

TOMATO: *Lycopersicon esculentum* Miller

‘Florida 47’

Melon thrips; *Thrips palmi* Karny

Common blossom thrips: *Frankliniella schultzei* Trybom

Western flower thrips: *F. occidentalis* Pergande

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EVALUATION OF VARIOUS INSECTICIDES IN CONTROLLING THRIPS, SPRING 2017. ‘Florida 47’ tomato seedlings were planted on raised beds on 29 March, 2017 at TREC. Beds were covered with white on black plastic mulch. The soil type of the beds were a Krome gravelly loam (loamy-skeletal, carbonatic hyperthermic lithic Udorthents), which consists of about 33% soil and 67% pebbles (>2mm).

Seedlings were placed 18 inches apart within rows and 36 inches apart in between rows.

Plants were drip irrigated and fertigated with 4-0-8. Each treatment plot consisted of a 30 ft long one bed and was arranged in a randomized complete block design with four replications.

A 5 ft wide nonplanted area separated blocks from each other.

Treatments evaluated were:

Treatment	Rate[oz]/acre	Application method
Cormoran	12.0	Foliar
Radiant	8.0	Foliar
Entrust	6.0	Foliar
Requiem	3 qt	Foliar
Nontreated		

Treatments were applied on two dates- 21 April and 2 May 2017. Application of insecticides was performed by using a backpack sprayer delivering 50 – 70 GPA at 30 PSI. Evaluation of insecticide efficacy was accomplished by randomly collecting 10 full grown young leaves, one leaf/plant, from each treatment plot 3 (25 April) and 7 (28 April) days after the first application; and 7(9 May), 14 (16 May), 21 (23 May) and 28 (30 May) d after the second application. Sampled leaves were placed in a plastic bag by plot and treatment and were brought to the laboratory for washing them with 70% ethanol to separate thrips from leaves. Numbers of adults and larvae were identified and recorded by checking under a binocular microscope at 10x magnification.

Melon thrips, *Thrips palmi* Karny

Melon thrips population abundance was medium on tomato plants during this study (Tables 1 & 2). Mean numbers of melon thrips adults in various insecticide treatments did not differ from the nontreated control on any of the sampling dates (Table 1). Similar results were recorded when melon thrips larvae were considered (Table 2). When adults and larvae were considered together and analyzed for mean separation, no statistical difference in the mean number of total thrips/sample treated with various insecticides did not differ from the nontreated control (Table 3).

Common blossom thrips, *Frankliniella schultzei* Trybom

Common blossom thrips population was low during this study (Table 4). Various treatments effects were not statistically different as compared to the untreated control with a few exceptions. Mean number of common blossom thrips was significantly fewer on the first two and the last sampling dates as compared to the nontreated control.

Western flower thrips. *Frankliniella occidentalis* Pergande

Western flower thrips population abundance was also low during this study (Table 5). Insecticide treatments did not differ from the nontreated control in the mean number of western flower thrips on the first sampling date 25 April). On the second sampling date, mean numbers of western flower thrips were significantly fewer on Cormoran and Radiant treated plants than the nontreated plants. On the following three sampling dates (9 May, 16 May and 23 May), insecticide treatments did not reduce thrips population as compared to the nontreated control. On the last sampling date (30 May), all insecticide treatments significantly reduced western flower thrips adults as compared to the nontreated control (Table 5).

Table 1. Mean number of melon thrips adults/10 leaf sample of 'Sanibel' tomato treated with various insecticides, spring 2017

Mean number of melon thrips adults/sample

Treatment	Rate[oz]/acre	25 April	28 April	9 May	16 May	23 May	30 May
Cormoran	12.0	8.00a	2.50a	1.75ab	0.75a	1.25a	2.75a
Radiant	8.0	6.75a	8.50a	1.00ab	1.25a	1.75a	4.50a
Entrust	6.0	4.75a	8.50a	2.25a	1.75a	2.00a	2.50a
Requiem	3 qt	3.00a	5.50a	0.50b	1.25a	2.25a	3.25a
Nontreated		5.50a	10.75a	1.50ab	0.75a	2.50a	3.25a

Means within a column followed by a same letter or no letter do not differ statistically ($P>0.05$), Duncan Multiple Range Test (SAS 2013).

