

INSECTICIDE EFFICACY TRIAL FOR THRIPS CONTROL IN DRY BULB ONIONS - 2007

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Introduction

Thrips (onion and western flower) control is becoming increasingly difficult for commercial onion growers in the Treasure Valley. One of the problems is resistance to some of the commonly used insecticides. The objective of this trial was to screen registered and nonregistered insecticides to find those that have potential for use in thrips control programs. **Not all insecticides referred to in this report are registered for use on onions. Always obtain and read the insecticide label to ensure that the product is registered for the crop for which it is intended.**

Materials and Methods

A 1-acre field, soil type Nyssa silt loam, was planted with the onion variety 'Vaquero' (Nunhems, Parma, ID) on March 12, 2007. The onions were planted as two double rows on a 40-inch bed. The double rows were spaced 2 inches apart. The seeding rate was 153,000 seeds/acre. Lorsban® 15G was applied in a 6-inch band over each row at planting at a rate of 3.7 oz/1,000 ft of row for onion maggot control. Water was applied by furrow irrigation.

Treatments were made by a CO₂-pressurized plot sprayer with 4 nozzles spaced 19 inches apart. It was set to apply 41.3 gal/acre, with water as the carrier. A silicone surfactant was added to all treatments, and Carzoi®, Lorsban, PennCap M®, and Diazinon were buffered to pH 6.0. Treatments were applied on a weekly basis beginning on June 7. Thrips counts were also made on a weekly basis by visually counting the total number of thrips on 15 plants in each plot. The treatments are listed in Table 1.

Table 1. Treatments evaluated in the onion thrips insecticide efficacy trial, Oregon State University, Nyssa, OR, 2007.

Treatment	Rates/acre	Application date					
		6/7	6/13	6/21	6/28	7/7	7/12
1) Battalion	17.9 oz	X	X	X	X	X	X
2) Battalion + Malathion	17.9 oz + 2.0 qt	X	X	X	X	X	X
3) Knack + Success + AzaDirect	8.0 oz + 8.0 oz + 16.0 oz	X	X				
Knack + Lannate	8.0 oz + 3.0 pt			X		X	X
Knack + Carzol	8.0 oz + 20.0 oz				X		
4) Novaluron + Success + AzaDirect	12.0 oz + 8.0 oz + 16.0 oz	X	X				
Novuluron + Lannate	12.0 oz + 3.0 pt			X		X	X
Novuluron + Carzol	12.0 oz + 20.0 oz				X		
5) XDE 175 (GF1587)	8.0 oz	X	X	X	X	X	X
6) Assail	5.0 oz	X	X	X	X	X	X
7) Assail	8.0 oz	X	X	X	X	X	X
8) V-1017050 WG	3.0 oz	X	X	X	X	X	X
9) Success + AzaDirect + Actigard	8.0 oz + 16.0 oz + 0.76 oz	X	X				
Lannate	3.0 pt			X		X	X
Carzol + Actigard	20.0 oz + 0.76 oz				X		
10) Beyond	7.0 oz	X	X	X	X	X	X
11) Beyond	14.0 oz	X	X	X	X	X	X
12) Penncap M + MSR	2.0 qt + 3.0 qt	X	X	X	X	X	X
13) Pennecap M + Diazinon	2.0 qt + 1.0 pt	X	X	X	X	X	X
14) AgriMek	1.0 pt	X	X	X	X	X	X
15) Carzol	20.0 oz	X	X	X	X	X	X
16) Success + AzaDirect Lannate	8.0 oz + 16.0 oz 3.0 pt	X	X	X	X		X
Carzol	20.0 oz					X	
17) Untreated check	-						
18) Success + AzaDirect + Field Enhancer	8.0 oz + 16.0 oz + 5.0 qt	X	X				
Lannate + Field Enhancer	3.0 pt + 5.0 qt			X	X		X
Carzol + Field Enhancer	20.0 oz + 5.0 qt					X	
19) Venom SG	4.0 oz	X	X	X	X	X	X
20) Ecotrol	2.0 qt	X	X	X	X	X	X

