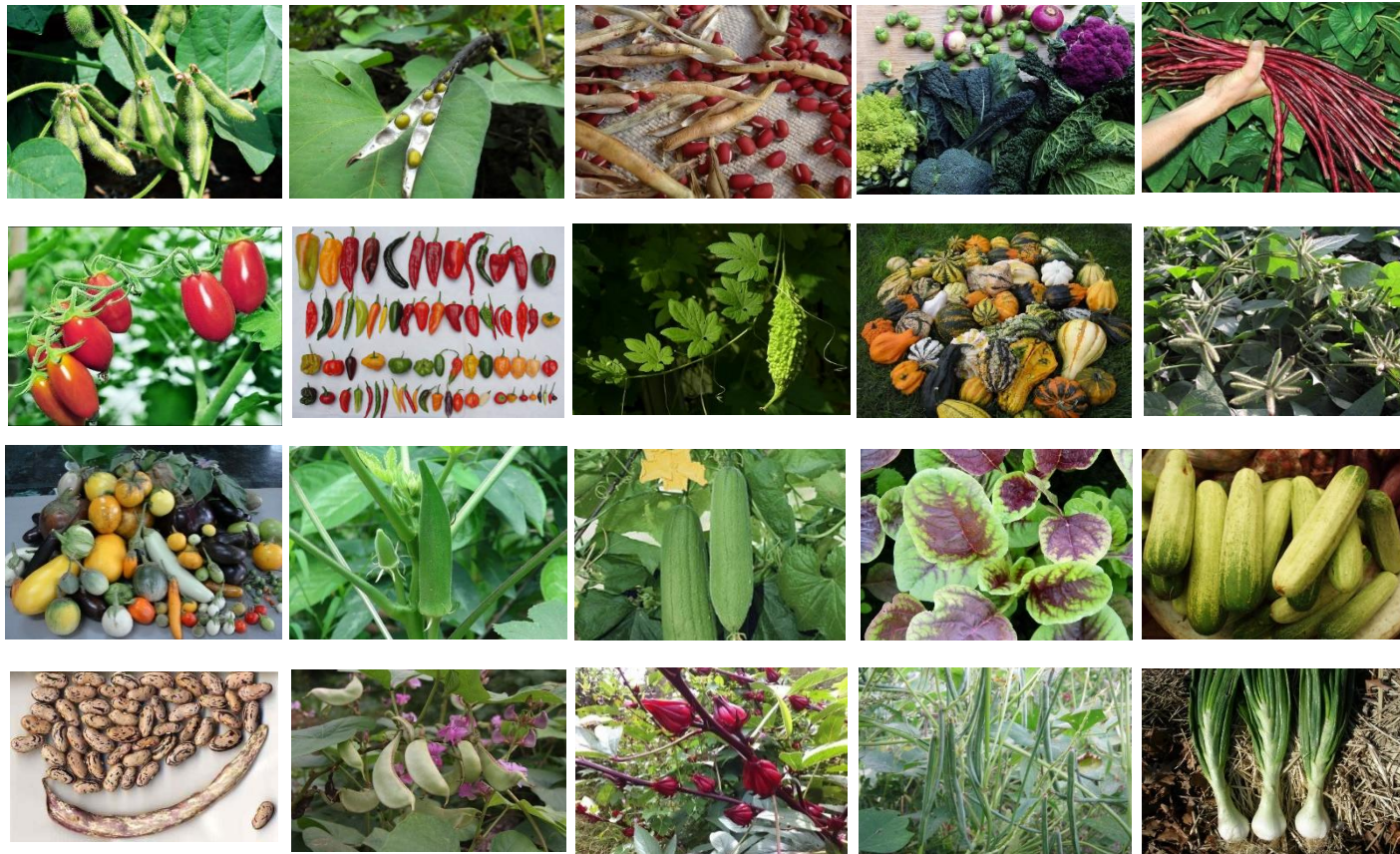


# Open Network for Asian Vegetables (ONAV)



Maarten van Zonneveld


Genebank manager


[maarten.vanzonneveld@worldveg.org](mailto:maarten.vanzonneveld@worldveg.org)

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# Asian vegetables: A new generation of “staple” foods to diversify diets and farm systems?



