THRIPS EFFECTS ON FOURTEEN SWEET SPANISH ONION VARIETIES

Lynn Jensen
Malheur County Extension Office
Oregon State University
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Objectives

Onion thrips were either controlled or left untreated to examine the economic importance of thrips. Fourteen different varieties were tested to examine the susceptibility of varieties to thrips.

Materials and Methods

The trial was conducted on the Malheur Experiment Station near Ontario. The fourteen varieties were planted in 23 foot rows spaced 22 inches apart. Each plot consisted of eight rows with four contiguous rows of each plot sprayed to keep thrips populations low and four adjoining rows unsprayed. The trial was a split plot design with four replications in a completely randomized block design. The sprayed treatments received four applications of Warrior insecticide at 0.03 ai/ac. The unsprayed plots were not treated and all thrips counts made in the center two rows of these plots.

The plots were planted on April 17 using a cone seeder mounted on a John Deere model 71 flexi-planter equipped with disc openers. Seed for each row was prepackaged using enough seed for a planting rate of 12 seeds per foot of row. The onions were thinned to a population of 4 plants per foot of row when the onions were in the flag leaf stage. Weed control was with Dacthal applied on April 14 at a rate of 4 lbs a.i./ac. A post emergence application of Buctril at 12 oz/ac, Goal at 12 oz/ac and Poast at 20 oz/ac was made on June 12. A second post emergence application of 12 oz Buctril, 5 oz Goal and 16 oz Poast was made on June 16. Prowl at 48 oz/ac was also made at that time and incorporated by cultivation. The onions were sidedressed on June 6 with 180 pounds of osmocote time release nitrogen.

Irrigation was every 4-5 days except that problems during the first part of the growing season kept the onion field dryer than would normally be recommended. The plants were under stress during this time which may have caused some yield reduction. The yield reduction would have been uniform across sprayed and unsprayed plots.

Thrips counts were made on June 27, July 7 and July 20 by counting the total number of thrips on fifteen plants in each plot. The counts were made in only two replications on July 20 because of the extremely high counts and the time involved in making the counts.

The onions were harvested on September 27 and graded on October 24. The onions were graded by size but no attempt was made to separate number 1's and 2's.

Results

The average thrips counts for each reading date are given in Table 1. There was a seasonal trend in thrips populations among varieties, with Pinnacle having among the lowest average number of thrips and Valient among the highest.

Table 1. Thrips populations among 14 sweet Spanish onion varieties during the growing season in plots without thrips control. Malheur Experiment Station, Ontario, Oregon. 1995.

	Average thrips/plant			
Variety	6/27	7/7	7/20	Season average
Valient	38.5	91.3	233.8	121.2
Tango	16.5	72.5	263.1	117.4
Valdez	14.9	81.2	239.8	112
Bullring	20.5	87.7	227	111.7
Vega	18.9	92.8	221.3	111
Oro Grande	16	77.3	232.2	108.5
Vacquero	27.3	101.7	182.3	103.8
Blanco Duro	14	84.7	206	101.6
Sweet Amber	20.4	77.9	197.7	98.7
Winner	15	76.6	190.6	94.1
Apex	23.8	70	156.2	83.3
Cache	25	68.6	153.3	82.3
Bravo	16	85.7	132	77.9
Pinnacle	25.5	53.8	119.8	66.4
LSD (0.05)	12.4	ns	ns	

Since only two replications were counted on the last date, differences in thrips population may be due to field location or factors other than variety. It appears that some varieties have high thrips populations early compared to other varieties but lower populations later in the summer.

Total yield losses without thrips control ranged from 10.6 percent for Vacquero to 38.6 percent for Tango (Table 2). The thrips damage to Tango onions is consistent with

growers' belief that red onions are more sensitive to thrips damage than yellow varieties, although the yellow varieties varied widely in the amount of yield reduction. Since there is usually a premium paid to growers for the larger onion sizes, the economic importance of thrips on size reduction is greater than that of yield. Failure to control thrips caused a jumbo loss of 139 cwt/ac or 29.9 percent (Table 3).

Table 2. Effect of thrips on yield in 14 varieties of sweet Spanish onions. Malheur Experiment Station, Ontario, Oregon. 1995.

Variety	Total yield		Yield loss without thrip control	
	Sprayed	Unsprayed	Difference	
	- - - - cwt/ac - - - -		cwt/ac	%
Vacquero	551.6	493.2	58.4	10.6
Oro Grande	488.6	418.4	70.2	14.4
Blanco Duro	456.6	372.9	83.7	18.3
Sweet Amber	618.8	501.5	117.3	19. 0
Pinnacle	363.6	292.1	70.7	19.4
Apex	503.1	398.2	104.9	20.9
Cache	561.5	436.4	125.1	22.3
Vega	635.3	493.3	142	22.4
Bravo	782. 0	597.1	184.9	23.6
Valdez	621.3	474.3	147. 0	23.7
Bullring	471.6	354.8	116.8	24.8
Valient	463.3	336.8	126.5	27.3
Winner	642.6	458.7	183.9	28.6
Tango	242.2	148.8	93.4	38.6
LSD (0.05) variety	41.2	15.8		
Mean insecticide	528.8	412.7	116.1	22
LSD (0.05) insecticide	17.4			
LSD (0.05) var x insecticide	ns			

Table 3. Effects of thrips on jumbo/colossal sized onion bulbs of 14 varieties of Spanish type onions. Malheur Experiment Station, Ontario, Oregon. 1995.

Variety	Colossal/Jumbo Yield - Cwt/ac			
	Sprayed	Unsprayed	Difference	
	- - - - cwt/ac - - - -		cwt/ac	%
Vacquero	523.2	430.8	92.4	17.7
Sweet Amber	587.3	455.6	131.7	22.4
Oro Grande	445.8	339.9	105.9	23.8
Vega	599.7	446.3	153.4	25.6
Bravo	756.2	562	194.2	25.7
Apex	459.2	338.3	120.9	26.3
Winner	589.3	417.9	171.4	29.1
Valdez	586.8	413.7	173.1	29.5
Cache	518.6	361.6	157	30.3
Blanco Duro	395.7	272.2	123.5	31.2
Bullring	426.1	282. 0	144.1	33.8
Valient	405.5	259.8	145.7	35.9
Pinnacle	287.7	167.4	120.3	41.8
Tango	160.1	48. 0	112.1	70. 0
LSD (0.05) variety	16.1	14.7		
Mean overall insecticides	481.5	342.5	139. 0	28.9
LSD (0.05) insecticide	18.2			
LSD (0.05) var x insecticide	ns			