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# FRESH World Vegetable Center NEWSLETTER

Healthier lives, more resilient livelihoods through greater diversity in what we grow and eat



## Sowing seeds, meeting needs



## A very warm welcome

Dear friends and colleagues

It is a pleasure to share with you the latest edition of our Fresh! Newsletter – a bumper issue of new releases, news and stories from across Africa and Asia, along with WorldVeg in the news, our publications and new projects. And even a few jokes, to make you smile...

First and foremost, we are proud to circulate further the WorldVeg 2022 Annual Report that was published online a few months ago already. Please take a read if you haven't already, and see the facts and figures related to our activities and impacts, alongside a dozen stories that give examples of our work around the world.

There are also stories from all our 'big three' projects in Africa. A new book of stories from Eswatini, full of testimonials from farmers, teachers, school children who have benefitted from the TAVI (Taiwan Africa Vegetable Initiative) project that now draws to a close. There are also stories from Ethiopia and Kenya in the new newsletter from the Veggies 4 People and Plant project, a booklet of stories from Benin, Burkina Faso and

And, we have just posted the first of a series of stories on ‘the wonderful world of vegetables’, to share colorful anecdotes about the vegetables we eat, and the vital role they play in the livelihoods and nutritional wellbeing of people around the world. This first one –a capsicum chronicle, is on pepper

And talking about pepper, we are proud to announce that Derek Barchenger, our esteemed pepper scientist, was awarded the prestigious Early Career Award for Research, Innovation, and Creativity by the American Society for Horticultural Science (ASHS), for his exceptional work on pepper breeding.



Derek Barchenger receiving his award from Kimberly Moore, Chair of the ASHS Board of Director,s in Orlando, Florida, 1 August 2023

There has been a longer than usual gap between this edition and the previous Fresh! newsletter, due to staff changes at WorldVeg. And I am very proud to have recently joined the team, to help share stories of the quite amazing impacts that our work is having. I have already seen it with my own eyes in Eswatini, Benin and Tanzania, and look forward to reporting on much more in the years to come. Watch this space!

The last edition of the year will include upcoming events in 2024, and a compendium of the many events held around the world for our 50th anniversary. There have been very meaningful, colorful, lively and tasty celebrations in India, Benin and Mali already, with others to come.



Science Day and our Global R&D week!

Nick Pasiecznik  
Communications Lead

## New releases

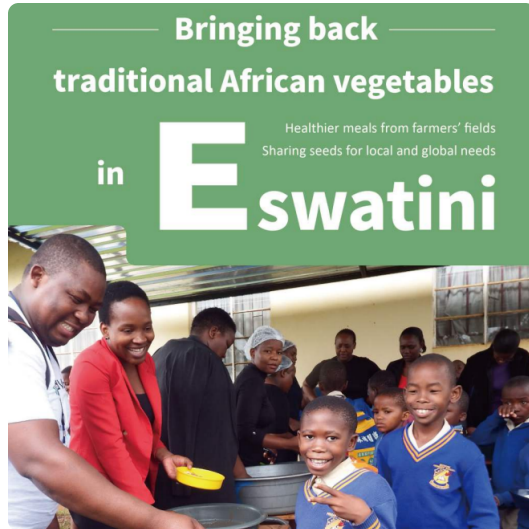


### [2022 Annual report released in July](#)

In the SHARING SEEDS section, we see how WorldVeg remains by far the largest holder of publicly available vegetable germplasm in the world, and in 2022, WorldVeg was the largest single contributor to the Svalbard Global Seed Vault.

three large projects in Africa.

In ACTIVITIES and ACHIEVEMENTS, we look at results of our work region by region, and across continents.



### Bringing back traditional African vegetables in Eswatini

This new book of stories shows the impacts of the World Vegetable Center and partners involved in the Taiwan Africa Vegetable Initiative (TAVI) in the Kingdom of Eswatini. It is rich in testimonials from those impacted by the project – from farmers to school children and teachers, and others such as government extension agents and NGO representatives working to ensure that all project aims are realized to the full.



