

2017 Research Report

Tolerance of commercial processing tomato cultivars to bacterial spot – an evaluation on tomato foliage and fruit, 2017 (17-Tom-4 and 17-Tom-5)

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Highlights/Summary:

- The purpose of the work was to evaluate cultivar tolerance to bacterial spot under different inoculation and growing conditions, considering both foliar and fruit tolerance to infection and symptom development. Two trials were completed, Trial 1 considered differences in disease severity on foliage and fruit when inoculation with bacterial spot occurred within two weeks of transplanting, and Trial 2 considered disease severity on fruit when flower and small green fruit were inoculated.
- Time to the first appearance of bacterial spot symptoms was 24 to 28 days after the first inoculation. It took four more days for symptoms to appear in CC337 than TSH18, but there were no other differences among treatments. This contrasts with 2016, when it took 18 to 24 days for symptoms to appear regardless of the cultivars, and 2015, when symptoms started much earlier (10 days in N3306 to 16 days in H5108). The level of defoliation before harvest was not influenced by cultivar, except for H3406, which had higher defoliation than all other cultivars except H9706 and TSH18 27-44 days before harvest. However, for fruit infection in Trial 1, cultivar CC337 frequently had lower bacterial spot incidence on fruit than other cultivars, specifically lower overall incidence and severity than TSH28 and TSH18 and lower incidence of large lesions than TSH28. CC337 and H1178 had lower incidence of split lesions than TSH18 and TSH28. In Trial 2, fruit symptom results followed somewhat similar trends to those in 2015 and 2016. CC337 consistently appeared to have lower fruit severity than some other cultivars, however the cultivars most severely affected by spot fluctuated from year to year.
- The results indicate that timing of foliar symptom development, defoliation, and fruit disease incidence may not always be strongly correlated. However, further research under controlled conditions is required to validate these results. This will be completed in related work in 2018-2019 (funding for this confirmed via OMAFRA/UofG Partnership project). Additional data analysis of the field results will also be completed. If it is true that foliar and fruit symptom development are not well correlated, the results have important implications for plant breeding work to identify tolerance to bacterial spot.

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