



Ornamental Horticulture Program Research Report Form

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Researcher: Jane Doe/Central University **Date:** 9/30/2010
Project Title: Efficacy of Several Products For Managing Thrips Insects
Protocol #: 09-022 **PRnumbers:** 26123, 26124, 26128, 26129, 26976, 29833,
and 29834

Narrative Summary (Results/Discussion)

Please keep text to one page if possible. Include summary of trial results and a brief discussion including how any changes from the protocol may have affected results. Results for multiple PRnumbers can be summarized together, but please list all PRNumbers in the header and in the summary data table.

Immatures.

There was no difference between the insecticide treatments and the untreated check previous to the applications at DAT 0. No differences were observed either at DAT 3 (Table 1). At 7 DAT, only Conserve and Pylon had lower numbers of thrips compared to the untreated check. Both compounds Conserve and Pylon had the lowest number of thrips for the duration of the experiment. Overture took a little bit longer to show effects. It was until DAT 14 that it was different from the untreated check and it was as effective as Conserve or Pylon. This effect lasted until DAT 42. BYI-8330 had lower numbers than the untreated check only at 14 and 28 DAT. No other compound was different from the untreated check. No phytotoxic effects were observed.

Adults.

There was no difference between the insecticide treatments and the untreated check previous to the applications at DAT 0 (Table 2). At 3 DAT, Conserve, Pylon, Overture and Safari had lower numbers of adult thrips compared to the untreated check. At 7 DAT, only Conserve and Pylon had lower numbers of thrips compared to the untreated check. Both compounds Conserve and Pylon had the lowest number of thrips for the duration of the experiment. Overture took longer to show effects. It was until DAT 21 that it was different from the untreated check. However, it was not as effective as Conserve or Pylon. This effect lasted until DAT 42. No other compound was different from the untreated check.

Immature and adults on cut flowers.

The number of thrips in cut flowers was evaluated at DAT 7 and beyond (Table 3). Conserve and Pylon consistently had the lowest number of thrips throughout the experiment. Overture's effect was observed starting on DAT 14. Although Overture had lower thrips numbers compared to the untreated check, it was not as good as Conserve or Pylon. Overture's effect lasted until DAT 35. BYI-8330 reduced the number of thrips in cut flowers on DAT 21 and 28 but it was not as good as Conserve, Pylon or Overture. No other product showed consistent effects against thrips in the cut flowers.

Conclusions.

Conserve and Pylon were the treatments that consistently had the lowest number of immature and adult thrips throughout the experiment. This effect was observed in leaves and also in the cut flowers and it was observed as early as 3 DAT. Overture took a little bit longer to work, usually until 14 DAT and its effect lasted until DAT 35 or 42. Apparently earlier effects were observed on immatures. Although BYI-8330 showed reduction in the numbers of thrips it was not consistent throughout the experiment.

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Results Table

Please insert results table here. Include PRnumbers for each treatment if multiple PRnumbers are included in this summary. Please include statistics.

Table 1. Total Number of WFT Nymphs^a.

PR No.	Treatment	0 DAT	7 DAT	14 DAT	21 DAT	28 DAT	35 DAT	42 DAT	49 DAT	56 DAT	63 DAT
26128	Conserve	0.0 a	0.0 b	0.0 d	0.0 c	0.0 c	0.1 e	0.0 c	0.1 b	0.1 b	5.4 c
26129	Kontos	0.1 a	10.1 ab	3.9 bc	5.7 b	4.3 b	31.9 abc	18.7 a	5.9 a	6.9 a	143.6 a
29834	M-Ultra	0.3 a	5.1 a	12.0 ab	7.1 b	59.7 a	18.6 bcd	15.1 ab	4.4 a	4.9 a	79.6 a
26126	Overture	1.1 a	1.4 ab	0.4 cd	0.6 c	7.9 b	7.1 cd	14.7 b	17.4 a	7.6 a	24.0 b
26123	Pylon	0.0 a	0.0 b	0.0 d	0.0 c	0.1 c	8.1 de	0.7 c	0.4 b	0.0 b	2.4 c
29833	Safari	0.3 a	1.1 ab	4.3 ab	18.6 ab	70.9 a	67.3 a	16.3 ab	3.6 a	6.3 a	68.0 a
26976	Tick-Ex	0.0 a	6.9 a	10.7 ab	30.0 a	83.0 a	45.4 ab	21.9 ab	18.7 a	11.3 a	88.0 a
-	Untreated	0.1 a	2.0 ab	10.0 a	13.4 ab	52.1 a	18.9 abc	25.0 a	11.1 a	11.4 a	95.1 a

^a Mean number of thrips counted on 3 leaves.

