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Dimilin® - An Economical Insecticide for Grass Worm Control

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During the past twenty years bermudagrass and stargrass acreage has increased dramatically for both pasture and hay production. These grasses produce high dry matter yields, have good quality, are persistent, and will grow under cool short day conditions when managed properly. However, during late summer and fall, grass loopers, army worms, and even sod webworms can destroy these grasses if not controlled. Standard insecticides, typically are not persistent when applied during Florida's rainy season. A study was conducted to compare two new insecticides (Dimilin® and Tracer®) with the standards Sevin® and Lannate®. The experiment consisted of two grasses 'Ona' and 'Florona' stargrass. Both grasses were clean mowed to a 3" stubble and fertilized with 50-30-60 lb/A N-P2O5-K2O plus micronutrients in mid-August. When grasses attained a height of about 12" the following insecticide treatments were applied: Sevin® XLR, Tracer® 2SC, Lannate® 4LV and Dimilin® 2L. Crop oil at a rate of 1 pt/30 gal water was included with the insecticide. An untreated check was used to evaluate the effectiveness of each of the insecticides.

An average of 11.0 and 8.4 worms per sq. ft. were found in 'Ona' and 'Florona' stargrass, respectively, prior to application of insecticides (Table 1). All insecticides provided excellent worm control 5 days after treatment (DAT). Worm number for Sevin, Tracer, and Lannate treatments averaged 0 to 0.2 worms/sq.ft. for both grasses (Table 1). Worm population for the 'Dimilin' treatment was slightly higher averaging 1 worm/sq.ft., indicating its activity on worms is slightly slower. All insecticides continued to provide good worm control 9 DAT. However, monitoring the worm population 15 DAT revealed worm number increased for the Sevin and Lannate treatments averaging 6.3 and 11.5, respectively in Ona stargrass and 3.5 and 4.3 worms/sq.ft., respectively in Florona stargrass. During this 15 day period 2.6" of rain fell, which may have diluted the chemical and limited its effectiveness to less than 2 weeks. Both insecticides killed all the worms along with beneficial insects allowing moth deposited eggs to develop into a new

worm population in approximately 10 to 14 DAT. Consequently these two insecticides only provide worm control for no more than two weeks. The insecticides Tracer and Dimilin averaged 1.8 and 2.2 worms/sq.ft. (Ona stargrass) and 1.0 and 0.8 worms/sq.ft. (Florona stargrass) 15 DAT. Twenty three and 28 DAT Tracer and Dimilin both continued to control the worm population, which would provide growers adequate time to make hay or continue grazing under low worm populations. In fact, Dimilin continued to provide excellent worm control up to 43 DAT in both grasses (Table 1).

All the insecticides tested will kill army worms and grass loopers, however, most growers are interested in the length (days) of worm control and cost per acre. Current price/acre of insecticides tested, and number of day's the worm population remained less than 5 worms/sq.ft. are presented in Table 2. Generally, when the worm population is below 5 worms/sq.ft. it may not be economical to apply an insecticide, depending on the final use of the grass, grazing or horse hay.

Lannate (1 qt/A) and Sevin (1.5 qt/A), provided excellent worm control for 9 and 15 days for Ona and Florona stargrass respectively. Average cost for Lannate was \$14.07 and Sevin \$13.40/A. Tracer (1.5 oz/A) kept the worm population below 5 worms/sq.ft. for 28 days (Ona stargrass) and 43 days (Florona stargrass) at a chemical cost of \$9.41/A. Dimilin (2.0 oz/A) provided the longest worm control at 43 days for both grasses at a cost \$3.78/A. These data indicate for forage grass worm control Dimilin provided the longest (43 days) and most economical control with a cost of \$3.78/A.

Lannate is a registered trademark of E.I. DuPont de Nemours and company; Sevin is a registered trademark of Bayer; Tracer is a registered trademark of Dow Agrosiences LLC; Dimilin is a registered trademark of Chemtura Corporation.

Table 1. Influence of various insecticides on grass worm control at the Range Cattle REC									
Insecticide Treatment	Rate/A	Days after treatment							
		0	5	9	15	23	28	35	43
		Worm number/sq ft							
Ona Stargrass									
Untreated control	0	9.4	8.6	9.5	9.2	10.3	7.8	7.5	5.2
Lannate LV	1.0 qt.	12.2	0.2	2.5	11.5	20.0	14.5	11.2	1.8
Sevin XLR	1.5 qt.	9.6	0	2.0	6.3	19.8	14.7	10.7	5.7
Tracer 2SC	1.5 oz.	11.6	0	1.2	1.8	3.7	2.7	6.5	4.3
Dimilin 2L	2.0 oz.	12.0	1.2	1.5	2.2	4.2	3.0	2.7	1.5
Average [†]		11.0	2.0	3.3	6.2	11.6	8.5	7.7	3.7
Florona Stargrass									
Untreated control	0	6.4	4.7	4.3	5.0	6.3	3.5	4.8	3.5
Lannate LV	1.0 qt.	9.6	0	3.2	4.3	7.7	6.7	5.7	3.2
Sevin XLR	1.5 qt.	10.4	0	0.2	3.5	9.2	7.7	6.3	3.8
Tracer 2SC	1.5 oz.	7.4	0	0.2	1.0	3.0	3.2	1.8	2.5
Dimilin 2L	2.0 oz.	8.0	0.8	0	0.8	1.0	0.7	1.0	0.8
Average [†]		8.4	1.1	1.6	2.9	5.4	4.4	3.9	2.8

[†] The average value represents 6 observations for each sampling date and for each grass.

Table 2. Current prices (May 2008) of selected insecticides and worm control(days) on Ona and Florona stargrass			
Chemical	Rate per acre	Cost per acre, dollars	Worm control, days
Ona, stargrass			
Untreated control	0	0 [†]	0 [‡]
Lannate LV	1.0 qt.	14.07	9
Sevin XLR	1.5 qt.	13.40	9
Tracer 2SC	1.5 oz.	9.41	28
Dimilin 2L	2.0 oz.	3.78	43
Florona, stargrass			
Untreated control	0	0	0
Lannate LV	1.0 qt.	14.07	15
Sevin XLR	1.5 qt.	13.40	15
Tracer 2SC	1.5 oz.	9.41	43
Dimilin 2L	2.0 oz.	3.78	43

[†] Average price for insecticides obtained from central and north Florida and south Georgia distributors.

[‡] Days of worm control was based on less than 5 worms/sq.ft.