## SafeVeg

**Making more safe and locally produced vegetables available for West African consumers**



### Safe locally produced vegetables for West Africa's consumers

At about the half way point in this five-year project, this colorful 50 page booklet takes readers through a collection of ten stories across the three project countries – Benin, Burkina Faso, and Mali. SafeVeg aims to reduce undernourishment, improve the income and productivity of small-scale food producers, particularly women and youth, and expand sustainable land use. The project is based on the premise that promoting the role of vegetables in local food systems requires simultaneous interventions on both the supply and demand sides. It looks at next steps, reproduces a number of other stories, and ends with a look at equity and equality in the project.

[Subscribe](#)[Past Issues](#)[Translate ▼](#)**Veggies 4 Planet  
& People**Enabling Vegetable Business Development in East Africa  
for more jobs and better human and environmental health**e-newsletter**

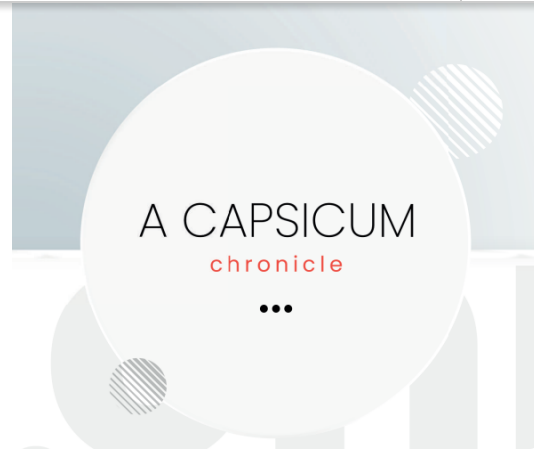
Issue No.2

**[Veggies 4 People and Planet e-newsletter no. 2](#)**

The second issue of the Veggies4Planet & People (V4P&P) Newsletter take you through a collection of ten stories that illustrate the strength of innovation, partnerships, and resilience in agriculture, from farms in Ethiopia and Kenya where devoted people and organizations are working with passion to make notable changes to the agricultural scene. In a world dealing with climate change challenges and the high demand for sustainable food production, the stories in this issue offer a ray of hope. They demonstrate the outstanding efforts of smallholder farmers, researchers, and organizations to address critical issues such as irrigation, pests and disease management and market linkages.

See also - Veggies 4 People and Planet – e-Newsletter No. 1

WELCOME TO THE FIRST ISSUE OF V4P&P E-NEWSLETTER ([mailchi.mp](https://mailchi.mp))

**[A capsicum chronicle – first of a new popular series on our favorite vegetables](#)**

To mark its golden jubilee, the World Vegetable Center is starting what will become a series of popular articles on ‘the wonderful world of vegetables’. These will share colorful anecdotes about the vegetables we eat, and the vital role they play in the livelihoods and nutritional wellbeing of people around the world. This ‘capsicum chronicle’ story on sweet pepper and chili pepper is the first. Other crops will follow... It is also available in French, Spanish and Chinese

## News

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### [Strengthening partnerships for better soil health and vegetable yields](#)

A new Memorandum of Understanding was signed on 7 September in Dar es Salaam, Tanzania, on the sidelines of the Africa Food Systems Forum. One of the key messages from the week-long event was that to transform agriculture in Africa, as elsewhere, actors and organizations from different disciplines must work more closely together to solve the common challenges. And this MoU is a perfect example of two organizations doing exactly that.



### [WorldVeg at the African Food Systems Forum 2023](#)

*Recover, Regenerate, Act: Africa's path to transforming food systems', 4-8 September 2023, Dar es Salaam, Tanzania*

The participation of the World Vegetable Center at the African Food Systems Forum was unique this year, that apart from being just present, the Center was a sponsor of the forum with its name and logo on banners and webpages. WorldVeg had its own booth, co-hosted one of the opening side events on 'Greens and Beans', and speakers from the Center participated in two panels, on postharvest practices and social impact.



