division of the National Institute of Horticultural & Herbal Science (NIHHS), Rural Development

Administration, Republic of Korea, studies the physiology of vegetable crops, in particular, Capsicum spp.—an important crop in Korea. Dr. Seo has been seconded to WorldVeg from the NIHHS for a term of two years (2018-2020) to evaluate and select pepper genetic resources tolerant to heat and waterlogging. He previously held a research position with the NIHHS Protected Horticulture Experimental Station.



**Hussein (Henry) Mvungi** is working as a Project Marketing Officer with the WorldVeg team in Eastern and Southern Africa, Arusha, Tanzania through September 2018. He has an

MSc in agricultural economics and focuses on marketing, statistics and socioeconomics.



**Dr. Wolfram Spreer** joined WorldVeg on 22 January 2018 as Production Horticulturist in the South Asia Regional Office, Hyderabad, India. His appointment is co-

funded though GIZ's CIM Integrated Experts Program. He holds a PhD in agricultural sciences from the University of Stuttgart-Hohenheim, Germany, and has extensive experience with irrigation technologies for tropical and subtropical fruits and vegetables.

**CONTRIBUTORS**

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**DONORS**

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- Republic of China (ROC)
- UK aid
- United States Agency for International Development (USAID)

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*We need more research on wild plants, and greater efforts to relate that work to agriculture. – R. Ford Denison, Darwinian Agriculture*

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