

# Tomato Variety Appears To Resist Bacterial Disease

WOOSTER, Ohio — Ohio State University researchers have developed a tomato variety that appears to resist bacterial spot, one of three major diseases in Ohio that wreak havoc on the crop.

David Francis, Ohio Agricultural Research and Development Center researcher, said that the study, following three years of development, is in its second year of yield tests and shows promising enough results to move into the pre-commercial stage. "The tomatoes are holding up pretty well to the disease. We consider it a partial resistance, not a full immunity," said Francis. "But we could release a variety as early as next year with commercial seed available by 2002." Sally Miller, OARDC plant pa-

thologist and a researcher from the University of Florida are also participating in the study.

Bacterial spot, caused by the bacterium *Xanthomonas campestris* pv. *vesicatoria*, attacks tomato plants under moist environmental conditions. In addition to attacking the leaves, bacterial spot also causes spotting, blemishing, and distortion of the fruit, reducing its marketability and palatability.

Exact monetary crop loss in Ohio caused by bacterial spot is not known, but Francis estimates that approximately 10 percent of the state's \$20 million annual processing tomato crop is lost to bacterial spot, as well as bacterial speck and bacterial canker, two other major diseases in Ohio. "It depends on the disease, environ-

mental conditions and a grower's crop," said Francis. "Losses can range from 10 percent to 80 percent for an individual."

OARDC research on bacterial spot spawned from a survey of growers and processors, who named bacterial spot as one of the most important diseases in Ohio, said Francis. "A couple of fungal diseases were included on the list, but other people were already working on those," he said. "Research has been done on bacterial spot before, but this is the first time we've strung the whole process together to get a variety."

The researchers focused on a Hawaiian tomato line that exhibits multiple bacterial resistance, including bacterial spot. Using DNA market technology similar to that used

in forensics, the researchers identified and selected disease-resistant genes in the Hawaiian line. By subsequently crossbreeding the Hawaiian line with a tomato variety adapted to Ohio growing conditions, the researchers were able to develop over 100 tomato varieties that exhibited resistance to bacterial spot. Out of the original population and subsequent generations, four varieties were chosen for their resistance to bacterial spot while maintaining the horticultural characteristics necessary for marketing success.

"The quality of the fruit is the biggest concern. These varieties passed that hurdle," said Francis, adding that the tomatoes also exhibit traits, such as high yield, excellent color, and a balanced sugar and citric acid content.

The researchers have planted and studied the varieties in several areas, including Wooster, Ohio, Fremont, Ohio, Indiana, Pennsylvania, New Jersey, Maryland, and Canada. "It's easy for me to see faults in the varieties

that I want to make improvements on," said Francis. "But we've really done something here. We've added extra value to the seed that other varieties don't have."

The researchers are also currently conducting tomato studies on bacterial speck and bacterial canker.



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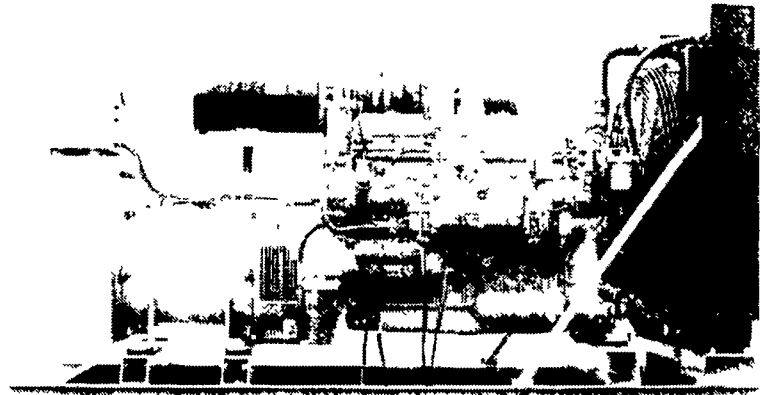
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