

Nutrient use, optical genetics important in organic market

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Nutrient use in vegetable farming is a relatively new topic, but one that is quickly taking off. Assistant professor of system plant physiology Vijay Joshi from the Texas A&M AgriLife Research branch in Uvalde presented a talk on the new development in organic farming during the Combined Vegetable and Wheat Field Day held May 18 in Uvalde.

Because the organic industry is growing, with fruits and vegetables worth \$14.4 billion, the demand for organic fruits and vegetables is also growing. Organic agriculture occupies 1 percent of global crops, and similarly, only 178 farms state-wide represent the entire supply of organic produce.

“Given the exponential growth in the organic sales of fresh and processed vegetables, Texas producers – who

are well familiar with commercial conventional productions – need to step up and grab the opportunity,” Joshi said.

Even though the market is growing considerably, Texas markets for organic fruits and vegetables is not seeing enough produce on shelves.

“Texas currently contributes less than 1 percent in organic sales,” Joshi said. “With such a large market, farmers are expected to produce crops faster than ever before, and their crops are expected to have more flavor and color, otherwise they’ll be passed up for commercial exports.”

Joshi said there is a solution: nutrient use. “There are advantages to nutrient use. There are added nutrients, but there’s more flavor and color, and that’s something farmers can use,” he said.

However, for farmers to use these nutrients, their organic fruits and vegetables must have better root architecture

for nitrogen. Furthermore, farmers are lacking varieties and cultivars that are bred just for the low input organic production system.

“My program would try out, find out genetic mechanisms that would help in enhancing nutrient uptake and utilization under organic systems,” he said. “This is the first step towards developing varieties suited just for organic farming.”

By developing varieties suited for organic farming, farmers would be able to create cultivars that would close the gap between nitrogen intake and the demand for crops.

“There is a gap in nitrogen intake and the demand for crops,” Joshi said. “The most important issue is to increase the quality traits that many people are looking for – the color, the flavor. By doing that, we can close the gap.”

But by creating a new root architecture, farmers would have to develop a



Daniel Leskovar (holding microphone), center director and professor of vegetable physiology, leads a group through the crops planted at the Texas A&M AgriLife Research branch in Uvalde. Tours were a large component of the Combined Vegetable and Wheat Field Day on May 18, as presentations talked about the tomato, wheat, pepper and other crops that lay just beyond the research building.

cultivar, or a plant variety produced by selective breeding, for organic production.

“What is called ‘optical genetics’ is very challenging, because you have to breed until you get the perfect genetics,

the perfect root,” Joshi said. “But in a growing economy, you need that kind of plant.”

Joshi is still working towards creating organic cultivars that would aid farmers and increase organic fruit and vegetable

production.

“My research program is working towards evaluating if organic production helps in harnessing nutraceutical compounds relative to conventional farming,” he said.