 Food and Agriculture Organization of the United Nations


**SUSTAINABLE DEVELOPMENT GOALS** 

working for Zero Hunger

## FUTURE SMART FOOD

Rediscovering hidden treasures of neglected and underutilized species for Zero Hunger in Asia

### EXECUTIVE SUMMARY



United Nations Food Systems Summit 2021  
Scientific Group  
<https://sc-fss2021.org/>

Food Systems Summit Brief  
Prepared by Research Partners of the Scientific Group for the Food Systems Summit  
April 2021

## Safeguarding and using Fruit and Vegetable Biodiversity

by

Maarten van Zonneveld, Gayle M. Volk, M. Ehsan Dulloo, Roeland Kindt, Sean Mayes, Marcela Quintero, Dhrupad Choudhury, Enoch G. Achigan-Dako, Luigi Guarino

### Abstract

Fruit and vegetable species and varieties, their wild relatives, and pollinators and other associated organisms underpin diverse food production systems and contribute to worldwide health and nutrition. This biodiversity, however, is threatened, remains poorly conserved, and is largely undocumented. Its loss leads to a narrowing of new crop options, reduced variation for breeding, a yield gap due to pollinator decline, and it constrains long-term progress towards the 2030 Sustainable Development Goals and any future goals set thereafter. It will require a global awareness campaign to safeguard and sustainably use fruit and vegetable biodiversity and a 10-year global rescue plan to reduce and

reverse the decline in this biodiversity. A diverse team of experts should formulate this global rescue plan and define clear goals. Success will depend on a global partnership of custodians and users of fruit and vegetable biodiversity, and requires an investment of at least 250 million USD over 10 years.

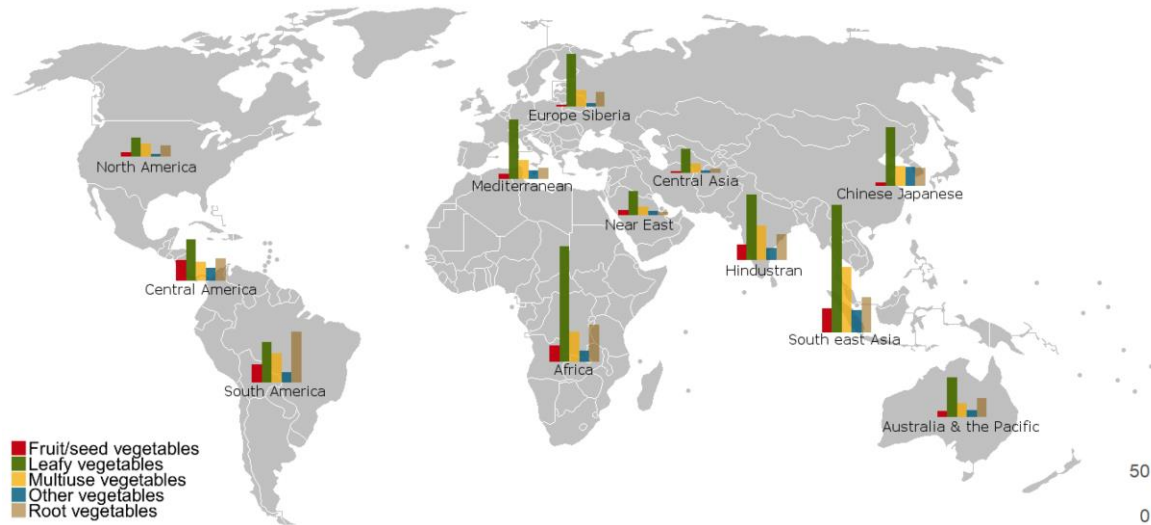
Fruit and vegetable biodiversity contributes to a diverse food supply and quality diets

From a dietary perspective, fruits are reproductive plant parts with high sugar or oil content that are usually eaten fresh, as a snack,

<https://hdl.handle.net/20.500.11811/9141>



# What are Asian vegetables?



Meldrum et al. (2018)



52 traditional Asian vegetables prioritized on the basis of literature review

These include:

- Eggplant (*Solanum melongena*)
- Yard-long bean (*Vigna unguiculata* group *sesquipedalis*)
- Winged bean (*Psophocarpus tetragonolobus*)
- Black nightshade (*Solanum americanum*)
- Snake gourd (*Trichosanthes cucumerina*)
- Water dropwort (*Oenanthe javanica*)
- Slippery cabbage (*Abelmoschus manihot*)
- Waterleaf (*Talinum fruticosum*)

# Traditional vegetables and their crop wild relatives need urgent conservation

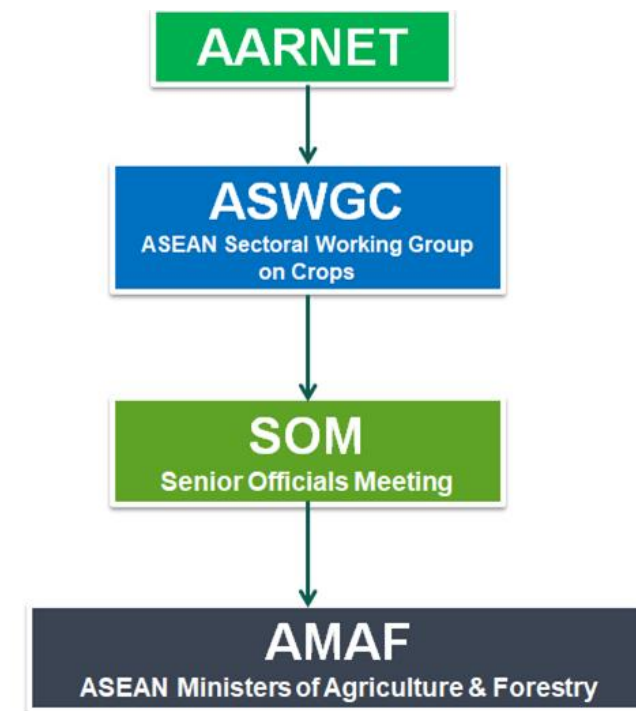
- **25%** of the about **1,100 recognized vegetables** is still not conserved *ex situ* (Meldrum et al. 2018)
- 65% of eggplant wild relatives are poorly or not conserved *ex situ* (Syfert et al. 2016) with big collection gaps in Asia (Müller et al. 2021)
- 25% of the crop wild relatives of yard-long bean and mungbean are poorly or not conserved *ex situ* (van Zonneveld et al. 2020)





