

The goal

Develop **high yielding, disease-resistant tomato** varieties to increase the productivity and incomes of tropical vegetable farmers and provide opportunities for processing and off-season production.

AVRDC - The World Vegetable Center develops inbred (**open-pollinated**) tomato lines. Unlike hybrid varieties, seed from open-pollinated tomatoes can be saved by farmers and planted in successive seasons.

Tomato types



fresh market



high beta-carotene cherry



processing



cherry

What makes a good tomato?

The best tropical tomatoes resist pests and diseases, tolerate heat, yield well, have high levels of important nutrients—and taste good. Breeders note the preferences of farmers, markets and consumers when developing improved lines.

PRIORITY TRAIT TARGETS

Horticultural:

- High temperature fruit yield

Disease resistance:

- Tomato yellow leaf curl virus disease
- Bacterial wilt (caused by *Ralstonia solanacearum*)
- Late blight (caused by *Phytophthora infestans*)
- Early blight (caused by *Alternaria solani*)
- Root-knot nematode (*Meloidogyne*)
- Tomato mosaic virus
- Gray leaf spot (caused by *Stemphylium* sp.)
- Fusarium wilt (caused by *Fusarium oxysporum* f. sp.)

Fruit quality & nutrient content

- Firmness for long distance transport
- Deep red internal color
- High solids
- High beta-carotene
- High lycopene



