Insect Management

Controlling Onion Thrips on Onion, 2005

J.V. Edelson C. Mackey

Onion thrips (OT): *Thrips tabaci* (Lindeman)

Insecticides were evaluated for controlling OT on onions. Onion sets were transplanted 4 Apr at the Wes Watkins AREC, Lane, OK. The experimental design was a CRB with 12 treatments and five replicate blocks with plots having two three-ft rows and 15 ft alleys between plots. Plots were treated 17 and 25 May using an ATV-mounted sprayer with a single nozzle over the top of each row and nozzles on drops to each side of the row of plants. The sprayer was operated at 45 psi and delivered 20 gpa. Five plants per plot were visually inspected on 30 May and 2 Jun. Data were analyzed as total number of OT larvae and adults using ANOVA and treatment effects compared using a LSD test.

Thrips were abundant in the spring of 2005. Treatments with Ammo, Capture, and GF-317 reduced populations in comparison to the untreated plots 5 days after the second application of insecticides. Plots treated with Ammo, Lannate, Capture, Actara, Novaluron, Knack and GF-317 had significantly fewer OT per five plants than the untreated plots at seven days after the second application of insecticides.

Table 1.

		Mean no. OT per five plants	
Treatment	**Rate / acre**	**30 May**	**2 June**
Ammo	0.1 lb ai / acre	53.0 cd	93.0 cd
Lannate	1.0 lb ai / acre	81.2 bcd	129.6 bc
Capture	0.1 lb ai / acre	42.4 d	94.4 cd
Actara	0.06 lb ai / acre	96.8 abcd	126.2 bc
Dinotefuron	7.1 oz / acre	132.2 ab	169.4 ab
Novaluron	0.08 lb ai / acre	123.2 abc	122.8 bc
Knack	10 fl oz / acre	140.6 ab	125.6 bc
Pyramite	13 oz / acre	135.0 ab	200.6 a
Entrust	2.5 oz / acre	147.4 ab	159.6 ab
GF-317	0.5 oz AI / acre	47.0 d	51.4 d
Take-Down	1.0 % solution	166.4 a	156.2 ab
Untreated	-	137.8 ab	201.8 a

Mean number of OT per five plants in a column followed by different letters are significantly different, LSD, P=0.1.

Comparison of Nicotinoid Insecticides for Controlling Harlequin Bug on Collards, 2005

J.V. Edelson C. Mackey

Harlequin bug (HB): *Murgantia histrionica* (Hahn)

Nicotinoid and reduced risk insecticides were evaluated for controlling HB on collards. Collard seeds were planted 12 Apr at the Wes Watkins AREC, Lane, OK. The experimental design was a CRB with nine treatments and five replicate blocks with plots on 6 ft row spacing and two rows of plants 10 inches apart in each plot, 20 ft long and with 15 ft alleys between plots. Plots were treated 23 May, 16 and 20 Jun using an ATV mounted sprayer powered by CO_2. The boom was 6 ft wide and was equipped with hollow cone nozzles. The boom had a single nozzle over the top and a drop nozzle to each side of the row. It had an output of 40 gpa @ 45 psi. Surveys were conducted 23 and 28 Jun by visually examining five plants in each plot for insects and number of adult and nymph HB were recorded. Data were summarized and analyzed using ANOVA and treatment effects compared using a LSD test.

HB adults and nymphs were abundant in 2005. Populations in plots treated with Assail, Actara, Calypso, Provado and Aza-Direct were reduced in numbers in comparison to the untreated plots. The nicotinoid insecticides including Actara, Calypso and Provado resulted in the greatest reductions in population abundance.

Table 1.

		HB/5 plants
Treatment	**Rate / acre**	**Jun 23**
Assail	0.1 lb ai / acre	12.8 bc
FL1785	0.088 lb ai / acre	43.6 a
Actara	4 oz / acre	0.6 c
Calypso	0.1 lb ai / acre	2.4 c
Provado	3.75 fl oz / acre	1.6 c
Fulfill	2.75 oz / acre	35.2 ab
Aza-Direct	2 pints/acre	13.8 bc
Take-Down	1% Solution	17.6 abc
Untreated	-	44.8 a

Mean values in a column followed by different letters are significantly different, LSD, P=0.1.