### [Safeguarding valuable vegetable germplasm from Asia, for the world](#)

In June, 22 boxes containing 8,550 samples of 178 species of vegetable, aromatic and medicinal plants sent from the WorldVeg genebank in Taiwan, were deposited for safekeeping in the Svalbard Global Seed Vault. This



### [Scientists gather to reduce impacts of the diamondback moth pest problem](#)

The diamondback moth (*Plutella xylostella*), sometimes called the cabbage moth, is one of the world's most difficult insect pests to control. It has spread around the world, and has



anniversary year.

Global control costs have been estimated at US\$5 billion. As such, it is the target of much research, in an attempt to find new ways to ensure its effective control.



**Enhancing innovation in vegetable breeding technology in Asia**

The 17th Steering Committee Meeting of the ASEAN-AVRDC Regional Network for Vegetable Research and Development (AARNET) was held on 29-30 May 2023 at Universiti Teknologi Brunei (UTB), Brunei Darussalam. The meeting brought together esteemed committee members from nine ASEAN member countries (Brunei, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, Singapore, and Vietnam), who are experts and stakeholders in the field of vegetable research and development.



**A stepping stone for sharing knowledge on vegetable cultivation in Korea**

The 2023 NIHHS-WorldVeg Joint Symposium on Safe and sustainable vegetable cultivation was held in the NIHHS, RDA Korea on 14 June. Speakers from the NIHHS Horticultural and Herbal Crop Environment Division, and the safe and sustainable value chain (SSVC) flagship team from WorldVeg, presented research results on pest management and control, of insects, bacterial and fungal pathogens, and viral diseases in vegetable crops, with highlights on potential collaborative issues.



**International Plant Phenotyping Symposium - PhenoVeg 2023**



**Africa Vegetable Breeding Consortium annual workshop**

Each year, AVBC holds an annual



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representing advanced research institutes and private companies, came together at World Vegetable Center headquarters, Shanhua, Tainan, Taiwan to share their experiences on the latest developments in phenotyping technologies, and how to process and apply all the data produced into concrete outcomes for improved plant breeding.

latest developments at WorldVeg, and above all, to allow representatives to observe first hand new exclusive breeding lines in the field. This year, the three-day workshop opened on 3 October at the WorldVeg Eastern and Southern Africa regional center in Arusha, Tanzania. This saw 20 representatives of 14 seed companies from 12 countries taking part, including for the first time, companies from Mozambique.

## Stories



### [FRESHer vegetables in Tanzania](#)

Between January and May 2023, FRESH activities reached 1,585 people including 745 women, 20 village and ward leaders, and 15 government extension staff. The Fruits and Vegetables for Sustainable Healthy Diets (FRESH) One CGIAR initiative is helping to increase consumption of fruits and vegetables in Arusha and Kilimanjaro regions. It is doing that by improving availability, accessibility, affordability and desirability, as well as providing livelihood opportunities for women and youth, and mitigating adverse environmental impacts.

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### [From sun to shelf - improving vegetable drying in Nigeria](#)

In the bustling vegetable markets of Kano State, Nigeria, dried vegetables have emerged as a profitable business over the years. The traditional method is sun drying, extending the shelf life, and as a way to coping with market gluts, for sale in the off season. However, ensuring high quality of dried products is not a simple task. It depends on the drying method, and maintaining proper storage conditions.



### [Increasing vegetable production and consumption in Burkina Faso](#)

The World Vegetable Center is celebrating its 50th anniversary this year. After events in Benin and Mali, WorldVeg director general Marco Wopereis and West and Central Africa regional director Malick Ba visited Burkina Faso (20-22 September 2023), to take stock of research and development activities in the country, especially related to the SafeVeg project.