* For the statistical analysis data were transformed using the function $\ln(x + 1)$. Original data are presented here. Means within a column followed by the same letter are not significantly different by the Duncan-Waller's test ($P = 0.05$).

Table 2. Total Number of WFT Adults^a.

PR. No.	Treatment	0 DAT	7 DAT	14 DAT	21 DAT	28 DAT	35 DAT	42 DAT	49 DAT	56 DAT	63 DAT
26128	Conserve	0.0 a	0.0 d	0.0 b	0.0 d	0.4 d	0.4 d	0.9 c	1.3 b	2.7 c	7.4 c
26129	Kontos	0.3 a	14.3 a	8.3	15.0 b	32.1 ab	16.7 bc	35.7 a	9.9 a	57.9a	92.1 a
29834	M-Ultra	1.6 a	4.3 ab	6.0 a	24.6 b	51.9 bc	23.6 bc	21.1 ab	26.7 a	15.9 b	88.9 a
26126	Overture	0.3 a	2.6 bc	5.3 a	4.1 c	8.3 c	14.0 c	9.9 b	12.6 a	35.3 ab	29.1 b
26123	Pylon	0.4 a	0.3 cd	0.4 b	0.4 d	0.3 d	0.7 d	1.0 c	0.7 b	0.0 c	4.7 c
29833	Safari	0.1 a	5.3 ab	7.4 a	29.1 ab	76.4 a	42.7 a	32.4 a	24.4 a	48.1 a	55.0 a
26976	Tick-Ex	0.0 a	9.0 a	13.4 a	42.4 a	70.1 ab	52.1 a	29.1 a	23.4 a	33.7 ab	61.6 a
-	Untreated	0.1 a	4.7 ab	14.4 a	37.0 ab	39.1 ab	22.3 abc	12.4 ab	21.1 a	36.9 ab	75.0 a

^a Mean number of thrips counted on 3 leaves.

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Table 3. No. of WFT Nymphs and Adults/Cut Flower^a

PR No.	Treatment	7 DAT	14 DAT	21 DAT	28 DAT	35 DAT	42 DAT	49 DAT	56 DAT	63 DAT
26128	Conserve	4.0 d	0.7 c	0.9 d	5.4 c	1.6 e	13.6 d	10.8 b	6.1 b	4.1 bc
26129	Kontos	23.0 c	88.9 a	45.2 bc	77.8 b	179.7 bc	66.8 bc	93.0	121.2 a	39.9 ab
29834	M-Ultra	55.9 ab	43.1 a	43.7 ab	254.8 a	131.1 abc	136.8 abc	66.8 a	51.7 a	34.1 ab
26126	Overture	62.7 ab	10.3 b	9.7 cd	46.4 b	90.8 cd	73.7 c	96.9 a	70.1 a	22.1 ab
26123	Pylon	8.2 d	0.6 c	1.3 d	0.9 c	16.3 cd	3.2 d	2.3 b	1.1 b	0.2 c
29833	Safari	34.9 bc	84.9 a	79.7 a	238.0 a	349.1 a	202.5 a	84.2 a	111.8 a	46.1 ab
26976	Tick-Ex	64.4 a	81.9 ab	170.3 a	243.5 a	140.8 abc	165.4 ab	83.3 a	59.3 a	13.5 abc
-	Untreated	62.7 a	36.8 a	64.3 a	306.3 a	178.3 ab	87.1 abc	79.3 a	93.7 a	39.0 a

^a Mean number of thrips on one flower.

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Materials & Methods/Recordkeeping

Please fill out the information below or attach a separate document with comparable information.

Name(s) of Personnel Conducting Research: Joe Wise
 Location of Trial (city/state): Central City, Iowa
 Use Site (greenhouse/shadehouse/field container/etc): Greenhouse

Crop History

Crop Cultivar/Variety: Transvaal Daisy / 'Festival Dark Eye Golden Yellow'
 Date of Seeding: 10/3/09 received rooted gerberas
 Date of Emergence: N/A
 Date of Transplanting: 11/20/09
 Potting Mix: Promix BX
 Pot size & spacing: 6 in.
 Row spacing: 14 x 14 in.

