

Chemical Control/New Products

Control of Southern Fire Ants, *Solenopsis xyloni*, and Pavement Ants, *Tetramorium caespitum*, in Almond Orchards Using Baits

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This trial was conducted to evaluate baits for control of pest ants in almond orchards. The site was a 2-year-old, non-bearing almond orchard in Ripon, California. Plot size was 6 x 5 trees with 24 ft row x 24 ft tree spacing. Irrigation was scheduled once every two weeks with solid set sprinklers.

Product	Active ingredient	Formulation	lb prod/acre	ai/acre
Knack	Pyriproxyfen	0.5% bait	2.0	.0100
Logic	Fenoxycarb	1.0% "	1.5	.0150
Clinch	Abamectin	0.011% "	1.0	.0011
Amdro	Hydramethylnon	0.9% "	2.0	.0180
Lorsban	Chlorpyrifos	4 EC	8.0	4.0000
Untreated control		---	---	---

On May 20, 1998, all materials were applied. Knack and Logic were reapplied over the same plots on July 21. Clinch, Amdro and Lorsban were applied for the second time on August 31. Bait treatments were applied by placing measured amounts or "piles" of bait in approximately 84 locations toward the center of each 30-tree plot. Lorsban was applied in 50 gallons of water per acre using an orchard-type handgun for the first application and a 10-ft boom for the second. Two passes down each row were made using 6, 11004 vs nozzles on 20 ft centers at 35 psi.

For the June 2 through August 25 samples, eight 14-dram vials were placed in the center of each 30-tree plot for 24 hours. In each vial, a section of hot dog, approximately 1 cm long, was used as bait. The vials were capped as they were collected, taken to the lab and frozen. Ants in the vials were identified, counted and the percentage of surface damage to bait was recorded.

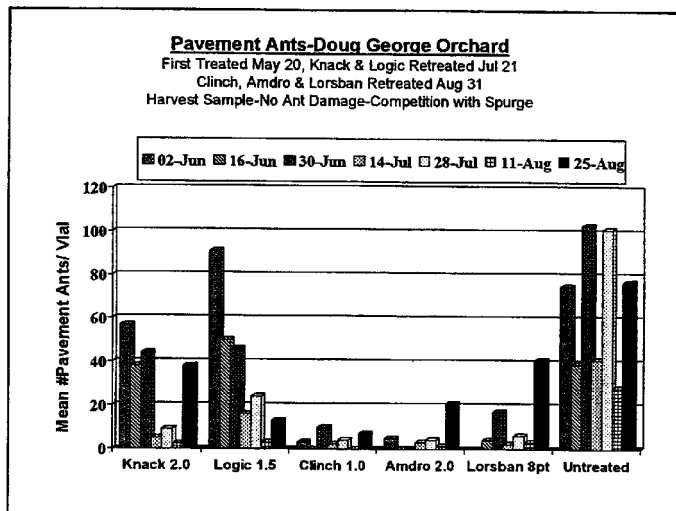
Results on Pavement Ants showed that 8 weeks after the first treatment, Knack and Logic provided effective control that continued to the last sample on August 25. Clinch, Amdro and Lorsban were effective almost immediately after the application and provided suppression for the 14 weeks following.

