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Year 2 of 3 Evaluation of Disease Forecasting

Northeast Regional Sustainable
Agriculture
Research and Education Program

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Introduction-

Grape growers in Western New York are searching for alternatives to the present calendar-based system of fungicidal applications. Employing the weather system to spray only during post infection in the primary season, may result in one or two fewer spray applications per year. This would be a significant environmental advantage and reduce spray costs for the grape grower.

Method-

A *Sensor Instruments Field Monitor* was employed in a 2 acre Niagara vineyard test plot. Sprays will be timed according to the presence of infections of powdery mildew and black rot fungi and the occurrence of infection periods. A 13 acre Niagara vineyard control plot spray program will be based on a protective calendar system. Disease pressure will be monitored over a three year period in the control and test plots.

Results- Year 2

Weather data was downloaded daily via telephone lines and processed using the *Sensor Grape Software* for powdery mildew (*Uncinula necator*) and black rot (*Guignardia bidwellii*) disease models. The first fungicide spray was applied to both the control and test plots on May 27th. See attached time line graph. A powdery mildew and black rot infection period occurred 20 days later prompting a pre-bloom spray on June 16th. The first post bloom spray was applied June 28th over both plots, to protect the newly developed post bloom plant tissue. The control plot received a 2nd post bloom spray on July 12th, the test plot received a delayed 2nd post bloom spray on July 18th. A 3rd post bloom treatment was applied to the control plot on July 27th, the test plot required no additional fungicide treatment at this time. Scouting was conducted on June 18th, July 12th, August 8th, and September 19th. No significant levels of powdery mildew or black rot was located on either site.

2nd Year Conclusion-

The July 18th powdery mildew and black rot infection periods occurred while the test sight was protected by the "weather delayed" 2nd post bloom spray, so a 3rd post bloom fungicide application was eliminated on the test plot. Approximately \$35.75 per acre was saved in spray costs. No differences of disease pressure was detected between the test and control plots.

TIME LINE GRAPH 2ND YEAR

CONTROL PLOT

PROTECTED
BLACK ROT
PONDERY
PROTECTED

TEST PLOT

5/27 DEAD ARM SPRAY

5/27 DEAD ARM SPRAY

6/16 PRE-BLOOM SPRAY

6/16 PRE-BLOOM SPRAY

6/28 1ST POST BLOOM SPRAY

6/28 1ST POST BLOOM SPRAY

7/12 2ND POST BLOOM SPRAY

7/18 2ND POST BLOOM SPRAY

7/27 3RD POST BLOOM SPRAY

8/01 VERAISON

8/01 VERAISON

9/19 HARVEST

9/19 HARVEST

