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ALMOND: *Prunus dulcis* (Miller) D. A. Webb

SOUTHERN FIRE ANT CONTROL IN NON-BEARING ALMOND, 2010

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Southern fire ant: *Solenopsis xyloni* McCook

During 2010 we conducted a trial in Shafter, CA to evaluate the effects of two insecticides on the density of Southern fire ants in almonds. The trial was located in a 7.8 acre portion of a second-leaf orchard that contains alternating rows of the varieties Nonpareil and Monterey. Each plot was six rows wide and ten trees long on a 20 ft by 22 ft spacing. The plots were organized into a RCBD with 4 blocks of 2 treatments and an untreated check. The Lorsban treatment was applied to the floor of the orchard by ground rig at the rate of 4 pt in 40 gal water/acre on 6 Aug. Altrevin bait was applied using a hand spreader at the rate of 1.5 lbs/acre on 5 Aug. Southern fire ant densities were evaluated in each plot prior to treatment on 29 Jul and then weekly through 11 WAT. On each sample date, ant mounds were counted in a 44 ft × 180 ft area in the center of each plot. Additionally, on each sample date except 22 Oct, six plastic vials baited with 0.5 inch slices of hot dog were placed next to the irrigation hose in rows 2 and 5 at trees 3, 5, and 8 in each plot. After 1.5 h to 3 h, depending on environmental conditions during the trial, hot dog vials were picked up and placed in a freezer. The number of southern fire ants were then counted per vial for each plot. The average number of mound counts and ants per vial were analyzed by ANOVA using transformed data (square root (x + 0.5)) with means separated by LSD (*P* = 0.05).

Lorsban Advanced and Altrevin both resulted in numerical reductions in mound counts on all evaluation dates (Table 1), and on all but two evaluation dates for the number of ants (Table 2). These reductions were only significant on two (mound counts) or three (ant counts) individual evaluation dates. However, when cumulative averages of mound or ant counts were analyzed through 11 WAT, both products provided significant reductions in cumulative average mound counts compared to the untreated check (Table 1), and Lorsban Advanced provided significant reductions in cumulative average ant counts compared to the untreated check (Table 2). Mound and ant counts for Lorsban Advanced and Altrevin were statistically equivalent for all individual evaluation dates and during the analysis of cumulative data.

Table 1.

Treatment/ formulation	Rate amt form/acre	Avg number of mounds/plot												
		Pre- counts	6 DAT	13 DAT	21 DAT	26 DAT	34 DAT	40 DAT	48 DAT	55 DAT	63 DAT	69 DAT	77 DAT	Cumulative to 11WAT
Lorsban Advanced	4 pts	16.25a	1.75a	2.00a	1.00a	0.25a	1.25a	0.75a	1.50a	1.00a	2.50a	3.25a	2.00a	1.58a
Altrevin	1.5 lbs	17.25a	2.00a	2.75a	3.00a	2.25ab	2.50a	1.00a	1.50a	1.75a	2.25a	3.25a	1.75a	2.20a
Untreated Check	-	17.75a	3.25a	5.50a	4.25a	3.50b	3.25a	2.75a	4.00a	4.50b	3.75a	2.75a	2.50a	3.65b

Means in a column followed by the same letter are not significantly different (*P* > 0.1, Fisher's protected LSD). Data transformed (square root (x + 0.5)); non-transformed means presented.

Table 2.

Treatment/ formulation	Rate amt form/acre	Avg number of ants per vial											
		Pre- counts	6 DAT	13 DAT	21 DAT	26 DAT	34 DAT	40 DAT	48 DAT	55 DAT	63 DAT	69 DAT	Cumulative to 10WAT
Lorsban Advanced	4 pts	170.3a	0.0a	42.8a	52.5a	42.0a	1.1a	12.75a	22.7a	25.9a	35.7a	2.63a	23.8a
Altrevin	1.5 lbs	159.1a	57.3a	46.1ab	41.1a	58.0a	43.2a	97.1a	102.4a	27.6a	16.6a	39.8a	52.9ab
Untreated Check	--	186.8a	158.2b	122.5b	120.7a	83.4a	55.2a	97.2a	66.0a	99.2b	43.2a	36.3a	93.2b

Means in a column followed by the same letter are not significantly different (*P* > 0.1, Fisher's protected LSD). Data transformed (square root (x + 0.5)); non-transformed means presented.