



Organic Vegetable Production Research

**A neglected component of international
agricultural research**

Thomas A. Lumpkin
World Vegetable Center

Presentation Outline



- **Introduction to the World Vegetable Center**
- **Rationale for organic initiative**
- **Current organic-friendly programs**
- **Our plan for future activities**

CGIAR: 16 International Centers



Consultative Group on International Agricultural Research



Outreach Centers



Asian Regional Center

Kasetsart University
Bangkok, Thailand



Regional Center for Africa

Arusha, Tanzania



The World Vegetable Center



Our Mission

Alleviate malnutrition and poverty through increased production and consumption of vegetables

Our Focus

Rural and urban poor in developing countries

Our Core Expertise



53,000 accessions

Plant breeding

IPM

Research networks

Impact analysis

Organic Vegetable Program: *Goals*



- Farmers will have safe, effective choices for growing vegetables and generating income
- Poor families will have increased supplies of safe, nutritious vegetables

Organic Vegetable Program: *Activities*



- Develop vegetable cultivars for disease and pest resistance
- Identify promising organic and indigenous practices
- Train researchers and extension specialists
- Analyze economic impacts
- Disseminate science-based information

Organic Vegetable Program: *Approach*



- **Identify** key problems
- **Collaborate** to maximize efficiency and effectiveness
- **Initiate** organic research experiments
- **Disseminate** results to researchers and extension specialists

Organic Vegetable Program: *Constraints*



- Lack of funds and formal research institutions
- Lack of qualified researchers and extension specialists
- Lack of communication among researchers, extension specialists, and farmers

Vegetable Research Networks



SAVERNET

Bangladesh
Bhutan
India
Nepal
Pakistan
Sri Lanka

World
Vegetable
Center

REDCAHOR

Costa Rica
El Salvador
Guatemala
Honduras
Nicaragua
Panama
Dominican Rep.

CONVERDS

Angola
Botswana
Lesotho
Malawi
Mozambique
Namibia
Swaziland
Tanzania
Zambia
Zimbabwe

CLVNET

Cambodia
Laos
Vietnam

AARNET

Brunei D.
Cambodia
Indonesia
Laos
Malaysia
Myanmar
Philippines
Singapore
Thailand
Vietnam

AVNET

Indonesia
Malaysia
Philippines
Thailand



New Network in Central Asia



Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

Problem: *Diamondback Moth*



- DBM causes over US\$1 billion of damage per year
- Resistant to chemical pesticides



Answer: *International Teamwork*



- Over 200 scientists from 30 countries met to discuss research findings
- Safe, biological control practices were developed
- Reduced costs, allowed organic production



Problem: *Eggplant Fruit and Shoot Borer*



- Most severe pest in Asia and East Africa today
- Farmers spray nearly every day in rainy season
- Extreme health threat to farmers and consumers



Answer: *International Teamwork*



- The World Vegetable Center, Bangladesh, India, Sri Lanka, and Thailand scientists work together to understand the pest problem
- Alternative, pesticide-free strategy developed



Problem: *Tomato Leaf Curl Virus*



- Severe threat to tomato production now rapidly spreading throughout the tropics and subtropics
- Transmitted by white fly
- Geographically distinct races
- Leaves curl, plants become stunted, and sometimes entire crops are lost



Answer: *International Teamwork*



- The World Vegetable Center, India and USA scientists identified wild tomato with broad resistance
- Wild tomato being cross with cultivated types
- Disease-resistant, productive lines selected through marker-assisted backcross breeding

On-going: *Nethouse Technology*



- Leafy vegetables are heavily sprayed with pesticides
- Nethouses have eliminated pesticide use entirely



On-going: *Nethouse Technology*



On-going: *Indigenous Vegetables*



- Easy-to-grow, nutritious, resist pests, and marketable
- Collect both germplasm and knowledge
- Identify superior types and multiplying their seeds

Future Organic Activities



1. Select varieties for organic production systems
2. Develop and evaluate biopesticides
3. Introduce underutilized vegetable legumes

Future Organic Activities



4. Identify superior green manures
5. Composting formulations for local feedstocks
6. Enhance knowledge of soil microbial activity
7. Design protocols for site specific cropping systems

Future Organic Activities



8. Organic demonstration garden for on-site research
9. Compare organic with conventional practices

Future Organic Activities



10. Document market supply, demand, and consumption trends for organic products
11. Evaluate quality differences between organic and non-organic products

Future Organic Activities



12. Training workshops on organic farming techniques
13. Post-docs, graduate, and undergraduate student research opportunities

Future Organic Activities



14. Bulletins on organic production practices, in multiple languages
15. On-line publications for downloading
16. Computer tutorials

**Hội đồng nghiệp
Quốc tế**
Hướng dẫn
Cắt tỉa và làm giàn cho cây cà chua
J.T. Chen và G. Lai

Việc cắt tỉa và làm giàn đối với cây cà chua sinh trưởng vô hạn có thể làm cho quả thành thực sớm hơn và quả to hơn. Bản hướng dẫn này minh họa phương pháp cắt tỉa và làm giàn cho cây cà chua đã được ứng dụng ở Đài Loan và nhiều nước khác.

Nông dân thường loại bỏ một số hoặc tất cả các chồi bên ở các giống cà chua cây cao sinh trưởng vô hạn. Tùy thuộc vào mùa vụ và đặc điểm sinh trưởng phát triển của từng giống, họ để lại một, hai hoặc bốn chồi bên, chúng có tác dụng định vị cho chùm quả trên thân cây.

**How to Produce
Safer Leafy
Vegetables Inside
Nethouses and
Net Tunnels**

N.S. Talekar, F.C. Su, and M.Y. Liu

Asian Vegetable Research and Development Center

www.avrdc.org



Partnerships



Our Center welcomes partnerships to support organic agriculture and its role in fighting poverty