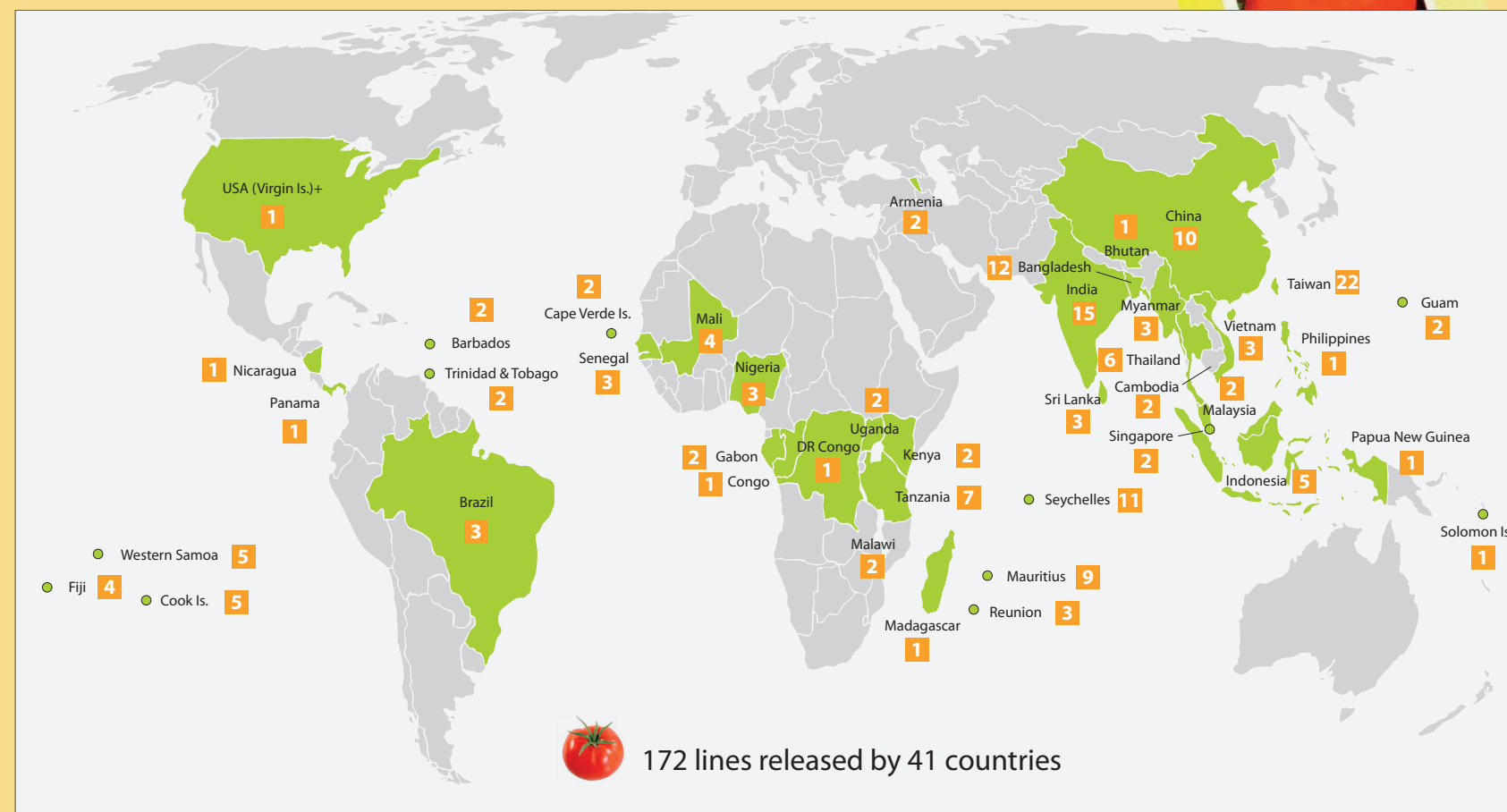
Breeding strategies

The Center's tomato breeders follow a three-pronged approach to develop improved tomatoes for the tropics.

- 1. Conventional breeding practices** to improve yield and select for specific horticultural traits such as fruit shape, color, firmness.
- 2. Marker-assisted selection** to pyramid (stack) disease resistance genes into tomato lines.
- 3. Discovery of beneficial genes** from wild tomato relatives, and breeding (introgressing) those genes into tropical tomato lines.



The Center's breeding lines are used around the world. Since 1978, **172 tomato varieties** based on the Center's lines have been released in **41 countries**.



Collaborators

The Center's tomato breeding effort is strengthened by the active participation of our partners:

- HORTI-TENGERU Tanzania
- Indian Institute of Horticultural Research
- Cambodian Agricultural Research and Development Institute (CARDI) and General Directorate of Agriculture, Cambodia
- Asia and Pacific Seed Association
- Fruit and Vegetable Research Institute, Vietnam
- Cornell University, USA
- University of Wisconsin, USA

Ordering seed

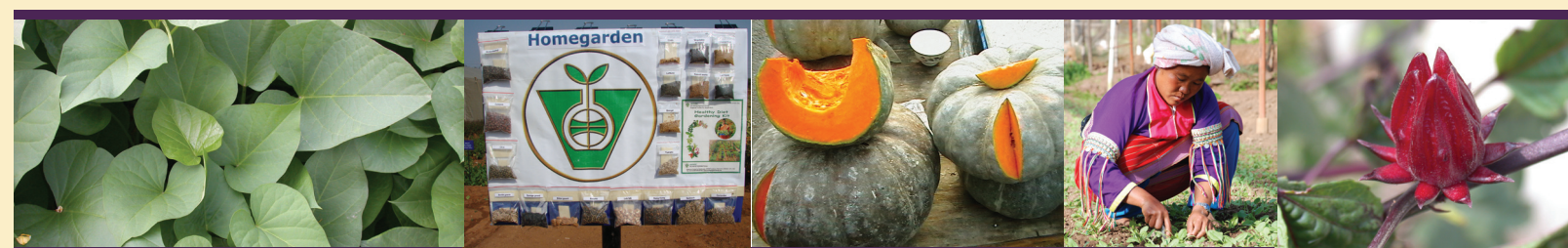
Seed is available upon request to public sector institutions, private companies, nongovernmental organizations, and individuals. Seed processing/access fees apply.

Visit the **AVRDC Seed Catalog** online or email seedrequest@worldveg.org for details.



The Way to Grow

AVRDC - The World Vegetable Center



TOMATO BREEDING

Improving tropical tomatoes



Tomato is a high value vegetable crop and an important source of vitamins A and C in human diets, but average per-hectare tomato yields in tropical Asia and Africa are half that realized in temperate regions. With well-adapted, disease-resistant varieties, farmers in the tropics can increase tomato yields and improve their incomes.

web: www.avrdc.org/index.php?id=648
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