

Test of the Cornell DSS for management of late blight of tomato

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Late Blight is a devastating disease of potato and tomato crops caused by the oomycete *Phytophthora infestans*. *P. infestans* obtained notoriety as the causal agent of the Great Potato Famine of 1845 but has maintained its reputation with a multitude of subsequent outbreaks, such as the Late Blight epidemic of the United States in 2009 which resulted in economic losses of 3.5 billion USD in potato crops and 112 million USD in tomato crops. In an effort to reduce the economic losses generated by Late Blight outbreaks, the Fry lab at Cornell developed a Late Blight Decision Support System (DSS). The SimCast program of the DSS analyzes local weather patterns, time elapsed since last pesticide application and the components of the most recent spray to determine a more efficient spray schedule as opposed to spraying on a set schedule. By implementing this system we expect to see either fewer applications of fungicide or better control of the pathogen. To test the efficacy of the DSS, we planted a field of Mountain Fresh+ Tomatoes June 13th at the Mountain Horticulture Crops Research and Extension Center in Fletcher, NC. The field design was a randomized complete block with four replications consisting of three treatments, a control plot, a plot sprayed according to the grower's standard, and a plot sprayed according to the DSS. Late Blight was first detected on border rows July 14th. Within 2 weeks, the percent leaf area diseased (%LAD) in the control plots, the DSS and the grower's standard plots was 83%, 48%, and 48% respectively after 5 applications of fungicide. Fungicide applications are still being applied and yield will be measured at the end of the season.

