

CONTROL OF *SCAPTOMYZA* FLY IN MEADOWFOAM WITH INSECTICIDES

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The *Scaptomyza* fly is an insect pest found in commercial meadowfoam fields throughout the Willamette Valley. This Pomace Fly is in the Drosophilidae family and has been tentatively identified as *Scaptomyza apicalis* Hardy, with the unofficial common name of the Meadowfoam fly. Larval infestations have caused extensive damage to plant crowns and flower buds in some fields. This fly appears to have at least two generations per year in commercial meadowfoam of Western Oregon. We have targeted late winter as an opportune time to apply sprays; populations of the fly begin to build at this time.

A trial was established at Hyslop Research Farm in 1998 to evaluate the effect of various insecticides and time of application for larval control, flower density and seed yield. Treatments included bifenthrin (Capture 2EC[®]) at 0.1 lb a.i./a, dimethoate (Dimethoate 400[®]) at 0.5 lb a.i./a, imidacloprid (Provado 1.6E[®]) at 0.31 lb ai/a, and oxydemeton-methyl (Metasystox-R[®]) at 0.5 lb a.i./a applied on 1/10/98, 2/15/98 or on both dates. Treatments were applied with a CO₂ backpack sprayer, equipped with a 3-nozzle boom (tips = 8002 flat fan), at 40 psi in 30 to 40 gallons of water per acre.

Numbers of larvae per plant were determined by randomly cutting at the soil line five plants per plot on 3/13/98. Larvae were extracted from plants over a four day period using Burlese funnels. Flower counts were made on 5/15/98 in each plot. Flowers and viable floral buds were recorded from a 0.5 ft² area in each plot. Plots were harvested on 7/13/98; seed was cleaned and weighed.

Results and Discussion:

Bifenthrin, a synthetic pyrethroid, gave the greatest reduction in meadowfoam fly larvae and produced the most uninjured flowers and flower buds (Table 1). Plant vigor in the bifenthrin plots was good, as judged by overall growth and canopy height; bloom was quite uniform.

Larval populations within the trial area were quite low for all treatments when evaluated in mid-March (<2.5 larvae per crown in the more heavily infested plots). Seed yield for all treatments, even the untreated control, were not significantly different from one another. The trend, however, was for greater seed yield in sprayed plots.

In 1999, bifenthrin will be further evaluated in relation to timing and number of spray applications. An EUP (Experimental Use Permit), will allow performance evaluation on larger blocks in commercial fields of meadowfoam.

Table 1. Effect of insecticides on *Scaptomyza* fly population, flower density, and seed yield in meadowfoam, Hyslop Research Farm, 1998.

Treatment	Application date	No. larvae per plant ¹	Percent control ²	Number of flowers	Seed yield ⁴
			(%)	(no./0.5 sq. ft.)	(lb/a)
Imidacloprid	1/10/98	1.8	0	326 a ³	492.5
Metasystox-R	1/10/98	1.0	41	306 a	610.1
Dimethoate 400	1/10/98	2.4	0	396 a	595.5
Bifenthrin	1/10/98	1.3	24	326 a	634.1
Imidacloprid	2/15/98	1.3	24	348 a	471.0
Metasystox-R	2/15/98	1.5	12	376 a	617.0
Dimethoate 400	2/15/98	1.8	0	302 a	586.3
Bifenthrin	2/15/98	0.25	88	560 b	559.4
Imidacloprid	1/10/98 & 2/15/98	2.2	0	331 a	597.0
Metasystox-R	1/10/98 & 2/15/98	1.0	39	415 a	564.0
Dimethoate 400	1/10/98 & 2/15/98	1.4	15	380 a	648.5
Bifenthrin	1/10/98 & 2/15/98	0	100	614 b	640.8
Untreated Control	----	1.7	----	296 a	500.9

¹ Average of 5 plants per plot, 3/13/98

² Percent control is the population reduction when compared to the untreated check.

³ Means within a column followed by the same letter do not differ significantly at $P \leq 0.05$; no letter indicates a non-significant ANOVA

⁴ Cleaned seed weight