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ORANGE: *Citrus sinensis* (L.) Osbeck, 'Hamlin'

AERIAL APPLICATION OF INTREPID 2F FOR CONTROL OF CITRUS LEAFMINER IN ORANGES DURING SUMMER, 2011

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Citrus leafminer (CLM): *Phyllocnistis citrella* Stainton

Leafmining by CLM causes reduced photosynthesis, malformation of leaves, and facilitates infection of citrus canker caused by *Xanthomonas axonopodis* pv. *citri*. Timing of sprays is critical to control CLM, so aerial application would be a useful tool if efficacy compared to ground application. The trial was conducted on a 156 ac block of 46-yr-old 'Hamlin' sweet orange trees planted on raised beds at a density of 103 trees/acre.in Labelle, FL. Trees were irrigated by micro-sprinklers and hedged in Jan 2011. Three treatments and an untreated check were arranged in a RCBD, with plots[ml] consisting of 13 rows of trees separated by an irrigation canal. Aerial applications of Intrepid 2F and Delegate WG both + 435 oil were made on 8 Jul in a total volume of 10gal/ac using an Air Tractor 502 equipped with CP Product #25 flat fan tips operating at 40 lb of pressure at 140mph, providing a 65 width swath. Ground applications of Intrepid + 435 Oil were made the same day with a Rears Hurricane Sprayer operating at 3mph provided with #4 ceramic hollow-cone nozzles and #25 whirl plates and putting out 150 gpa. CLM injury to leaves was evaluated on 20 and 29 of July using a modified Horsfall and Barratt (1945) rating system: 1 = 0- 3%, 2 = 3 – 8%, 3 = 8 – 20%, 4 = 20-50%, 5 = 50-80%, 6 = 80-92%, 7 = 92-97%, and 8 = 97-100%. Ten trees were randomly selected at each of two stops per plot and flushes of appropriate age falling within a 1 cubic foot PVC pipe sampling square were evaluated. For each flush, 5 terminal leaves were examined and graded on both abaxial and adaxial leaf surfaces. The mean grade (i.e. total injury ratings for respective surfaces/ number of read leaves per flush) was multiplied by its proportion of injured leaves per flush to standardize , then analyzed via an ANOVA (proc mixed) with and mean separation by least square means).

Pheromone Traps (Delta AR905, ISCA Technologies Riverside, CA) were deployed on 17 May at 3 per plot (1 trap/4.33acre). Mean trap captures rose from a low of 44 ± 4 at initiation of the trial to 492 ± 24on 26 July, with no differences among treatments (data not shown). Intrepid 2F treatments, regardless of application method, showed significantly less damage than the Delegate treatment or the untreated check on 20 July (Table 1). On 29 July, significantly less damage was observed in response to the Intrepid2F ground and Delegate treatments compared to the untreated check. An additional damage assessment will be made during the next high density of flush (~Oct 2011) to see if any significant differences between treatments remain. However, as of this writing, we would conclude that the aerial application of Intrepid 2F at 2 gpa or Delegate was as effective as the ground treatment of Intrepid at 150 gpa.

Table 1. Two flush damage assessments were made following the aerial spray.

Treatment	Rate (Oz product/ acre)	Mean number (+/- SEM) damaged leaves 20 Jul	29 Jul
Intrepid - Aerial	8oz + 2gal 435 Oil	0.016 ± 0.013a	0.132± 0.036b
Intrepid - Ground	8oz + 2gal 435 Oil	0.028 ± 0.012a	0.068±0.033a
Delegate Aerial	4oz + 2gal 435 Oil	0.057 ± 0.014b	0.084±0.033a
Untreated Check		0.063 ± 0.013b	0.338±0.036b

* Means followed by the same letter and not significantly different (lsmeans).