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2019 Onion Seed Treatment Testing to Protect Spring-Seeded Onions from Maggots

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Introduction

Three trials were conducted in 2019 evaluating seed treatments for management of maggots. All trials were part of a regional study evaluating seed treatments for suppressing maggots and smut. Onion maggot, *Delia antiqua*, and seed corn maggot, *Delia platura*, were captured on yellow sticky traps placed along field edges. Larvae of both species feed on young onion plants, often resulting in seedling mortality. ***Some pesticides listed in this report may not be labeled for use in onions. Please consult pesticide labels for use instructions.***

2019 Site Information

- **Soil type-** mucky silty clay loam-6.8% OM
- **Growing season-** May 8th, 2019 to October 3rd, 2019
- **Irrigation –** solid-set sprinklers
- **Onions-** 36 inch beds with 4 seed-lines spaced 6 inches apart; 4-inch seed spacing; fresh market yellow variety
- **Design-** RCB with 5 blocks (reps)

2019 Study Methods

Studies were conducted at the UC Intermountain Research and Extension Center. Plot size was 2 beds (6 ft) by 24 ft. Seed treatments were commercially applied by Incotec and Alan Taylor's lab. The Agri-Mek in-furrow treatment was applied using 8001 EVS nozzles @ 30 psi. Nozzles were mounted on the onion planter to apply a 3-inch band directly over the seed-line after seed placement but before furrow closure. Treatment efficacy was determined by measuring onion plant density and vigor multiple times during onion establishment. Onion plant density and bulb yield were measured at harvest. Onion stand (plant density) was determined by counting the number of green onions in the entire plot area (6 ft by 24 ft). Onion yield was measured by harvesting all onions in each plot. Onions were run across a grade-line to remove loose soil and green tops. A total weight was recorded for all bulbs in each plot.

Results

Regard, Regard + Cruiser, and Sepresto were the top-performing insecticides for maximizing onion stand and bulb yield (treatments 1-6 in Table). Onion stand and yield associated with these treatments was higher than the no insecticide control, Trigard, and Agri-Mek in furrow. Seed coating method (pellet vs. film-coat) did not

influence onion stand and onion yield for Sepresto and Regard treatments (treatments 7-12 in Table), although onions treated with Sepresto + Pro-Gro + F300 as a film-coat had low vigor at both evaluations compared to the control. When comparing Cruiser, Cruiser + Regard, and Cruiser + Trigard all had similar stand and yields, although Cruiser + Regard was the only treatment statistically higher than the untreated control (treatments 13-16 in Table).

Table. Influence of 2019 Maggot Treatments on Onion Stand, Onion Vigor, and Bulb Yield

Insecticide Comparison for Maggot Control in Onion

Trt #	Treatment	2-leaf vigor	2-leaf onion stand	7-leaf vigor	Harvest onion stand	Bulb yield
		1-10; 10= best	# of onions/plot	1-10; 10= best	# of onions/plot	tons/acre
1	Penflufen + thiram (control)	6.4 b	403 b	6.4 b	401 b	42.5 c
2	Penflufen + thiram + Regard	7.4 a	597 a	7.4 ab	590 a	54.6 a
3	Penflufen + thiram + Regard + Cruiser	7.4 a	586 a	7.8 ab	587 a	53.4 a
4	Penflufen + thiram + Sepresto	7.4 a	572 a	7.6 ab	578 a	51.8 ab
5	Penflufen + thiram + Trigard	7 ab	454 b	7.6 ab	457 b	45.2 bc
6	Penflufen + thiram + Agri-Mek in-furrow	6.8 ab	407 b	7.2 ab	404 b	42.4 c

Pellet Vs. Film Coat for Maggot Control in Onion

Trt #	Treatment	2-leaf vigor	2-leaf onion stand	7-leaf vigor	Harvest onion stand	Bulb yield
		1-10; 10= best	# of onions/plot	1-10; 10= best	# of onions/plot	tons/acre
7	Sepresto + Thiram + Penflufen (pelleted)	7.8 a	593 a	7.6 ab	596 a	54.6 a
8	Sepresto + Thiram + Penflufen (film-coat)	7.4 ab	605 a	8 a	601 a	55 a
9	Sepresto + Pro-Gro + F300 (pelleted)	7.2 ab	589 a	7.8 a	599 a	53.7 a
10	Sepresto + Pro-Gro + F300 (filmcoat)	6.4 b	568 a	7 b	582 a	52.8 a
11	Regard + Thiram (pelleted)	7.8 a	599 a	7.8 a	602 a	56.8 a
12	Regard + Thiram (film coat)	7.8 a	594 a	7.8 a	585 a	55.3 a

Regard Vs. Trigard for Maggot Control in Onion

Trt #	Treatment	2-leaf vigor	2-leaf onion stand	7-leaf vigor	Harvest onion stand	Bulb yield
		1-10; 10= best	# of onions/plot	1-10; 10= best	# of onions/plot	tons/acre
13	FarMore 300 (control)	7.8 a	543 a	6.8 a	554 b	62.6 b
14	FarMore F300 + Cruiser	8 a	590 a	7.8 a	606 ab	66.8 ab
15	FarMore F300 + Cruiser + Regard (FI500)	8 a	634 a	7.8 a	660 a	70.2 a
16	FarMore 300 + Cruiser + Trigard	8 a	612 a	7.8 a	624 ab	69.6 ab

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