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### [Pest identification and curative methods to secure fields](#)

More than sixty market gardeners from various localities in the Niger valley in northern Benin took part in a two-day training course, both theoretical and practical, on pest identification, management and control methods, to protect their fields from insects that damage their crops. Training was carried out by experts from CIRAD, working on the safe climate-resilient crop production and post-harvest practices component of the SafeVeg project.



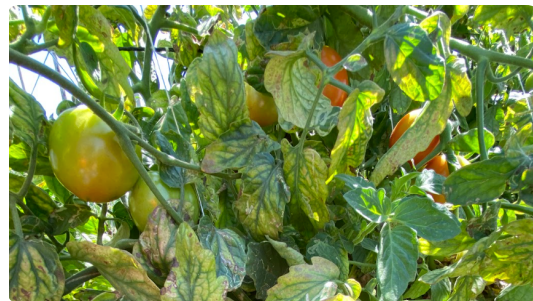
### [Unraveling the evolution and migration of mungbean and its climate adaptation](#)

Mungbean, commonly known as green gram, has played a pivotal role as a cheap protein source in regions where access to meat is limited. Spanning over 4,500 years, the cultivation of this humble legume has sustained civilizations throughout its history. While its migration routes and cultivation expansion have been a mystery, a new study reveals insights into the circuitous



### [Huge potential payoffs from pest resistant tomatoes in South Asia](#)

Tomatoes are the most popular and economically most valuable vegetable globally. In fact, it is the world's fourth most valuable food crop. Unfortunately, many insects also find tomatoes as appealing as humans do. A massive quantity of tomatoes is lost annually due to insect pests and the plant diseases they transmit. Many farmers spray a lot of pesticides trying to prevent these losses, which seriously damages their health and eats into their profits.



### [Collecting disease samples in the Philippines](#)

In 2022, the Philippines produced an estimated 250,000 tonnes of tomatoes, mostly for domestic consumption, and this is a major source of income for many farmers. Major production areas include northern Mindanao, Ilocos Region, Zamboanga Peninsula, and peri-urban areas around the National Capital Region (NCR), among others. However, virus diseases are a major constraint for tomato production.

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techniques to trace the evolutionary trajectory of the mung bean, using seeds from three seed banks, the World Vegetable Center in Taiwan, the Australian Diversity Panel, and the Vavilov Institute of Plant Industry in Russia.



### [New innovations increase vegetable production in Cambodia](#)

The Grow against the flow project is making vegetables more available, affordable and accessible in Cambodia and Lao PDR, implemented by East-West Seed Knowledge Transfer and WorldVeg. It trains smallholder farmers to increase year-round production, improving incomes and nutritional security and more than 70,000 households, and fostering women's empowerment in more resilient communities. Here, we hear stories from three of those farmers.



### [“What a great internship, a stepping stone in my career” – Shanice speaks...](#)

After a month advancing her studies at World Vegetable Center headquarters in Shanhua, Taiwan, on her last day, Shanice Van Haeften speaks about her experience...

## New projects





### **Using marketing intelligence to improve returns on investments in plant breeding and seed systems**

Funded by the OneCGIAR, the project aims to maximize CGIAR and partners' return on investment in plant breeding, seed systems, and other initiatives based on market intelligence that enables stronger demand orientation and strengthens co-ownership and co-implementation by CGIAR and partners. It will initiate the incorporation of vegetable crops (tomato, pepper) into the CGIAR Seed Product Market Segment (SPMS) Database that contains over 400 segments across crops of interest to CGIAR breeding programs based on a uniformly applied set of criteria. Expected outputs are (i) market segments of tomato and pepper identified and described, (ii) Target Product Profiles (TPPs) designed for market segments identified which are relevant for breeding programs of WorldVeg and its partners, (iii) investments for pepper and tomato breeding pipelines calculated for all subregions currently targeted by WorldVeg, and (iv) a Market Intelligence Brief.