Table 2. Mean number of melon thrips larvae/10 leaf sample of 'Sanibel' tomato treated with various insecticides, spring 2017

Mean number of melon thrips larvae/sample

Treatment	Rate[oz]/acre	25 April	28 April	9 May	16 May	23 May	30 May
Cormoran	12.0	3.75a	13.00a	3.00b	2.50a	1.00a	2.50a
Radiant	8.0	6.75a	4.50a	5.25b	3.25a	2.00a	1.25a
Entrust	6.0	0.50a	5.00a	20.00a	2.75a	3.50a	1.25a
Requiem	3 qt	7.50a	3.50a	5.25b	3.50a	1.00a	1.00a
Nontreated		3.75a	12.50a	8.75ab	6.75a	3.50a	0.75a

Means within a column followed by a same letter or no letter do not differ statistically ($P>0.05$), Duncan Multiple Range Test (SAS 2013).

Table 3. Mean number of total thrips (adult + larvae)/10 leaf sample of 'Sanibel' tomato treated with various insecticides, spring 2017

Mean number of melon thrips adults + larvae/sample

Treatment	Rate[oz]/acre	25 April	28 April	9 May	16 May	23 May	30 May
Cormoran	12.0	11.75a	15.50a	4.75b	3.25a	2.25a	5.25a
Radiant	8.0	13.50a	13.00a	6.25b	4.50a	3.75a	5.75a
Entrust	6.0	5.25a	13.50a	22.25a	4.50a	5.50a	3.75a
Requiem	3 qt	10.50a	9.00a	5.75b	4.75a	3.25a	4.25a
Nontreated		9.25a	23.25a	10.25ab	7.50a	6.05a	4.00a

Means within a column followed by a same letter or no letter do not differ statistically ($P>0.05$), Duncan Multiple Range Test (SAS 2013).

Table 4. Mean number of common blossom thrips (CBT) adults/10 leaf sample of 'Sanibel' tomato treated with various insecticides, spring 2017

Mean number of CBT adults/sample

Treatment	Rate[oz]/acre	25 April	28 April	9 May	16 May	23 May	30 May
Cormoran	12.0	0.00b	0.25bc	0.25a	0.00a	0.50a	0.25b
Radiant	8.0	0.25b	0.00c	0.00a	0.50a	0.00a	0.00b
Entrust	6.0	0.00b	0.75ab	0.50a	0.25a	0.25a	0.25b
Requiem	3 qt	0.25b	0.50a-c	0.25a	0.50a	0.75a	0.25b
Nontreated		1.00a	1.00a	0.75a	0.50a	0.25a	1.00a

Means within a column followed by a same letter or no letter do not differ statistically ($P>0.05$), Duncan Multiple Range Test (SAS 2013).

Table 5. Mean number of western flower thrips (WFT) adults/10 leaf sample of 'Sanibel' tomato treated with various insecticides, spring 2017

Mean number of WFT adults/sample

Treatment	Rate[oz]/acre	25 April	28 April	9 May	16 May	23 May	30 May
Cormoran	12.0	0.00a	0.00b	0.00a	0.00a	0.00a	0.00b
Radiant	8.0	0.00a	0.00b	0.00a	0.25a	0.00a	0.00b
Entrust	6.0	0.00a	0.50ab	0.50a	0.25a	0.25a	0.25b
Requiem	3 qt	0.25a	0.25ab	0.25a	0.50a	0.50a	0.00b
Nontreated		0.25a	0.75a	0.25a	0.00a	0.25a	1.00a

Means within a column followed by a same letter or no letter do not differ statistically ($P>0.05$),

Duncan Multiple Range Test (SAS 2013).

```

data adama thrips;
input date bl $ trt $ ad lar cbt wft;
sqad=sqrt(ad+.25);
sqlar=sqrt(lar+.25);
sqcbt=sqrt(cbt+.25);
sqwft=sqrt(wft+.25);
cards;

425 a w 9 2 1 0
425 a r 7 2 0 0
425 a b 15 11 0 0
425 a g 11 1 0 0
425 a y 2 0 0 0

425 b w 0 0 1 0
425 b r 5 6 0 0
425 b b 5 2 0 0
425 b g 3 0 0 0
425 b y 3 12 0 0

425 c w 7 13 1 1
425 c r 16 7 0 0
425 c b 7 14 1 0
425 c g 3 0 0 0
425 c y 4 18 0 0

425 d w 6 0 1 0
425 d r 4 0 0 0

