Nineteen Tomato varieties evaluated under organic guidelines

June 23 2014

The recent surge in organic farming has created a need for enhanced research efforts to inform the agricultural sector. George Boyhan from the Department of Horticulture at the University of Georgia says that "variety evaluations"—studies that evaluate and develop crop varieties specifically suited for organic production—can be particularly useful to organic producers. "There continues to be need for variety evaluation trials, as many of the available varieties are locally adapted or only regionally available," he noted. Boyhan said few trials have been performed using the open-pollinated tomato varieties popular among organic growers, so growers lack valuable information about how organic varieties stack up to commercial hybrids.

Boyhan and researchers Suzzanne Tate, Ryan McNeill, and Jeffrey McConnaughey completed a variety evaluation in which they compared fresh market modern F₁ tomato varieties with open-pollinated varieties under organic production practices. The study, published in HortTechnology, evaluated 19 tomato varieties using the U.S. Department of Agriculture National Organic Program guidelines. The tomato varieties used in the study were chosen based on recommendations from local growers in Georgia (for open-pollinated varieties), and seed companies interested in having their F₁ hybrid seeds evaluated. All of the entries in the trial were red tomato varieties with the exception of pink varieties Ozark Pink and Florida Pink.

Results showed that HSX 8115H and 'Celebrity' had the highest early total yield. 'Costoluto Fiorentino', the only open-pollinated variety
among the five highest-yielding varieties for early total yield, showed significantly less early yield than the two frontrunners. 'Celebrity' had the greatest total yield of all the entries tested. All of the five top ranked varieties for total yield were F1 hybrids, and were either determinate or semi-determinate types. 'Florida Pink' had the largest average fruit weight, but also showed the lowest total yield of all the varieties.

"Overall, the F1 hybrid varieties did better than the open-pollinated varieties, which is not surprising since F1 hybrids often exhibit hybrid vigor," Boyhan said. The evaluation showed that the F1 hybrids also had more uniform fruit while the open-pollinated varieties tended to have more fruit variation.

The authors noted that, although the open-pollinated varieties may yield less than F1 hybrids, they remain popular with local and organic growers. "Older open-pollinated varieties may offer interesting visual, textural, and flavor components that have not been the focus of modern breeding efforts. With the increase in the organic and local food markets, there may be areas in which plant breeding can focus to bring better disease resistance and yields to older varieties with unique characteristics," they said.

**More information:** The complete study and abstract are available on the ASHS HortTechnology electronic journal web site: [horttech.ashspublications.org/...nt/24/2/252.abstract](http://horttech.ashspublications.org/...nt/24/2/252.abstract)

Provided by American Society for Horticultural Science
