

ONION MAGGOT CONTROL

Lynn Jensen,
OSU Malheur County Extension Office
Lamont Saunders,
OSU Malheur Experiment Station
Ontario, Oregon, 1999

Introduction

Onion maggot (*Delia antiqua*) is an infrequent pest of bulb onions grown in the Treasure Valley region of western Idaho and eastern Oregon. Most growers apply an at-planting insecticide to avert a maggot infestation which can cause severe stand reductions before the insect can be controlled. Lorsban is applied to the soil surface after the planter shoe has closed the seed furrow, because there is a risk of stand reduction when the insecticide contacts the seed. Adage and Force 3G are two new insecticides that were evaluated with Lorsban for their efficacy.

Materials and Methods

Winter wheat was planted in the trial area during the previous fall and was rototilled into the soil on May 10 when it was 10 inches in height. The onion variety Regiment was planted as raw seed on May 19 and irrigation applied on May 20 to provide moisture for germination. The soil type was an Owyhee silt loam. The plot size was 7.3 ft wide by 27 ft in length. Each treatment was replicated four times in a randomized complete block design. Evaluations were made by taking stand counts from the time of emergence (June 2) until no seedlings were being killed by the maggot (June 28). Stand counts were made on 27 ft of row in each plot (Table 1).

The materials tested were Lorsban (chlorpyrifos – Dow AgroSciences), Force 3G (Tefluthrin – Zeneca Agrichemicals) and Adage (Norvartis). Force 3G was applied at planting directly into the seed furrow with a Gandy granular applicator. Adage was made into a slurry treatment and mixed with the seed, then allowed to dry onto the seed prior to planting.

The treatments also were evaluated to see if any of them would give early season thrips suppression. Evaluation was made by counting the total number of thrips on 15 plants in each plot.

Results and Discussion

Force 3G and Lorsban 15G both had significantly higher plant populations than either Adage or the untreated check (Table 1) due to less seedling mortality from maggots. There was no phytotoxicity to the onion seedlings noted. The plant population with Adage was not significantly better than the untreated check. The Force 3G + Adage combination was less effective than Force 3G by itself.

Table 1. Insecticide treatments and stand counts for onion maggot control, Ontario, Oregon, 1999.

Treatment	Rate lb ai/acre	Application method	Stand count							
			6/2	6/4	6/7	6/9	6/12	6/15	6/28	Average
Adage	(6.4 oz/ 100 lb seed)	SC	24.3	23.3	27.8	25.3	25.8	26.5	25.5	25.5
Force 3G	0.22	IF	51.7	48.8	53.0	49.8	50.0	46.0	55.0	50.6
Untreated Check	—	—	34.5	32.0	36.8	32.5	31.5	29.8	35.0	33.1
Lorsban 15G	1.8	SUR	46.0	41.8	48.8	47.5	47.5	45.5	53.8	47.3
Force 3G +Adage	0.22 + (6.4 oz/ 100 lb seed)	IF SC	32.5	33.5	39.8	36.3	34.8	33.8	39.5	35.7
LSD (0.05)			17.2	n.s.	n.s.	16.5	14.4	n.s.	18.3	

SC = seed coat applied; IF = in seed furrow at planting;
SUR = surface applied at planting

There was no early season thrips suppression with any of the treatments (Table 2).

Table 2. The effect of at planting insecticides on early season onion thrips control. Ontario, Oregon, 1999.

Treatment	Rate lb ai/acre	Thrips counts	
		7/12/99	7/15/99
		Average Number thrips/plant	
Adage	(6.4 oz/ 100 lb seed)	4.7	7.1
Force 3G	0.22	4.8	7.4
Untreated	---	5.1	12.0
Check			
Lorsban 15G	1.8	4.7	10.2
Force 3G+	0.22	6.3	10.8
Adage	(6.4 oz/100 lb seed)		
LSD (0.05)		n.s.	n.s.

Conclusion

Force 3G gave effective maggot control equal to Lorsban without the phytotoxicity of Lorsban when applied in furrow with the seed.

Adage did not give acceptable maggot control, and adding Adage to Force 3G decreased the activity of Force 3G.