

CONTROL OF *SCAPTOMYZA* FLY IN MEADOWFOAM WITH BIFENTHRIN

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Four field trials were conducted to further evaluate the effects of bifenthrin on control of the *Scaptomyza* fly in meadowfoam and subsequent effects on flower density and seed yield. Three trials were placed in commercial meadowfoam fields in the Willamette Valley and one at OSU's Hyslop Research Farm near Corvallis.

Trials at Grower Sites

Plots were established at three commercial grower sites in the Willamette Valley. Each plot was 25' x 400' and replicated four times. Treatment was bifenthrin, at 0.1 lb. a.i./Ac (Capture 2EC @ 6.4 fl. oz/Ac), compared to an untreated control. Treatments were applied on March 11, 1999 with a tractor-drawn Rears sprayer in 20 gallons of water per acre. Each site had been planted with meadowfoam cultivar OMF-69 the previous fall; plants were about four to six inches tall at time of application. Yellow stick traps had revealed about 15 adults per trap 10 to 14 days prior to the bifenthrin application.

Numbers of larvae per plant were determined by randomly cutting at the soil line 10 plants per plot on March 30, 1999 (19 DAT). Larvae were extracted from plants over a three-day period using Berlese funnels. Flower counts, from a 1.0 sq. ft. area in each plot, were made on June 2, 1999. Seed harvest occurred in early July: Sites 1 and 2 were windrowed on July 2 and combined on July 9, 1999; Site 3 was windrowed on July 4 and combined on July 25, 1999.

One application of bifenthrin in early March caused a significant decrease in larval populations and a significant increase in flower number and seed yield (Table 1).

Table 1. Effects of bifenthrin application on *Scaptomyza* fly larvae, meadowfoam flower density and seed yield, at three grower sites, Willamette Valley, 1999.

	<u>No. larvae per plant</u>			<u>No. flowers per sq. ft.</u>			<u>Seed Yield (lb/Ac)</u>		
	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3	Site 1	Site 2	Site 3
Bifenthrin	0	0.3	0	1,655	1,198	3,142	1,286	1,601	1,632
Untreated	0.6	4.2	0.7	1,209	1,093	1,723	1,186	1,517	1,522
Significance	*	**	Ns	*	Ns	*	*	*	*

*, **, ns = Significance at $P \leq 0.05$, $P \leq 0.01$, not significant, respectively.

Trial at Hyslop Research Farm

Plots were established to determine the effects of number and timing of bifenthrin applications on *Scaptomyza* fly larvae control and seed yield. Each plot was 8' x 25' and replicated four times in a randomized complete block experimental design. Treatments were applied at various dates in early 1999 (see treatments below) with a CO₂ backpack sprayer, equipped with a 3-

nozzle boom (8003vs flat fan tips), at 40 psi in 30 gallons of water per acre. Meadowfoam, cultivar Floral, had been planted the previous fall. Yellow stick traps had revealed 15 to 20 adults per trap starting on February 15, 1999.

Numbers of larvae per plant were determined by randomly cutting at the soil line 10 plants per plot on March 2, March 29 and April 30, 1999. Larvae were extracted from plants over a four-day period using Berlese funnels. Seed harvest occurred on July 15, 1999 (direct combine).

Neither timing nor number of bifenthrin applications had a significant effect on larval populations or seed yield. Larval populations were low in both the treated and untreated plots. However, although not statistically significant, the trend was for the untreated plots to have the highest larval populations and the lowest seed yield (Table 2).

Table 2. Effects of timing of bifenthrin application (0.1 lb. a.i./Ac) on *Scaptomyza* fly larvae and meadowfoam seed yield, Hyslop Research Farm, 1999.

Application date(s)	<u>No. Larvae per plant</u>			<u>Seed Yield</u>
	3/2/99	3/29/99	4/30/99	(lb/Ac)_____
2/20/99	0	---	0.2	885
3/19/99	0.2	0	0	857
4/20/99	0.5	---	0.5	812
2/20/99 + 3/19/99	0	0	0	871
2/20/99 + 3/19/99 + 4/20/99	0	0.5	0	951
Untreated	1.0	0.5	6.8	767
Significance	ns	ns	ns	ns