Comparison of Pyrethroid Insecticides for Controlling Harlequin Bug on Collards, 2005

J.V. Edelson C. Mackey

Harlequin bug (HB): *Murgantia histrionica* (Hahn)

Pyrethroid and reduced risk insecticides were evaluated for controlling HB and collards. Collard seeds were planted 12 Apr at the Wes Watkins AREC, Lane, OK. The experimental design was a CRB with 16 treatments and five replicate blocks with plots on 6 ft row spacing and two rows of plants 10 inches apart in each plot, 20 ft long and with 15 ft alleys between plots. Plots were treated 24 May and 17 and 21 Jun using an ATV mounted sprayer with a single nozzle over the top of each row and nozzles on drops to each side of the row of plants. The sprayer was operated at 40 psi and delivered 20 gpa. Five plants per plot were surveyed. Data were summarized and analyzed as total number of HB nymphs and adults using ANOVA and treatment effects compared using a LSD test.

HB adults and nymphs were abundant in 2005. Populations of HB in plots treated with all insecticides except Knack, Entrust, Aza-Direct and Spintor on 24 Jun were reduced in comparison to the untreated plots. Mustang, Capture, Warrior, Baythroid and Dinotefuran, and Novaluron provided the best control in terms of reductions in numbers on both 24 and 29 Jun. The pyrethroid insecticides as a group provided the greatest reduction in numbers of HB.

Table 1.

		HB per five plants	
Treatment	**Rate / acre**	**24 Jun**	**29 Jun**
Mustang	0.025 lb ai / acre	0.0 d	0.0 e
Capture	6.4 fl oz / acre	0.2 d	0.2 e
Warrior	3.84 fl oz / acre	0.2 d	2.2 e
Baythroid	2.8 fl oz / acre	1.0 d	1.4 e
Danitol	0.3 lb ai / acre	0.2 d	1.0 e
Proclaim	4.8 oz / acre	4.8 d	22.6 cde
Intrepid	0.2 lb ai / acre	8.8 cd	23.2 cde
Dinotefuran	6.4 oz / acre	0.4 d	3.2 e
Novaluron	0.8 lb ai / acre	2.4 d	12.8 de
Knack	10 fl oz / acre	53.6 a	79.6 a
Spintor	6 fl oz / acre	28.4 bc	65.0 ab
Aza-Direct	2 pints/acre	28.8 bc	22.6 cde
Take-Down	1% solution	6.0 cd	22.0 cde
Dipel DF	2 lbs/acre	6.4 cd	47.4 bc
Entrust 80%	2 oz/acre	17.2 bcd	42.0 bcd
Untreatred		32.2 ab	39.8 bcd

Mean values in a column followed by different letters are significantly different, LSD, P=0.1.

Controlling Corn Earworm on Sweet Corn, 2005

J.V. Edelson and C. Mackey

Corn Earworm (CEW): *Helicoverpa zea* (Boddie)

Insecticides labeled for use in organic production systems were compared along with a synthetic pyrethroid insecticide and a B.t. transgenic cultivar, 'Attribute', for controlling CEW on sweet corn. Sweet corn was planted to a field at the Wes Watkins AREC, Lane, OK on 25 May. Rows were set at 36 inch intervals and seed planted at six inch intervals with a Monosem precision planter. The experimental design was a CRB with seven treatments and six replicate blocks. Plots were four rows wide by 40 ft long. Insecticide treatment plots were sprayed on 18, 20, 22, 25, 27 and 29 Jul using a tractor mounted hydraulic sprayer. The sprayer had a 12 ft wide boom with 8 nozzles mounted to spray over the top of the plants. The sprayer output was 20 gpa at 45 psi. Ears were harvested 2 Aug by picking 25 mature ears from each plot. The ears were shucked and examined for larvae present and damage. The ears with damage were rated on a percent damaged scale of 0%, 1-25%, 26-50%, 51-75% or 76-100% damage. Data were summarized and analyzed using ANOVA and a LSD test to make comparisons among treatments.

Corn earworm larvae were abundant. The only treatment resulting in significant reductions of CEW larval abundance was production using the B.t. transgenic cultivar, 'Attribute', which had fewer larvae and less damage per ear than plants treated with any of the insecticides and the untreated plants.

Table 1.

Treatment	rate/acre	Larvae/ear	% of ear damaged
Attribute	-	0.5 d	3.4 d
Take Down	1% solution	1.5 ab	15.9 c
Capture	0.1 lb ai/ acre	1.1 bc	15.6 c
Aza-Direct	2 pints / acre	1.4 a	22.6 ab
Dipel DF	2 lbs actual / acre	1.2 ab	24.7 a
Entrust	2 oz actual / acre	0.9 c	17.3 c
Untreated	-	1.1 bc	20.0 bc

Numbers in a column are significantly different if not followed by the same letter, LSD, P=0.1.