

## **Managing bacterial speck and bacterial speck-like diseases on fresh market tomatoes in New York**

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Bacterial speck of tomato, caused by *Pseudomonas syringae* pv. *tomato*, is a common but rarely severe pathogen of tomato in Upstate New York. We have been using the bacterial speck pathosystem as a model for bacterial disease control in tomato for several years. Control strategies including copper-based compounds, and two plant activators (Acibenzolar-*S*-methyl and a *Bacillus* spp. plant growth-promoting rhizobacterium) used either alone or in combination. Acibenzolar-*S*-methyl (ASM), which activates systemic acquired resistance, controlled *Pseudomonas syringae* pv. *tomato* as well as copper and without negatively affecting yield. The plant growth-promoting rhizobacteria (PGPR, activator of induced systemic resistance) compound reduced bacterial speck symptoms relative to the untreated control though did not consistently control to the level of copper and ASM. Pathogen growth and plant defense responses were followed using quantitative real-time PCR on leaf samples collected from the field. While all control strategies slowed pathogen growth compared to the untreated control, the treatment containing a combination of two plant activators (ASM and the *Bacillus* spp. PGPR) had significantly fewer bacteria than other treatments. In 2009 the situation changed dramatically as there was a severe outbreak of bacterial speck in NY. The isolates collected from the 2009 outbreak were very aggressive. In 2010, speck-like symptoms appeared on tomato plants on a farm that had been hard hit by speck in 2009, but there was no wide-spread disease outbreak. We now know that *Pseudomonas syringae* pv. *tomato* was responsible for the disease outbreak in 2009, while *Pseudomonas viridiflava* caused the speck-like symptoms observed in 2010.