

Pest Management Strategies in Processing Tomatoes, 2011 – Final Report

Prepared for the Ontario Tomato Research Institute (OTRI)

November 1, 2011

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Acknowledgements: We would like to thank the Ontario Tomato Research Institute, OMAFRA, University of Guelph, Syngenta, Valent for financial support as well as all chemical companies and members of the tomato industry who donated chemical products and seeds.

Key Findings / Summary of Results

A. BACTERIAL DISEASE MANAGEMENT

A1. Determine if different rotations of copper products with non-copper products improve bacterial disease control, while reducing the number of copper applications required each year. (p. 5-9)

We evaluated the efficacy of various products applied alone, as a tank mix with Kocide 2000, and alternating applications with Kocide 2000. In 2011, the addition of Serenade, Regalia MAXX, and Actigard to Kocide did not improve control as compared to Kocide alone, although on occasion the level of disease in treatments Regalia MAXX + Kocide and Actigard + Kocide was numerically lower than Kocide alone. Kocide + Dithane were not more effective than Kocide alone. It is important to repeat this work over multiple seasons in order to determine if results are consistent under different environmental conditions. This trial was similar to one conducted in 2010, where Kocide 2000 + Dithane provided the most consistent level of control for foliar symptoms of bacterial spot and speck, however all treatments except Regalia MAXX applied alone provided some benefits (Actigard was not included in 2010). Disease severity in this trial was not very high, due to dry conditions in late July and August.

A2. Evaluate use of plant growth regulators and plant defense activators for management of bacterial disease.

Actigard and Sumagic (see supplementary report)

We observed more significant reductions in bacterial disease with Sumagic plus Actigard than Actigard alone in 2010, but did not observe the same reduction in bacterial disease with Sumagic plus Actigard in the 2011 trials. However, combining data from 2010 and 2011 for cv. TSH4 revealed that applications of Sumagic plus Actigard resulted in a yield increase of 5.7, 4.5, and 4.4 tons acre⁻¹ higher than the nontreated control, Sumagic alone or Actigard alone when Actigard was applied in the field. The lack of disease reduction in 2011 may have been due to the unfavourable conditions for disease development in 2011 compared to 2010 (specifically dry conditions in July in Ridgetown), or because the rate of Actigard used was reduced in order to reflect the actual Canadian product label. The increase in yield may be a result of a complex physiological response to uniconazole and acibenzolar-S-methyl, and related to a reduction in the number of days for plants to begin blooming, higher chlorophyll levels, the rate of Actigard applied, and the length of time Actigard is applied following the application of Sumagic.

Regalia MAXX (see section A2)

We also included the plant defense activator Regalia MAXX in our bacterial disease efficacy trial (see A1). This is an extract of giant knotweed and is labelled for bacterial spot suppression on tomato in the United States.