

2018 Research Report

Evaluation of alternative products for management of bacterial spot in processing tomatoes

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Research Team:

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Highlights/Summary:

- The objective of this research was to evaluate commercially formulated nanoparticles (copper, zinc oxide) as well as other newly registered and pipeline products (Double Nickel, LifeGard, Phostrol) for management of bacterial spot caused by *X. gardneri* under simulated commercial plug (transplant) production practices and field conditions. Products were evaluated for their effects on bacterial spot alone and in combination.
- *Greenhouse evaluation:* The tray area with symptoms in treatments Kocide 2000, Phostrol, Nano-zinc + Phostrol, LifeGard + Phostrol, and Double Nickel + Phostrol was similar to that observed in the non-inoculated control, but reduced the area of symptoms compared to the inoculated control. Although Kocide 2000 and Phostrol demonstrated some ability to reduce symptom development over time, none of the treatments reduced bacterial spot spread to a commercially acceptable level. The strain of *X. gardneri* used in the experiment was copper sensitive. If copper tolerant *X. gardneri* is present, no effect of Kocide 2000 is expected. Extreme temperatures in the greenhouse during completion of Trial 2 caused excess stress and we were unable to distinguish these symptoms from bacterial spot.
- *Field evaluation:* The only treatment to reduce defoliation by the copper sensitive *X. gardneri* used to inoculate the trial was Kocide 2000. There were no effects on fruit incidence. None of the copper alternatives demonstrated strong potential for management of bacterial spot under Ontario field conditions. The trial was inoculated with a copper sensitive strain of *X. gardneri*, but recent surveys confirm the *X. gardneri* population in Ontario is largely copper insensitive. Recent efficacy trials (2009-2017) also show inconsistent performance of Kocide 2000 even when trials are inoculated with copper sensitive *X. gardneri*. Therefore, it is unlikely Kocide 2000 would provide noticeable benefits under commercial field conditions for bacterial spot management.

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