

Project Title: Disease Management Strategies for an Emerging Disease of Strawberry in Ohio.

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Why was this project funded? *Neopestalotiopsis* disease, caused by *Neopestalotiopsis* spp., is an aggressive disease of strawberry that was first observed in 2021 in Ohio. The disease causes leaf spotting and rapid plant decline. The symptoms on the leaves can easily be confused with common leaf spot, leaf scorch and / or Phomopsis leaf blight. However, *Neopestalotiopsis* disease symptoms progress much faster, especially when conditions are wet and cool. Unlike these other foliar diseases of strawberry, *Neopestalotiopsis* spp. can cause fruit lesions. There is minimal information of the susceptibility of common varieties planted in Ohio, the primary source of inoculum, or the ability of the pathogen to overwinter in Ohio. Funding for this project supported a variety trial to determine the susceptibility of varieties commonly planted in Ohio.

Project outline.

Bare root plants (n=10) of four varieties (Allstar, Honeoye, Jewel, Earliglow) were transplanted into 6-inch pots containing ProMix BK25 potting mix and maintained in the greenhouse. Plants were pre-sterilized for 10 minutes and then inoculated with *Neopestalotiopsis* spp. by spraying the plants with 10^6 spore/ml until run-off. Plants were placed in plastic tents to maintain humidity. Disease incidence (number of diseased plants) was measured 7- and 17-days post inoculation and severity (percent foliar disease) was measured 17 days post-inoculation.

Take-home messages.

Simulating disease in the greenhouse was challenging, but the final protocol described above induced adequate disease to evaluate variety susceptibility. Mites were difficult to control in the greenhouse and plant showed symptoms of injury. Jewel was the most susceptible variety followed by Honeoye and Earliglow. Allstar was the least susceptible. Allstar is tolerant to leaf spot, leaf scorch, and powdery mildew and resistant to red stele and thus is a good variety to grow in Ohio when considering disease susceptibility profiles.

Impacts.

Through this study a range of *Neopestalotiopsis* disease incidence was observed for strawberry varieties commonly grown Ohio. Although this study should be repeated and additional information on the primary source of inoculum is needed, preliminary results indicate that Jewel is very susceptible to *Neopestalotiopsis* spp. and fields planted with

Jewel should be monitored for disease symptoms frequently and samples submitted to the Plant Diagnostic Clinic (Wooster, OH) for accurate identification. In this study, Allstar was the least susceptible.

What was discovered?

Jewel was the most susceptible variety with 92% incidence and 12% foliar disease severity (Table 1). In 10 days, disease incidence in Jewel doubled, indicating that the disease can rapidly spread when humidity is high. Allstar was the least susceptible with 20% disease incidence and disease did not spread to other plants within 10 days under high humidity conditions. Disease incidence for Honeoye and Earliglow was high at 56% and 49%, respectively. Severity after 17 days for Allstar, Honeoye, and Earliglow was between 5 and 8%. Jewel plants were also more visibly stunted (Figure 1) than the other varieties, however stunting was not quantified in this study.

Table 1. Mean *Neopestalotiopsis* disease incidence and severity of four strawberry varieties commonly grown in Ohio.

Variety	Mean Disease*		
	Incidence (7 dpi)**	Incidence (17 dpi)	Severity (17 dpi)
Jewel	48.3 a	91.6 a	11.6 a
Honeoye	46.7 ab	55.8 b	7.5 b
Earliglow	33.3 ab	49.2 b	5.0 b
Allstar	20.0 b	20.0 c	5.0 b
P value	0.049	<0.0001	0.0003

* Means that do not share a letter are significantly different.

** dpi = Days post-inoculation



Figure 1. *Neopestalotiopsis* disease symptoms on four varieties of strawberry commonly grown in Ohio 17 days post-inoculation. Plants also show symptoms of mite injury.