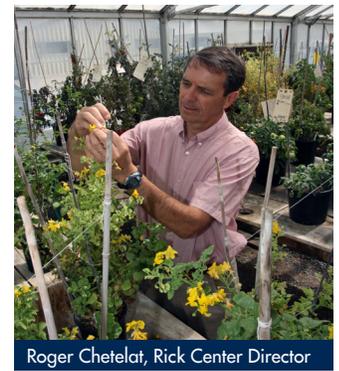


C.M. Rick Tomato Genetics Resource Center

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Roger Chetelat, Rick Center Director



Charley Rick and 'assistants' collecting *S. chilense*, a wild tomato relative that thrives in the Atacama Desert of Chile.

"As tomato growers face new challenges due to pests, water shortages, climate changes and salt accumulation, the genetic resources at the Rick Center become ever more critical." -- Gene Miyao, Cooperative Extension Specialist, Yolo County.

The C.M. Rick Tomato Genetics Resource Center at UC Davis, a genebank of mutants, wild relatives and other genetic stocks, is an irreplaceable source of the genetic traits used to improve yield, stress adaptation, disease resistance, flavor and fruit quality of tomato varieties.

Financial support is being sought from the tomato industry to secure the future of this unique genetic collection. The funding will be used to assure optimal preservation and maintenance of the collection, and provide continued access to germplasm with the desired genes and traits.

BACKGROUND

During his 60 year career at UC Davis, Prof. Rick crisscrossed the deserts, jungles and mountains of South America, collecting wild tomatoes, many of which have since disappeared from the native region and now exist only at Davis. New collections are unlikely in the future because international treaties restrict access and require benefit sharing. Widely recognized as the largest, most diverse collection of wild tomato relatives and genetic stocks in the world, the Rick Center provides a reservoir of genes and traits needed for future improvements in tomato varieties.

VALUABLE GENETIC TRAITS

Valuable traits found in Rick Center germplasm already benefit the tomato industry:

- 'AB2', once the dominant processing

variety in California, incorporates genes for high solids and yield from *Solanum pennellii*.

- The jointless pedicel gene bred from *S. cheesmaniae* reduces fruit wounding after machine harvest of processing tomatoes.
- Resistance to Tomato Yellow Leaf Curl Virus has been bred from *S. chilense*.
- Powdery mildew (*Leveillula taurica*) resistance from *S. chilense*.
- Fusarium race 3 resistance from *S. pennellii*.
- Resistance to Late Blight from *S. pimpinellifolium*.

In the future, Rick Center genetic resources have the potential to:

- Improve yield, soluble solids, vine storage, consistency and color for the processing industry. (Example: the *single flower truss* gene increases yield of processing tomatoes by up to 20%.)
- Provide sources of resistance to emerging diseases that threaten tomato production. (Examples: Pepino Mosaic Virus, Potato Spindle Tuber Viroid, new strains of TSWV, gemini viruses such as Beet Curly Top Virus, etc.)
- Reduce reliance on pesticides through genetic resistance to insect pests. (Example: broad spectrum insect resistance bred from *S. pennellii*).
- Improve tolerance to high temperatures, drought and salinity for a changing climate.

A VITAL RESOURCE FOR RESEARCH AND CROP IMPROVEMENT

The Rick Center's collection of over 3,800 accessions are intensively used for basic and applied research and breeding on tomato. As a result, genes and traits are identified and bred into new varieties that benefit the tomato industry.

Each year, the Rick Center receives over 300 seed requests and distributes approximately 5,000 seed samples to breeders and researchers. These seeds are shared freely and without restrictions on commercial uses of the genes or traits found therein. While many commercial uses are never publicized, nearly 100 scientific articles, patents, theses, and other publications mentioning Rick Center accessions appear each year.

With funding from competitive grants, research at the Rick Center aims to make certain wild species more accessible to breeders and researchers. Some species in the collection are almost impossible to cross with cultivated tomato. By overcoming these crossing barriers, the Rick Center has created more breeder-friendly genetic materials that accelerate the transfer of traits into new varieties.

PROVIDING STABLE AND SECURE FUNDING

The Rick Center is jointly funded by UC Davis, an industry-sponsored endowment fund, the US Dept. of Agriculture, and the California Tomato Research Institute. Support from the USDA has been sharply reduced in recent years and the outlook is uncertain.

Current levels of funding are inadequate to fully protect and maintain the Rick Center's collections. Each wild species has particular requirements for optimal maintenance. It is a challenging and costly undertaking to assure that the genetic diversity of each accession is preserved during seed multiplication and storage; this diversity is their true value. Improved facilities and well-trained personnel are needed to maximize these efforts.

The Rick Center is therefore seeking donations from the tomato industry to build the endowment fund. A larger endowment will provide the financial stability needed to maintain optimal stewardship of this irreplaceable resource.

Your contribution will help us secure the future of the Rick Center and ensure that breeders and researchers have access to this unique genetic collection. The Rick Center has contributed to the current success of the tomato industry, and with your support, will continue to provide solutions to challenges faced by growers and meet the needs of consumers in the future.