```

425	d	b	0	0	0	0
425	d	g	2	1	0	0
425	d	y	3	0	1	1
428	a	w	22	35	1	0
428	a	r	3	22	0	0
428	a	b	15	9	0	0
428	a	g	19	7	1	1
428	a	y	11	8	0	0
428	b	w	5	2	1	1
428	b	r	0	0	1	0
428	b	b	6	4	0	0
428	b	g	10	6	0	0
428	b	y	6	2	0	0
428	c	w	16	13	1	1
428	c	r	5	12	0	0
428	c	b	13	5	0	0
428	c	g	5	5	1	1
428	c	y	1	4	1	0
428	d	w	0	0	1	1
428	d	r	2	18	0	0
428	d	b	0	0	0	0
428	d	g	0	2	1	0
428	d	y	4	0	1	1
509	a	w	1	3	2	1
509	a	r	1	2	0	0
509	a	b	2	14	0	0
509	a	g	2	20	0	0
509	a	y	0	12	0	0
509	b	w	1	1	0	0
509	b	r	1	3	1	0
509	b	b	0	3	0	0
509	b	g	3	23	1	1
509	b	y	1	2	1	1
509	c	w	3	22	0	0
509	c	r	4	3	0	0
509	c	b	1	4	0	0
509	c	g	3	34	0	0
509	c	y	1	4	0	0
509	d	w	1	9	1	0
509	d	r	1	4	0	0
509	d	b	1	0	0	0
509	d	g	1	3	1	1
509	d	y	0	3	0	0
516	a	w	1	6	0	0
516	a	r	1	4	0	0
516	a	b	2	7	1	0
516	a	g	4	3	0	0
516	a	y	0	0	1	1

516	b	w	2	14	1	0
516	b	r	1	0	0	0
516	b	b	2	5	0	0
516	b	g	2	3	0	0
516	b	y	3	9	1	1
516	c	w	0	4	0	0
516	c	r	0	4	0	0
516	c	b	1	1	1	1
516	c	g	0	1	0	0
516	c	y	2	2	0	0
516	d	w	0	3	1	0
516	d	r	1	2	0	0
516	d	b	0	0	0	0
516	d	g	1	4	1	1
516	d	y	0	3	0	0
523	a	w	2	7	1	1
523	a	r	0	1	1	0
523	a	b	0	3	0	0
523	a	g	4	9	0	0
523	a	y	3	0	1	1
523	b	w	3	4	0	0
523	b	r	0	3	1	0
523	b	b	2	2	0	0
523	b	g	2	4	0	0
523	b	y	2	2	1	1
523	c	w	4	2	0	0
523	c	r	4	0	0	0
523	c	b	2	3	0	0
523	c	g	0	0	0	0
523	c	y	3	1	0	0
523	d	w	1	1	0	0
523	d	r	1	0	0	0
523	d	b	3	0	0	0
523	d	g	2	1	1	1
523	d	y	1	1	1	0
530	a	w	3	1	1	1
530	a	r	1	7	0	0
530	a	b	5	5	0	0
530	a	g	0	0	0	0
530	a	y	6	3	0	0
530	b	w	0	2	1	1
530	b	r	3	3	1	0
530	b	b	10	0	0	0
530	b	g	7	0	0	0
530	b	y	2	0	0	0
530	c	w	6	0	1	1
530	c	r	2	0	0	0

530	c	b	0	0	0	0
530	c	g	2	3	1	1
530	c	y	2	1	1	0
530	d	w	4	0	1	1
530	d	r	5	0	0	0
530	d	b	3	0	0	0
530	d	g	1	2	0	0
530	d	y	3	0	0	0

```
proc sort; by date trt;
```

```
proc glm; by date;
```

```
class trt;
```

```
model ad squad lar sqlar cbt sqcbt wft sqwft=trt;
```

```
means trt/duncan; run;
```