

Treatment and lb (AI)/100 gal <sup>a</sup>	Mean % mortality
Mavrik 2E	0.10..... 99a
Pentac 4F	0.25..... 96ab
Vendex 50WP	0.25..... 94ab
Myten 50WP	0.25..... 90ab
Kelthane 4F	0.35..... 86b
Morestan 25WP	0.25..... 68c
Vydate 2L	0.50..... 67c
Diazinon AG 500 4EC	0.50..... 66c
Meta-Systox R 2EC	0.50..... 57d
Control.....	44e

Means followed by the same letter are not significantly different (P = 0.05; DMRT).

<sup>a</sup>Nu-Film 17 was added to all insecticide treatments (0.5 pt/100 gal).

**ELM (SIBERIAN): *Ulmus pumila* L.** Ed King, Bill Bartheld, (461)  
 Elm leaf beetle: *Pyrrhalta luteola* (Mueller) Richard Price, and Ken Pinkston  
 Department of Entomology  
 Oklahoma State University  
 Stillwater, OK 74078

**CONTROL OF ELM LEAF BEETLES ON SIBERIAN ELM, 1983:** The test was conducted on a windbreak planting of Siberian elms, approximately 20 ft tall, located 2 mi south of Stillwater, Okla. Trees were treated on 2 Jul. when the temperature was 91°F, the wind velocity was 5 to 10 mph and the majority of the larvae were 2nd instars. Application equipment consisted of a Macro R-20 sprayer which delivered 1.6 gal/min at 200 lb/in<sup>2</sup>. Trees were treated to runoff. Injections of Bidrin were made by inserting feeder tubes of 1-ml capsules at 6 in. intervals in root flares around the base of the tree. Treatments were randomized and replicated 3 times. Larval counts were made by examining 18 in. of terminal branch at 10 locations per tree.

After 14 days, all treatments provided significantly better control when compared to the untreated check. Phytotoxicity was observed on one of the Bidrin replicates, where leaf margins were brown and desiccated.

Treatment and lb (AI)/100 gal	Pre-treatment	Avg no. of larvae/18-in. terminal at DAT			
		1	4	7	14
Advantage 4EC	0.2.....12.0	6.9a	0.0a	0.0a	0.0a
Orthene 15.6EC	0.75.....12.6	0.3a	0.0a	0.3a	0.1a
Bidrin 87C	<sup>a</sup> .....10.2	8.6a	0.5a	0.9a	0.0a
Check.....	8.7	12.6a	6.1b	5.6b	1.9b

Averages followed by the same letter are not significantly different (P = 0.05; DMRT). DAT, days after treatment.

<sup>a</sup>Mauget's 87% Bidrin concentrate applied at an average of 7.6, 1 ml capsules per tree.

**ELM (SIBERIAN): *Ulmus pumila* L.** Leland R. Brown and Mary K. Malinoski (462)  
 Elm leaf beetle: *Pyrrhalta luteola* (Mueller) Department of Entomology  
 University of California  
 Riverside, Calif. 92521

**ELM LEAF BEETLE CONTROL WITH CARBARYL, 1983:** In the southern San Fernando Valley in Los Angeles, Calif., 64 Siberian elm parkway trees were used in a RCB experiment with four replications. The trees were on 35 city blocks within a 24-square-mile area. All treatments, except on "on demand" treatments, were applied during the week of 9 May; "on demand" treatments were applied on 30 Jun. and were in response to the first citizen complaint about beetle damage. Trunk spray in a band between 4 and 7 ft of height with a high pressure spray wand also included blackstrap molasses at 2 qt/100 gal; the intended target was larvae migrating to the ground for pupation. All treatments, except trunk spray alone, were to whole tree. All treatments were buffered to pH 6.0. Samplings were on the dates indicated. A sample from each tree of a two-tree replicate included the 10 most-distal leaves of 10 peripheral twig terminals obtained with a 10-ft pole pruner. Only data on number of larvae were transformed to log<sub>10</sub>(n + 1).

Leaf injury index appeared to be more reliable, consistent and sensitive to differences than an evaluation based on numbers of larvae. Trunk sprays did not seem to have much value; the appearance of those trees, particularly in the tops was worse than these data indicate. There did not appear to be any obvious advantage of one Sevin formulation over the other. The conventional high pressure spray applied early gave good control. But, accepting a little damage early and then treating later with Sevin XLR or SL in a properly operated air blast sprayer, as in the "on demand" treatments, gave the lowest leaf injury index as well as the best appearing trees throughout the summer. There was slight black speckling of leaves on some Sevin XLR treatments that may have been associated with moisture on the leaves at the time of treatment.

