In search of new thinners

Oil and lime sulfur is a winning combination, but...

by Geraldine Warner

A combination of fish oil and lime sulfur is the clear winner in more than 200 apple thinning trials conducted over the past eight seasons by the Washington Tree Fruit Research Commission. But the search for new, effective thinning strategies continues.

Tory Schmidt, horticultural associate with the commission, said that the goals of thinning are to:

- Minimize your production costs, by reducing the need for hand thinning;
- Optimize retention of large, high quality fruit; and
- Promote consistent annual cropping by maintaining a proper balance of vegetative and reproductive growth, as indicated by adequate return bloom.

Oil and lime sulfur

Crocker's fish oil and lime sulfur has been the best overall bloom thinning treatment for meeting those goals. In 63 percent of the trials, it provided a statistically significant difference in the number of fruit compared with no thinning; in 30 percent of the trials, it resulted in larger fruit; and in 27 percent, it improved return bloom. Stylet oil and lime sulfur or a winter oil and lime sulfur were almost as good.

"Any combination of oil and lime sulfur does well," Schmidt said.

NC99, a calcium-magnesium brine solution developed by G.S. Long Company, Inc., in Yakima, Washington, gave good results in terms of thinning, but was less effective in improving fruit size or increasing return bloom, Schmidt said.

Ammonium thiosulfate (ATS) was only effective at reducing fruit numbers in 25 percent of the trials. It resulted in larger fruit 17 percent of the time, and affected return bloom only 8 percent of the time.

Schmidt said there's concern about the availability and expense of fish or petroleum oils in the future, and the commission continues to search for new bloom thinners. It has been testing new materials developed as thinners by Dr. Curt Rom and his assistants at the University of Arkansas. These include clove oil, citric acid, potassium sulfate, and potassium metabisulfite. Other products being tested include vegetable, canola, corn, and soybean oil emulsions.

Postbloom

Schmidt said the postbloom benzyladenine (BA) products Genesis, Exilis, and MaxCel when used alone probably don't provide as much thinning as growers need to have postbloom. They are better when combined with Sevin (carbaryl). In trials, a combination of Sevin and BA has given better results than Sevin with NAA (naphthaleneacetic acid). However, Sevin, a carbamate insecticide, might not be available in the future because of regulatory issues, and the commission is looking for postbloom thinning programs that don't rely on Sevin. A combination of NAA and MaxCel has shown good results. Research shows postbloom thinners are more effective applied when fruit size is 5 mm and 10 mm than at later timings.

The commission recommends using both bloom and postbloom thinners. Research shows that trees treated with a bloom thinner drop their fruitlets earlier than those treated with postbloom thinners. Although the postbloom thinner might be applied only seven to ten days later than a bloom thinner, the fruitlets stay on the tree longer, so there can be a period of two to three weeks when the trees are carrying more fruit, which results in smaller fruit and less impact on return bloom compared with trees that are bloom thinned.

"The earlier you get your crop adjusted, the better off you will be in terms of return bloom," Schmidt said. "Be early and be aggressive. Think about putting together a comprehensive bloom and postbloom program." ●