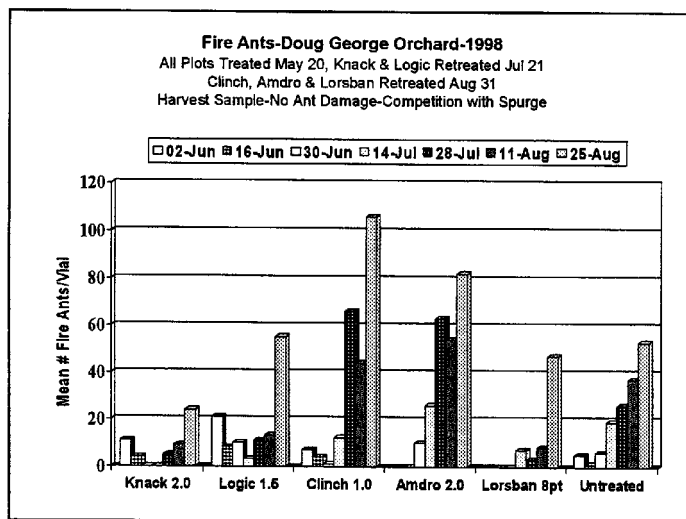
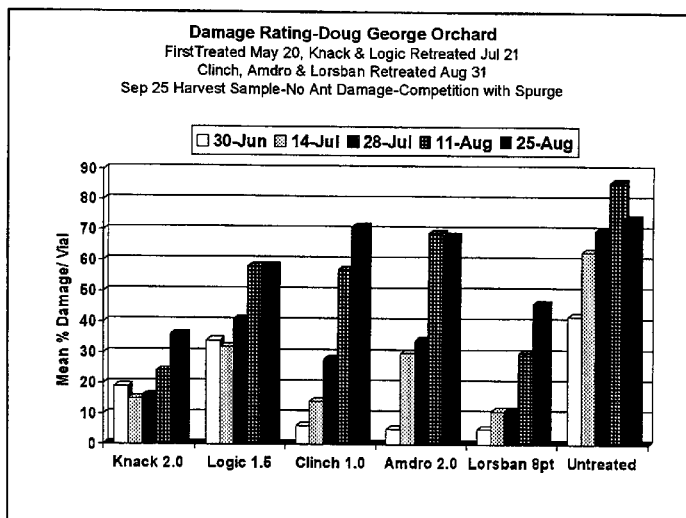
Results on Fire Ants showed Knack and Logic controlled for 12 weeks following the application. Clinch and Amdro controlled the Fire Ants for 8 weeks, however counts then

increased higher than the untreated control for the next 6 weeks. Lorsban provided protection for 12 weeks.

In addition to counting the ants present in vials at collection time, a rating system was devised to evaluate damage to the bait. This was done in order to acknowledge that ants had been feeding on the bait, though they had retreated during hot daytime temperatures. The results showed Knack to significantly control damage to bait for 10 weeks. Logic was not consistently able to protect the bait from damage. Clinch provided excellent early damage control but did not provide protection in the last 4 weeks, probably because of the loss of control of Fire Ants. Lorsban protected significantly better than the untreated check for 10 weeks.

Almonds were set out on September 14 for a harvest evaluation, however almost no feeding occurred on the nuts. The ants were observed feeding extensively on spurge seed at this time and could not be induced to switch to the test vials with almonds.





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**Table 1.** Doug George orchard.

Treatment	June 2, 1998		June 16, 1998		June 30, 1998			July 14, 1998			July 28, 1998			August 11, 1998			August 25, 1998		
	FA	PA	FA	PA	FA	PA	DR	FA	PA	DR	FA	PA	DR	FA	PA	DR	FA	PA	DR
Knack 2.0 lb/acre	11ab	57b	4a	38b	0a	44b	19b	0a	5a	15a	5a	9a	16ab	9a	2a	24a	24a	38a	36a
Logic 1.5 lb/acre	21b	91b	8a	50b	10a	46b	34c	3a	16a	32b	11a	24a	41c	13a	3a	58b	55ab	13a	58bc
Clinch 1.0 lb/acre	7a	3a	4a	0a	1a	10a	6a	12ab	2a	14a	66b	4a	28bc	44b	0a	57b	106c	7a	71c
Amdro 2.0 lb/acre	0a	5a	0a	0a	10a	0a	5a	26b	3a	30b	63b	4a	34c	54b	1a	69b	82bc	21a	68c
Lorsban 16 pt	0a	0a	0a	4a	0a	17ab	5a	7ab	2a	11a	3a	6a	11a	8a	3a	30a	47ab	41ab	46ab
Untreated Control	5a	75b	1a	39b	6a	103c	42c	19ab	41b	63c	26a	101b	70c	37b	28b	86c	53ab	77b	74c

95% confidence level  
 FA=mean # fire ants/vial  
 PA=mean # pavement ants/vial  
 DR=% damage to hot dog surface