### **Building capacity of vegetable and fruit growers in Sri Lanka for organic farming and climate resilience**

This three-year project funded by Asian Development Bank will build the capacity of vegetable and fruit farmers on climate resilience and safe farming practices. It will (i) develop an appropriate climate-resilient farming and financial literacy curriculum including lectures and practical demonstrations, (ii) prepare training manuals and online resources, and conduct farmer training through demonstration farms, (iii) build networks to enhance training program effectiveness and assess technology uptake, (iv) evaluate and revise the training programs and demonstration farm practices as necessary, and (v) collect farm data to estimate the effect of climate-resilient farming uptake on carbon. It is implemented with John Keells Holdings Plc., a private company



**Developing improved bitter melon and tropical pumpkin varieties in Vietnam**

This project will develop improved varieties of bitter melon and tropical pumpkin identified from variety trials, and promote them through crop field days. It will make use of unexploited landraces, evaluate WorldVeg's elite F1 hybrids, and facilitate transfer of WorldVeg lines and F1 hybrids to Vietnamese institutes and the private seed sector in Vietnam for incorporation into national programs, and enter the varieties in national variety trials for future registration and release. The project is funded by the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF), and implemented in partnership with the Vietnam Fruit and Vegetables Research Institute (FAVRI). It is now in the third year of its third phase.

**Making vegetables more available, affordable and accessible in Cambodia**

The project, funded by The Taiwan Ministry of Agriculture, is enabling Cambodian smallholders in Kandal, Kampong Cham and Prey Veng provinces to increase year-round production of safe vegetables. Led by WorldVeg in collaboration with Taiwan Agricultural Chemicals and Toxic Substances Research Institute and the Cambodia General Directorate of Agriculture, the project will (i) identify and introduce new bio-control agents and bio-pesticide products from Taiwan; (ii) introduce, pilot and scale off-season vegetable production technologies including protected cultivation, tomato grafting and water management techniques; (iii) facilitate the commercialization of technological innovations that are unavailable in Cambodia through public-private partnerships involving stakeholders in Taiwan and Cambodia; (iv) pilot and scale out post-harvest technologies along the vegetable value chains; (v) build capacity of scaling partners on vegetable production and post-harvest technologies, and network with ongoing projects to build synergies.

**Driving vegetable food environments to promote healthy diets in Pacific island countries**

The Pacific regions as some of the worse food insecurity and malnutrition statistics, driven by rapidly changing food environments. There is a need to better understand the issues and to find ways to build on traditional diets and head off the worst of the nutrition transition. This two-year study will assess the key constraints and opportunities within Fiji's food environments across urban and rural areas and remote island contexts, to promote healthier and vegetable-rich diets. By bridging the information gap in national food, nutrition, and agriculture policies, and by engaging from the start with communities and policymakers, the project will pave the way for evidence-based intervention strategies. It is funded by ACIAR, and implemented in partnership with the Consumer Council of Fiji and Dikoda.

**Accelerating innovation delivery in Rwanda and the Democratic Republic of the Congo**

Vegetable production and consumption is low in the Great Lakes Region, due to a lack of awareness about the importance of vegetables in nutrition and their potential for

postharvest management and knowledge. Expected results include that 8,000 farmers obtain seed of at least two improved varieties each of two vegetables, at least two demonstration plots of improved varieties and GAPs established in each country, 155 people trained in postharvest, grafting, and GAPs/IPM, 250 people participate in field days on GAPs, improved varieties and grafting in each country. And social and mainstream media outlets will be used to promote safe vegetable production and higher consumption of nutritious vegetables. This one-year project is funded by USAID through IITA, and implemented in partnership with Ricolto, AGRA, Rijk Zwaan, and the Rwanda Agriculture and Animal Resources Board (RAB)