Treatment and lb (AI)/100 gal	Total no. of larvae			Avg injury index		
	7 Jun.	19 Jul.	23 Aug.	7 Jun.	19 Jul.	23 Aug.
Sevin SL 4F trunk spray 20.....	79b	46b	28a	1.3b	2.3b	4.0a
On demand: Sevin SL 4F Rotomist 3.....	--	0b	6a	--	1.9b	2.3c
On demand: Sevin XLR 4F Rotomist 3.....	--	0b	24a	--	1.5b	2.4c
Sevin SL 4F Rotomist						
+ trunk spray 20.....	0c	24b	48a	1.1b	1.7b	3.6ab
Sevin SL 4F Rotomist 3.....	0c	3b	20a	1.2b	1.8b	3.8a
Sevin XLR 4F Rotomist 3.....	25bc	102b	207a	1.2b	2.2b	3.6ab
Sevin XLR 4F hand gun spray 1.....	1c	4b	7a	1.1b	1.5b	2.7bc
Untreated control.....	687a	345a	369a	2.0a	3.3a	3.9a

Each mean based on 800 leaves; column means followed by the same letter are not significantly different ( $P = 0.05$ ), according to Duncan-Waller MRT. Injury index: 1, perfect leaf; 5, 80% or more of leaf missing.

FESCUE (FINE LEAFED): Festuca sp.  
 Hairy chinch bug: Blissus leucopterus hirtus  
 Montandon

P. R. Heller, T. Calahan, (463)  
 and D. J. Setlar  
 Department of Entomology  
 The Pennsylvania State University  
 106 Patterson Building  
 University Park, PA 16802

**HAIRY CHINCH BUG CONTROL ON A HOME LAWN IN WAYNE, CO, PA, 1983:** Four insecticides were applied 13 July to a hairy chinch bug-infested home lawn. The lawn consisted of fine leafed fescue (100%). Treatment plots were 5 by 5 ft, arranged in a RCB design and replicated three times. Liquid formulations were applied in 0.5 gal water with a hand held sprinkling can. At treatment time, the following environmental and soil conditions existed: air temperature, 90°F; soil temperature, 70°F; soil type, sandy-loam; soil pH, 5.4; percent organic matter, 2.1; soil condition, dry; amount of thatch, 0.06 in.; and partly cloudy skies. A flotation method was used for sampling, using 6-in. diameter circular cans. Posttreatment counts were made 7 days later (20 Jul.). Three locations were randomly selected within each replicate, and the total number of chinch bugs rising to the surface over a 10-min period (per location) was recorded and converted to a ft<sup>2</sup> count. An average of 124 chinch bug nymphs and adults per ft<sup>2</sup> was recorded 13 Jul. before treatment.

Posttreatment results on 20 Jul. showed that Dursban 4E and Triumph 4E provided significant control. No phytotoxicity was noted.

Treatment and lb (AI)/acre	Mean chinch bugs/ft <sup>2</sup> at 7 DAT
Dursban 4E 1.0.....	1.1b
Triumph 4E 1.0.....	6.7b
Oftanol 5G 2.0.....	88.3a
Advantage 4E 2.0.....	108.3a
Control.....	106.1a

Means followed by the same letter are not significantly different using ( $P = 0.05$ ; DMRT). DAT, days after treatment.

FESCUE (FINE LEAFED): Festuca sp.  
 Hairy chinch bug: Blissus leucopterus hirtus  
 Montandon

P. R. Heller, T. Callahan, (464)  
 and D. J. Shetlar  
 Department of Entomology  
 The Pennsylvania State University  
 106 Patterson Building  
 University Park, PA 16802

**HAIRY CHINCH BUG CONTROL ON A HOME LAWN IN WAYNE CO, PA, 1983:** Three insecticides were applied 13 Jul. to a hairy chinch bug-infested home lawn. The lawn consisted of fine leafed fescue (100%). Treatment plots were 5 by 5 ft, arranged in a RCB design and replicated three times. At treatment time, the following environmental and soil conditions existed: air temperature, 90°F; soil temperature, 70°F; soil type, sandy-loam; soil pH, 5.4; percent organic matter, 2.1; soil condition, dry; amount of thatch, 0.06 in. and partly cloudy skies. A flotation method was used for sampling, using 6 in. diameter circular cans. Posttreatment counts were made 7 days later (20 Jul.). Three locations were randomly selected within each replicate, and the total number of chinch bugs rising to the surface over a 10-min period (per location) was recorded and converted to a ft<sup>2</sup> count. An average of 116 chinch bug nymphs and adults per ft<sup>2</sup> was recorded 13 Jul. before treatment.

Posttreatment results on 20 Jul. showed that Aspon 6E and Dursban 4E provided excellent control, while Dymet EC provided poor control. No phytotoxicity was noted.