Product(s) applied prior to start of experiment:

Product	Rate	Application Type	Date of Application	Crop Growth Stage	Application Volume
Water soluble fertilizer (20-20-20)	1 tbsp/gal water	Watering Can	11/20/09, 12/5/09, 1/5/10, 2/1/10	Pre-bloom to Flowering	100 ml/6 in. pot

Add more rows as needed.



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Experiment Information

Experimental Design: Randomized complete block
Number of Reps: 7

Materials & Methods:

Insert materials & methods here only if information is not presented elsewhere.

Include any changes from protocol.

The objective of this study was to determine the efficacy of several active ingredients for managing thrips infesting ornamental plants grown in greenhouses. The study was conducted at a greenhouse from November 2009 to April 2010. The treatments included 7 compounds and the untreated check. The compounds were Conserve SC (foliar applications at 0 and 14 days), Pylon (foliar applications at 0 and 7 days), Overture 35 WP (foliar applications at 0 and 14 days), Safari 20SG (foliar applications at 0 and 14 days), BYI-8330 (foliar applications at 0 and 14 days), Tick-Ex (foliar applications at 0, 7, 14, 21, 28, 35, 42, 49 and 56 days), and Marathon Ultra (foliar applications at 0 and 14 days). The experimental design was a RCB with 8 treatments and 7 replicates. The greenhouse was maintained at an average temperature of 26° C. Western flower thrips adults were collected from colonies maintained on Gerberas and Zinnias and were used to infest 3 randomly selected leaves per plant. Foliar treatments were applied using a CO2 powered hand held sprayer equipped with a spray wand and a 6TXVS conejet nozzle. The sprayer was set to operate at 40psi and was calibrated to deliver 200 GPA. Plants were irrigated and fertilized using drip irrigation systema and Dosatron injectors.

Application Equipment: CO2 powered hand held sprayer equipped with a spray wand and a 6TXVS conejet nozzle.
Product(s) applied during experiment (including treatments, fertilizers, etc):

Product	Rate Per 100 Gal	Application Type	Date of Application	Crop Growth Stage	Application Volume
Conserve SC	8 fl oz	Foliar	2/29/10, 3/14/10	Flowering	200 GPA
Pylon	5 fl oz	Foliar	2/29/10, 3/7/10	Flowering	200 GPA
Overture 35WP	8 oz	Foliar	2/29/10, 3/14/10	Flowering	200 GPA
Safari 20SG	8 oz	Foliar	2/29/10, 3/14/10	Flowering	200 GPA
BYI-8330	1.7 fl oz	Foliar	2/29/10, 3/14/10	Flowering	200 GPA
Tick-Ex	29 fl oz	Foliar	2/29/10, 3/7/10, 3/14/10, 3/21/10, 3/28/10, 4/4/10, 4/11/10, 4/18/10, 4/25/10, 5/2/10	Flowering	200 GPA
Marathon Ultra	25 fl oz	Foliar	2/29/10, 3/14/10	Flowering	200 GPA

Add more rows as needed.

Data Collected

Please describe data collected and scoring system. Also include the dates data were collected.

All three infested leaves per plant were evaluated on site before (0 days after treatment, DAT) and after treatments at



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7, 14, 21, 28, 35, 42, 49 and 56 DAT. On day 63 all plants were removed from the pots and destructively evaluated for presence of thrips. All immature and adult thrips were counted from all the leaf material. For the analysis, the number of immature and adults found on each leaf were added together to obtain a total per three leaves on each plant. During all dates, a single fully opened flower from each plant was randomly selected, was removed and immediately immersed in 70% Ethanol. Just after removal, the flowers were taken to the laboratory where all immature and adults were counted. Data used for analysis were transformed using the natural logarithm function and analyzed with ANOVA. Means were separated using the Duncan-Waller's test ($P = 0.05$).

Photos

Raw Data

Insert raw data below or send separate file containing raw data.

See attached files with raw data and pictures.

Environmental conditions during the experiment:

Insert temperature, precipitation and/or irrigation, and relative humidity with a minimum of high, low and average daily temperatures. Or send separate file with this information.

Include a statement about any significant weather or environmental events during the course of the experiment.

See attached file for daily records.