### **More vegetables for income, nutrition and employment in Sudan**

This project, funded by: USAID through CIMMYT, aims to improve vegetable production and productivity by introducing innovations and technologies that enhance input use efficiency (of seeds, water, fertilizer, etc.). It will strengthen the Sudanese seed sector innovation platform, and bring together all value chain stakeholders including agrodealers, processors, vegetable producers, and research partners (CGIAR centers), and NGOs working in humanitarian and agricultural development. It will enhance market participation among smallholder vegetable producers by establishing 100 vegetable business networks (VBNs) and technology hubs. It will also promote vegetable consumption and dietary diversity for improved nutrition, with a focus on women and children under 5-years old. Finally, it will reduce postharvest losses through the adoption of simple and low-cost postharvest technologies and practices, and it will introduce vegetable production systems and seeds as part of humanitarian response in conflict areas. Implementing partners are Mercy-Corps, Catholic Relief Service and Samaritan Purse.

### **The Accelerate Innovation Delivery Initiative in Zanzibar**

In Zanzibar, youth unemployment is high (33%), and hunger and malnutrition persist due to a lack of diversified diet and nutritious food intake, and agricultural postharvest losses are common. Vegetable yields are very low (average 5-7 t/ha vs. 25-45 t/ha potential), due to supply-side constraints including poor soil fertility, limited use of improved production techniques, high seasonality, weak linkages to input and product markets, and very limited entrepreneurial skills. Expected results include 20 vegetable business networks established, 2,000 farmers trained in soil health and fertility management, at least 2,000 farmers apply improved production practices, increased consumption of vegetables by 10,000 women, an improved school feeding program in 40 schools by incorporating nutrient-dense vegetables in school meals, and the emergence of profitable vegetable business opportunities that provide income and employment, particularly to youth and women. The projects to the end of 2024, funded by USAID through IFDC and CIMMYT Partners include the Zanzibar Agricultural Research Institute (ZARI), Milele Foundation, and the Practical Permaculture Institute of Zanzibar (PPIZ)

### **Vegetable seed kits for food security in Madagascar and Benin**

malnourished. In Benin, roughly four in ten children are chronically malnourished. This project is increasing access to nutritious vegetables through delivering some 10,000 seed kits in Madagascar and 2,000 in Benin, setting up home gardens and 50 school gardens, and providing training on vegetable production and preparation, and seed saving. It is funded by BMZ (Germany), and implemented in partnership with FOFIFA and University of Antananarivo, Madagascar, the University of Abomey-Calavi, Benin.

### **Promoting vegetable diversity in the Latin America and Caribbean Region**

Over the past three years WorldVeg has established a functioning vegetable network with public sector (governmental, NGOs, and regional research centers) partners in Belize, Guatemala, Haiti, Paraguay, and St Kitts and Nevis. It is implemented in partnership with the Caribbean Agricultural Research and Development Institute (CARDI), and renewed annually with funding from the Taiwan Ministry of Foreign Affairs, Taiwan. The project is improving access to vegetable diversity and promoting cultivars that meet the needs of vegetable farmers in the region, and contribute to nutrition security and income generation. It is conducting multi-location trials of promising vegetable lines originating from WorldVeg breeding programs in Taiwan and Thailand and from private sector partners, and promoting successful lines in breeding and variety development programs or through direct scaling to farmers. Work is also underway to rescue local vegetable diversity and use it in crop improvement. And the network provides a platform for stakeholders across the region to learn from one another in addressing problems facing vegetable farmers.

Note: Some of these projects started before the reporting period for this Fresh! newsletter, but are included here, because they were not in previous editions

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## **Our latest publications**

(January-October 2023)

### **Journal articles (43)**

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## Quote of the quarter



***“Shall I not have intelligence with the earth? Am I not partly leaves and vegetable mould myself.”***

*Henry David Thoreau, American naturalist and philosopher (1817–1862)*

*And to end on a humorous note...*

- What do you get if you divide the circumference of a pumpkin by its diameter? Pumpkin pi !
- *Why did the tomato blush?*  
*Because it saw the salad dressing !*
- *And, to finish... What should you do if a vegetable goes on strike?*  
*Picket!*

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