Results and Discussion

There were significantly more thrips in the untreated check treatment (no. 17) than in the grower standard treatment (no. 16) (Fig. 1). The grower standard treatment consisted of two weekly applications of Success[®] + Aza Direct[®], then a Lannate[®] treatment followed by a Carzol treatment, then two more Lannate applications. There were six treatments that were as effective as the grower standard (Fig. 2). Three of those treatments included the grower standard plus either Knack[®], Novaluron, or Field Enhancer. None of them were significantly better than the grower standard alone. The insecticides Radiant[™], AgriMek[®] and Carzol were all effective. Carzol has had a Section 18 for the past 2 years (2006-2007), and it is hoped that the Environmental Protection Agency will grant one for 2008. Radiant is a new insecticide closely related to Success and it has just recently received a label for use on onions. AgriMek is not currently registered for onions.

There were a number of products that were not significantly better than the untreated check. These included V-10170, Beyond[®], PennCap M + Diazinon, Venom[®], and EcoTrol[®] (Fig. 3). Two products had significantly more thrips than the untreated check: Battalion[™], a synthetic pyrethroid, and Assail[®] at the 5.0-oz rate (Fig. 4). Synthetic pyrethroids in general have performed poorly on thrips during the past few years, very comparable with Battalion's performance. The addition of Malathion to the Battalion treatment slightly enhanced control, but only similar to the untreated check. The 8.0-oz rate of Assail gave slightly better thrips control than the 5.0-oz rate, but the difference was not significant.

Conclusions

The new insecticide Radiant could replace Success in a thrips spray program, but the products should not be applied together, with no more than two consecutive applications made without using another class of insecticide. It appears that Radiant will have aerial application on its label, but no tests have been done locally to determine its efficacy when applied by air. AgriMek shows efficacy and it is hoped the product will be registered sometime in the future. Carzol continues to be effective against thrips, and should be part of an insecticide rotation plan if it is approved for a Section 18 emergency registration again in 2008.

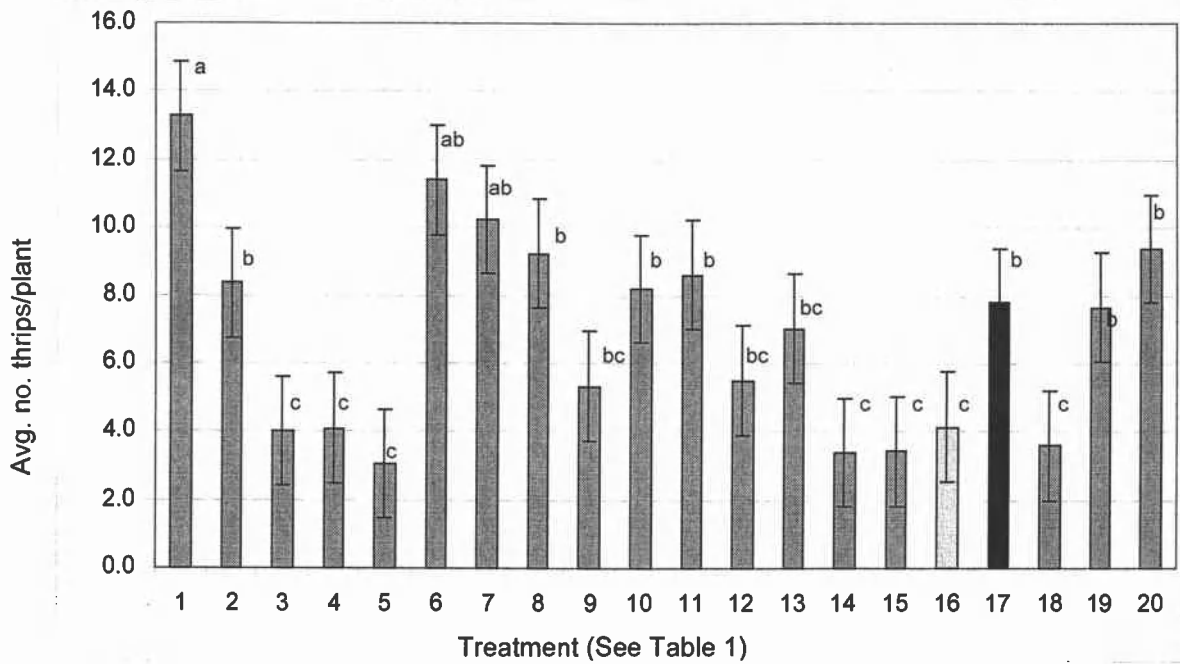


Figure 1. Season-average thrips population in dry bulb onion with different insecticide treatments, Oregon State University, Nyssa, OR, 2007.