## AARNET promotes collaborative efforts in utilization and conservation of vegetable diversity

- 10 ASEAN member countries have called for collaborative efforts **in utilization and conservation of vegetable diversity** -12th AARNET Steering Committee Meeting of 23-25 May 2017 in World Vegetable Center, Shanhua, Taiwan
- An Open Network for Asian Vegetables (ONAV) promotes such type of regional collaboration



# ONAV promotes utilization and conservation of Asian vegetables

## Objectives

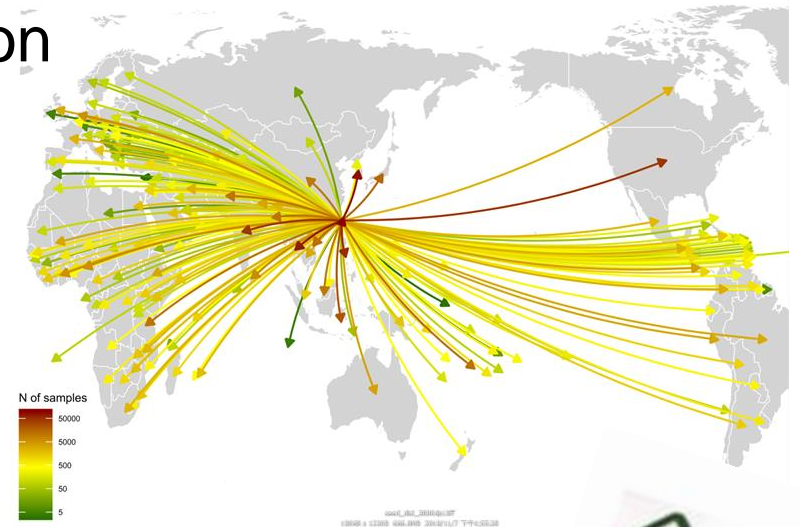
- **Regional assessment** - Understand opportunities and bottlenecks to access, exchange and conserve genetic resources in Southeast Asia
- **Capacity building** - Strengthen the research capacity and technical skills of national seed banks
- **Conservation and multiplication** - Save, multiply and share quality seed to farmers and other seed users
- **Regional collaboration** - Facilitate collaborative research on vegetable diversity in Southeast Asia





# ONAV enhances utilization of vegetable diversity in Southeast Asia

- Stimulate germplasm exchange for food and nutrition security
- Enhance germplasm distribution to breeders and researchers from the public and private sector in ASEAN states
- Collaboration with farmer associations through participatory research and citizen science trials



# ONAV improves conservation of vegetable diversity in Southeast Asia



Dr Liwayway Engle

- Historically +12,000 local varieties of Asian vegetables collected by national partners of 9 ASEAN states and WorldVeg
- Many of these collected unique varieties still need to be regenerated
- Possible collection gaps for further plant exploration efforts

Country	Total no. of accessions
Cambodia	667
Indonesia	1,591
Lao PDR	768
Malaysia	1,170
Myanmar	40
Philippines	2,475
Singapore	1
Thailand	4,209
Vietnam	1,084
Total	12,005





# Approach

- **Partnerships:** ONAV uses a multidisciplinary and partnership-oriented approach
- **Knowledge:** ONAV combines scientific knowledge of researchers with practical knowledge of farmers
- **Impact:** ONAV is *Actionable* through knowledge sharing; it *Connects* people to a like-minded community; and it is *Extensible* to multiple actors and countries



## Expected results ONAV

- **Knowledge generated** on vegetable diversity, genetic resources conservation and seed systems in Southeast Asia
- **Increased technical and research capacity** of seed bank scientists, farmers and local researchers
- **Agrobiodiversity safeguarded** for increased resilience and nutrition and targeted countries
- **Regional collaboration** established among ASEAN countries
- **Knowledge disseminated** through accessible on regional platform

**Initiate** ONAV in a few selected ASEAN countries



# Q&A / Discussion



INTERNATIONAL YEAR OF  
FRUITS AND VEGETABLES  
2021



Thank you!



UNITED NATIONS  
FOOD SYSTEMS  
SUMMIT 2021