

Farmers markets driving tomato research

February 7 2013, by Rod Santa Ana



Dr. Raul Villanueva, an entomologist at the Texas A&M AgriLife Research and Extension Center at Weslaco, conducts research on tomatoes to reduce damage from insects and viruses. Credit: AgriLife Communications photo by Rod Santa Ana

The emergence of farmers markets in the Lower Rio Grande Valley has led to new research that shows planting dates affect the productivity of organic tomatoes, according to an expert at the Texas A&M AgriLife

Research and Extension Center at Weslaco.

"Just a few years ago, between Brownsville and Rio Grande City, there were no [farmers markets](#) anywhere," said Dr. Raul Villanueva, an AgriLife Extension entomologist.

"Now, there are seven or eight that are all doing very well. The demand for fresh, locally grown fruits and vegetables is obviously high and growing, especially for organic produce."

But growing fruits and vegetables in the subtropical climate of South Texas without the use of synthetic insecticides is a real challenge, especially when it comes to [tomatoes](#), Villanueva said.

"People who grow produce for farmers markets here have become quite successful in going organic, but they were really having problems with tomatoes," he said. "That's due to a virus spread by whiteflies that severely limits production. It's called yellow leaf curl virus.

"In fact, that virus, coupled with competition from Mexico, is why tomatoes are not grown here commercially like they were back in the 1950s and 60s. There are some tomatoes still grown here for canning, but the acreage is very small, about 200 acres."

The virus debilitates the plant, causes plant leaves to curl upward along the edges and can knock tomato production to zero, Villanueva said. Whiteflies are abundant because they feed on other crops, including cotton, corn, watermelon and others, creating continuous populations that feed on and transmit viruses to tomatoes, watermelon and potatoes.

To help today's producers, Villanueva planted tomato varieties he knew were especially susceptible to yellow leaf curl virus at various dates between Sept. 17 and Oct. 5.

"What we found was that those planted early were the most infected," he said. "They had very low yields and some produced no fruit at all. Those planted on Oct. 5 had one and a half times the yield of those planted early and the rate of infection was low."

Villanueva thinks later planting dates help tomatoes resist the virus because whitefly populations are lower then.

"So, our early recommendations are that growers change their planting dates. But we have lots more research to do because some of our findings were very likely affected by drought. We also need to evaluate newly developed tomato varieties that have tolerance or resistance to yellow leaf curl virus."

Those additional varieties are being developed by Dr. Kevin Crosby, an associate professor and vegetable breeder in College Station once stationed at the AgriLife Research and Extension Center at Weslaco.

"Through collaborations with colleagues in Taiwan and Florida, we have successfully integrated multiple virus-resistance genes into our heat-tolerant tomato lines to create several promising experimental varieties," Crosby said. "These include beefsteak, saladette and heirloom type fruits on determinate plants."

Determinate plants are relatively compact plants on which all the fruit sets and matures at the same time.

Villanueva said improved [tomato varieties](#) coupled with optimal planting dates could promote increased production as well as a healthier lifestyle here.

"All of this research and information is important to the future success of farmers markets," Villanueva said. "And farmers markets are

important because they improve the lives of both growers and consumers here. Growers become economically self-sufficient, and consumers enjoy the healthy benefits of organic produce."

Villanueva said he worked closely with growers in the Harlingen and Weslaco areas who are considered transition growers, small acreage producers who are trying to wean their production from the use of organic insecticides and become fully organic.

Provided by Texas A&M University

Citation: Farmers markets driving tomato research (2013, February 7) retrieved 6 May 2024 from <https://phys.org/news/2013-02-farmers-tomato.html>

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