CROP PROTECTION UPDATE 2007

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One Step Ahead

A Michigan grower uses a prediction tool for thwarting major fruit diseases.

By Brian Sparks
Editor

CONTROLLING diseases in orchards means more than simply spraying early. It also involves rotating fungicide applications to manage resistance. In addition, while growers trying to suppress insects may rely on scouting, they can also turn to another form of scouting for disease control: the use of disease prediction tools.

Mike Belco, the IPM specialist at Applewood Estates in Flint, MI, realizes this, and he's been able to develop a program for disease control at the small orchard that revolves around minimizing the use of pesticides and keeping early tabs on disease pressure.

A few years ago, Applewood Estates planted a diversity strip at the end of the orchard to encourage higher populations of beneficial insects.

Photo courtesy of Mike Belco

Timing Sprays

First, a bit of background on Applewood might help, as it is not a typical commercial orchard. The land was originally developed by Charles Stuart Mott in 1916 (it was Mott's relatives who started the Mott's apple processing company). While Mott had an engineering degree and worked for General Motors for many years, he treated the property as a family farm, and grew apple trees and vegetables. After the death of Mott and his wife Ruth, his family started the Ruth Mott Foundation, of which Applewood is a part. The apple trees, 70 in all, are grown on 1 acre. Most of the 29 varieties are heritage varieties, but there are Jonathan and Red Delicious trees as well.

Throughout the year, the farm hosts public events and festivals, as well as guided tours. Because of this, Belco says that when it comes to pest control, they try to be as environmentally friendly as possible.

Nevertheless, pest control is still just as important at Applewood as it is in nearby commercial orchards. Apple scab and fire blight are the two most prominent diseases, and one tool Belco uses to combat them is a Watchdog 425 Data Logger from Spectrum Technologies. The device is essentially a

weather station: It records temperature and leaf wetness hourly, and serves as a rain gauge. Belco can download the data collected by the Watchdog onto his desktop, and feed it into his SpecWare disease control model software. "It gives us a warning for whether a disease is likely to occur," says Belco. "We watch the model like a hawk during bloom."

Because Applewood is run as a "9 to 5" business, Belco is restricted to spraying on the weekdays, and of course he cannot do so when tours are scheduled. Copper sprays, as well as materials such as Apogee (prohexadione calcium, BASF) and Serenade (*Bacillus subtilis*, AgraQuest) are still necessary for fire blight con-

dict the possibility of disease pressure.

Since coming aboard as IPM specialist five years ago, Belco has worked with his horticultural team at Applewood to take other steps for disease control as well. "We looked at getting on the cutting edge and not spraying as much as we did before." For example, they planted a diversity strip of other trees and shrubs at the end of the orchard to encourage higher populations of beneficial insects.

They are also using a 900 ET from

Spectrum that calculates evapotranspiration (ET) daily, as well as measuring wind speed direction. This helps them adjust their irrigation schedule accordingly, and whether or not wind conditions will make it more difficult to spray. "We try to bring all kinds of environmentally friendly ideas here, and incorporate them into all of our orchard and pest control practices," says Belco. ●

E-mail questions or comments about this article to bdsparks@meistermedia.com.

Attacking Fire Blight

COUGARBLIGHT is another tool that fruit growers can use to determine the potential risk of fire blight infection. Originally developed in the 1980s at Washington State University, it can be used in commercial apple and pear regions throughout the country.

The model should be used from the time the orchard enters bloom until only a few blossoms remain. The model calculates the sum of degree hours over the past four consecutive days to estimate the level of risk for fire blight. It can also modify its predictions based on the history of fire blight in and around the orchard.

Two very specific descriptions for using Cougarblight are available online:

• *www.ncw.wsu.edu/FB2000f. htm*, written by Washington State University's Tim Smith

• *www.nysaes.cornell.edu/pp/ extension/tfabp/cougarbl.shtml*, from Cornell University's Tree Fruit & Berry Pathology department.

trol. However, "we can't always spray when we'd like, which makes it tough sometimes," says Belco. "That's where the models help us out." Because the model can also determine whether a disease outbreak is likely to occur, it helps Belco avoid making an unnecessary application.

The WatchDog can also calculate degree days, which is important for Belco, as he'd rather monitor them personally on site instead of relying on the local town readings. This also helps pre-