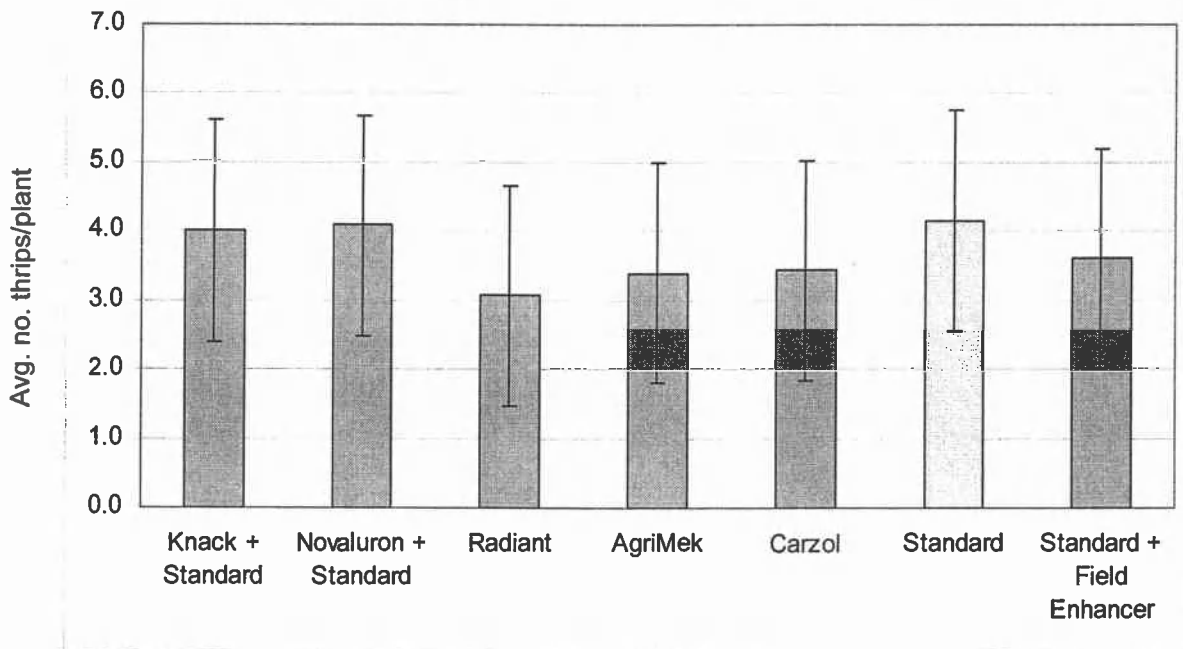


Figure 2. Season-average thrips population with some effective insecticide treatments, Oregon State University, Nyssa, OR, 2007.

