2017 Research Report

Can advanced nanoparticles effectively manage bacterial spot caused by copper tolerant *Xanthomonas gardneri* in Ontario processing tomatoes?

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Highlights/Summary:

- Greenhouse evaluation
  - One trial was completed in the Spring to evaluate the effectiveness of different copper and quaternary ammonium compound nanoparticles on management of bacterial spot in greenhouse seedlings. Treatments were made on a 5- or 7-day interval. The total number of applications was limited to 5 to compare the new treatments to the standard Kocide 2000.
  - Using a system that mimics tomato seedlings production conditions, none of the treatments reduced the spread of bacterial spot symptoms when inoculated with a copper tolerant strain of *X. gardneri*. This is contrary to results from the University of Florida, where the nanoparticle products reduced disease severity in greenhouse pot studies using copper tolerant *X. perforans* in fresh market field tomatoes.
  - There was high variability in the trial, thus, it may be beneficial to re-evaluate the 5-day interval treatments in one additional trial to confirm results.
- Field evaluation
  - The 2017 growing season was very dry, thus conditions for the proliferation of bacterial spot were poor. Disease developed slowly on foliage, but incidence on fruit was high at approximately 40% among all treatments. This work should be repeated in another year to evaluate the products under field conditions that are more typical of the Ontario tomato growing season.

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