

TOMATO (*Solanum lycopersicum*)
 Late blight; *Phytophthora infestans*
 Early blight; *Alternaria solani*
 Bacterial spot; *Xanthomonas* spp.

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Evaluation of susceptibility of tomato cultivars to foliar diseases in the field, 2018.

This trial was established at the Michigan State University Plant Pathology Farm in Lansing, MI, in a field of Capac loam soil previously planted to cucumbers. Roundup PowerMax 1 qt/A was applied for weed control prior to planting. The soil was prepared by plowing and discing. Raised beds were formed and covered with black plastic. Drip irrigation was established to irrigate the plot and mist irrigation used to increase the duration of leaf wetness. Seed was germinated in a research greenhouse in plug trays on 18 May. Five days after germination, plants were sprayed with growth regulator Sumagic at 5 ppm. Four weeks after germination, plants were moved outdoors to acclimate. Plants were transplanted into the raised plant beds on 25 Jun, five weeks after germination. Treatments were established in a complete randomized block design with four replications. Rows were spaced on 8-ft centers and were 20 ft long; plants were spaced 18 in. apart. The trial was fertilized with weekly applications of 20-20-20 3 lb/A via drip tape. One application of Warrior 2 with Zeon Technology 2.8 ml/3 gal was applied for tomato hornworm control on 24 Aug. The plots were hand-weeded as needed. The trial was inoculated with a 1×10^4 zoospores/ml suspension of *Phytophthora infestans* isolate US-23 on 15, 28 Aug and 6 Sep using a manual backpack sprayer equipped with a hollow cone nozzle, calibrated to spray 15 ml of inoculum per plant. Disease was visually assessed on 28 Sep using a 0 to 100% scale. Data were analyzed using an analysis of variance (ANOVA), with mean separation performed using Fisher's protected least significant difference (LSD).

During the month of Aug, the maximum/minimum temperatures were 86°F/50°F (69.8°F average). In Sep, the maximum/minimum temperatures were 98.6°F/35.6°F (64.4°F average). Early blight and bacterial spot developed throughout the plot; late blight symptoms were observed primarily on 'Early Girl' tomato. While all cultivars exhibited bacterial spot symptoms, 'Matt's Wild Cherry' and 'Cherry Bomb' developed significantly fewer symptoms than 'Mountain Merit', 'Rugged Boy', 'Amish Paste', and 'Early Girl'. Early blight symptoms were significantly less severe on 'Matt's Wild Cherry', 'Cherry Bomb', 'Stellar', and 'Mountain Magic' compared to 'Rugged Boy', 'Amish Paste', and 'Early Girl'.

| Tomato cultivar | Foliar blight (%) [*] | | |
|--------------------|--------------------------------|--------------|-------------|
| | Bacterial spot | Early blight | Late blight |
| Amish Paste | 61.3 ef ^{**} | 38.0 d | 0.0 a |
| Better Boy | 32.5 a-e | 35.0 d | 3.0 a |
| Cherry Bomb | 17.5 ab | 23.0 ab | 0.0 a |
| Damsel | 45.0 b-f | 33.0 b-d | 5.0 ab |
| Defiant | 45.0 b-f | 35.0 cd | 0.0 a |
| Early Girl | 63.8 f | 38.0 d | 13.0 b |
| Matt's Wild Cherry | 15.3 a | 13.0 a | 0.0 a |
| Mountain Magic | 26.3 a-d | 23.0 ab | 0.0 a |
| Mountain Merit | 47.5 c-f | 25.0 bc | 0.0 a |
| Mr. Stripey | 40.0 a-f | 28.0 b-d | 0.0 a |
| Rugged Boy | 51.3 d-f | 35.0 cd | 0.0 a |
| Stellar | 20.0 a-c | 25.0 bc | 0.0 a |

^{*}Disease based on a visual estimation of percentage of foliage infected.

^{**}Column means with a letter in common are not significantly different (LSD t-Test; $P=0.05$).