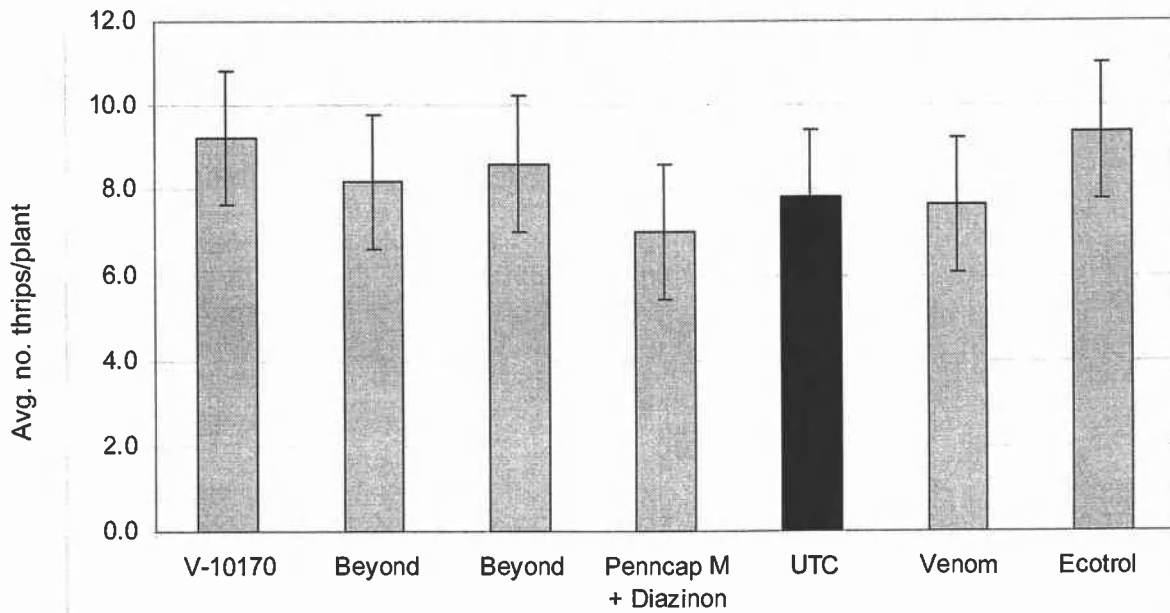


Figure 3. Season-average thrips population with insecticide treatments that did not give effective control, Oregon State University, Nyssa, OR, 2007.

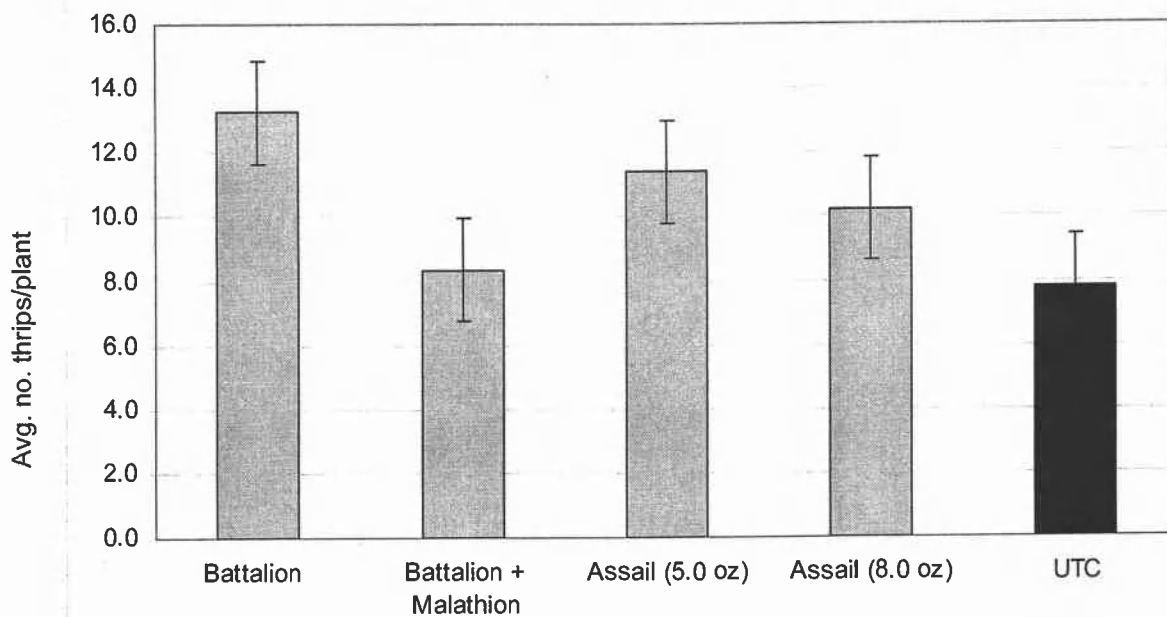


Figure 4. Season-average thrips population with ineffective insecticide treatments, Oregon State University, Nyssa, OR, 2007.