

Modifying flushing patterns with hedging for better psyllid management

By Timothy Spann

Many citrus trials being conducted by growers and researchers are focused on better control of the Asian citrus psyllid through chemical means, either by testing efficacy of new chemicals or new application techniques. However, summer offers a particular challenge to psyllid control because of the numerous flushes that are present during the rainy season. Thus, another avenue of psyllid control that we are beginning to research is methods to alter tree flushing. New flush is required by the psyllid for oviposition (egg laying), and for survival of the immature stages. Thus, if we can manipulate flushing, either by reducing the amount or the number of flushes produced or a combination of the two, we can reduce the opportunities for psyllid feeding and reproduction.

In September 2007, a trial was established in cooperation with John Strang and Gapway Groves to test if hedging could be performed at non-traditional times of year to alter the flushing cycles. The trial is being conducted in a 10-acre Hamlin block in Lake Alfred. The block had been on an every-row, every-year schedule of maintenance hedging. We are now testing several summer and fall hedging times and comparing them to both a traditional hedging time as well as an unhedged control.

There are two goals in this project. First, we want to determine if summer hedging can synchronize new flush production into one or two discreet flushes, rather than the normally continuous summer flushing pattern. Discreet flushes will improve psyllid management by providing more precise windows when psyllid control can be targeted. Our second goal is to determine if there is a period in fall when hedging can be done without stimulating a late flush which would be frost sensitive, but still be early enough to allow the buds to undergo adequate floral induction to produce fruit the next season.

It goes without saying that a major concern of summer and fall hedging is removal of the current season's crop. There are also concerns, primarily with late fall timings, of reducing the following year's bloom due to the removal of

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induced floral buds. Fruit removal, bud removal and yield are all being monitored very carefully in this study.

The data collected thus far are shown in Table 1 (pg. 15). During this past year, only the September timing stimulated a flush; none of the fall timings resulted in a flush. This year we will be including two earlier times during August in addition to the September timing. These earlier hedging times will likely give us more treatments that stimulate a flush to allow us to better determine impacts on psyllid management.

All of the treatments removed a surprisingly low number of fruit per tree. The greatest fruit removal occurred in December when an average of 61 fruit, approximately 20 lbs, were removed per tree. At harvest, yields were relatively uniform across all of the hedging times.

However, the late-November and December treatments had the greatest fruit removal and yielded about one-half box less per tree.

Spring 2008 bloom was very uniform among all of the timings. This is reflected in the final fruit set numbers shown in the table. All hedging timings set ap-

proximately the same number of fruit per 2x2-foot sampling frame from the tree canopy. The only significant difference in fruit set was in the unhedged control trees, which set about 2.5 more fruit per sampling frame area.

As previously mentioned, this year we will be including additional summer hedging events as well as testing some plant growth regulators. We will also be teaming up with Dr. Michael Rogers to carefully monitor psyllid populations following each treatment. While no major conclusions can be drawn from this trial at this point, we are encouraged by the seemingly minor impact our treatments had on yield. The important lesson at this point is that thinking outside the box is going to be very important in the fight against greening and psyllid management.

Table 1. Effect of different hedging timings on removal of fruit, shoots and buds, 2007 yield and fruit set and spring flush growth in 2008.

	Hedging Date						
	Sept 12	Oct 23	Nov 7	Nov 19	Dec 12	Feb 5 ¹	Ctrl ²
Number of fruit removed	38.0	40.1	40.3	56.48	61.0	N/A	N/A
Fresh weight of fruit removed (lb)	8.69	11.20	11.46	17.27	19.78	N/A	N/A
Dry weight of prunings (lb)	3.56	3.98	5.02	8.93	6.86	4.22	N/A
Average shoot length removed (in)	ND ³	1.9	4.3	7.0	7.7	6.3	N/A
Average number of buds removed	ND	3.2	7.2	11.1	12.2	9.6	N/A
2007-08 yield (boxes / tree)	5.8	5.9	6.0	5.4	5.3	6.0	5.9
2008 fruit set (fruit / area)	5.8	6.7	5.3	6.2	5.8	4.6	8.6
Total spring flush growth (in / area)	115.9	140.6	102.3	97.6	112.8	110.2	139.9

¹ Harvest occurred prior to the Feb. 5 hedging so no fruit removal occurred as a result of this treatment.

² Control trees were never hedged during the 2007-2008 season, so no fruit, shoot or bud removal data apply.

³ ND = no data. Data for these variables were not collected for the September timing.