

Holden Research and Consulting

Low Volatility Adjuvants as Possible Replacements for Narrow Range 415 Oil for Control of Avocado Thrips.

Protocol ID: 09cacthrips01
Location: Camarillo, Ca

Study Director: Guy Whitney
Investigator: David Holden

Trial Establishment Guidelines

Project Number: 09cacthrips01

Developer: Holden

Issue Date: 6/16/08

Number of Trials
1

Total Trials: 1

Objectives:

To see if current low volatility spreaders could be substituted for current narrow range 415 oil products traditionally used for avocado thrips treatments in an effort to reduce volatile organic carbon (VOC) emissions.

Target Crop Description

Crop 1: PEBAM Persea americana Avocado
Variety: Hass
BBCH Scale: BPER

Target Pest Description

Pest 1 Type: I Code: SCITPE Scirtothrips perseae
Common Name: Avocado thrips
Description: Primary Pest

Pest 2 Type: I Code: OLIGPA Oligonychus perseae
Common Name: Persea mite
Description: Secondary Pest

Application Directions:

Trial to be conducted to simulate lower volume applications similar to aerial applications with helicopters at dilution rates of 50 to 100 gallons per acre equivalent.

Geographic Area/Environmental Considerations:

Single trial to be conducted in Ventura county avocado growing area.

Cropping Considerations:

Avocados

Data to Collect:

1. Relative thrips populations of nymphs only based on numbers counted per underside of the leaf. Pre-count, along with 7 day interval counts until control of the thrips population is loss at seven to ten weeks post treat.
2. Persea mite populations based on the number of colonies found on average per leaf on the underside of the leaves during the thrips evaluation period
3. Estimated crop loss due to thrips damage based on evaluation of 100 fruit per treatment.

Statistical Analysis:

DMRT at 95% confidence level

Summarize and Submit Study By (Date): 10/31/09

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Trt No.	Treatment Name	Rate Unit	Other Rate	Other Rate Unit	Appl Code	Appl Description	Spray Volume	Volume Unit
1	Untreated Check							
2	Agri-Mek Abamectin NR 415 Oil		15 4	floz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
3	Agri-Mek Abamectin NIS 90		15 0.25	floz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
4	Agri-Mek Abamectin Organo Silicon		15 6	floz/a floz/100	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
5	Agri-Mek Abamectin Vintre		15 0.1	floz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
6	Delegate NR 415 Oil		6 4	oz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
7	Delegate NIS 90		6 0.25	oz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
8	Delegate Organo Silicon		6 6	oz/a floz/100	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC
9	Delegate Vintre		6 0.1	oz/a %v/v	A A	Aerial Applicaiton equivalent	75 75	GAL/AC GAL/AC

Additional Treatment Information

Other Rate Unit

OZ/A = Ounces Product per Acre

Volume Unit

GAL/AC = Gallons per acre

Replications: 4, Untreated treatments: 1, Design: Randomized Complete Block, Treatment units: Treated plot size, Dry Form. Unit: %, Treated plot size Width: 20 feet, Treated plot size Length: 16 feet, Application volume: 75 gal/ac, Mix size: 3 gallons, Format definitions: G-A117.DEF, G-A117.FRM

Product quantities required for listed treatments and applications in one trial:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
1,135.620	ml	NR 415 Oil			
70.976	ml	NIS 90			
28.391	ml	Vintre			

* 'Per area' calculations based on spray volume= 75 gal/ac, mix size= 3 gallons (mix size basis).

* Product amount calculations increased 25 % for overage adjustment.

* 'Per volume' calculations use spray volume= 75 gal/ac, mix size= 3 gallons.

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Trial ID: 09cacthrips01
Location: Camarillo, Ca

Protocol ID: 09cacthrips01
Study Director: Guy Whitney
Investigator: David Holden

General Trial Information

Study Director: Guy Whitney
Affiliation: California Avocado Commission
Investigator: David Holden
Affiliation: Holden Research and Consulting

Trial Location

City: Somis
State/Prov.: CA

Trial Status: ONE-YEAR/FINAL
Trial Reliability: Strong
Initiation Date: 5/15/09
Planned Completion Date: 10/31/09

Objectives:

To see if current low volatility spreaders could be substituted for narrow range 415 oil products traditionally used for avocado thrips treatments in an effort to reduce volatile organic compound (VOC) emissions.

Conclusions:

This trial was laid out as a random complete block design (RCBD) trial utilizing four replications for each treatment and when collecting data. Each replicate consisted of one tree with a buffer tree between the treated trees. The application were made utilizing 75 gallons of water per acre equivalent, applied as foliar sprays to simulate the rate that would be applied by an aerial applicator. Applications were made with a Solo backpack airblast sprayer. Treatments followed the rates and timing laid out in the Treatment application Table found below.

Evaluations for all pests started prior to the application. At the beginning of the trial evaluations were made by counting all live nymphal thrips found on the underside of newly developing leaves, utilizing five leaves per replicate. At the same time newly developing mite colonies were also counted in the same manner. Evaluations for fruit damage were made two months after fruit set by collecting 25 fruit per replicate and counting the total number of fruit with thrips damage and rating that damage as allowing the fruit to be marketable as first grade fruit or unmarketable, these becoming culls.

The plants were also inspected for any application phytotoxic effects after the initial application.

Results and Discussion:

All data for this trial will be found in this report and the accompanying Excel spreadsheet Charts 1-3.

During the course of the trial normal thrips activity was noted and no mite populations developed during this trial. Thrips population means can be found in the consolidated Chart 1. As can be seen in this chart, the untreated check populations of thrips was normally well above one nymphal thrips per leaf, which is considered the economic threshold for this pest, with fruit damage most likely to occur. All treatment rates and combinations of adjuvants kept the thrips populations well below the untreated check population during the rating period. Chart 2 shows the average fruit damage for each treatment. As can be seen in this chart all treatments showed significant reductions in thrips damage over the untreated check. Chart 3 shows the average packout potential for the fruit evaluated. As can be seen in this chart, based on the quality ratings for thrips damage, all of the fruit treated in this test would have packed as first grade based on the lack of significant thrips damage. Though thrips populations were well above established economic thresholds 99 percent of the untreated fruit would have packed out as first grade fruit.

No phytotoxic effects were observed in any of these treatments.

All data rated as significant was done so utilizing the New Duncan's Multiple Test Range at a 95% confidence level.

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Conclusions:

Based on the data collected from this trial, it would appear that all tested adjuvants used as substitutes to the normal (and in most cases for abamectin label requirement) use of Narrow Range 415 spray oil should supply like control of Avocado thrips over the use of Narrow Range 415 oil. Further study may be required to confirm the preceding, but it would appear from this study that many of the standard adjuvants used in the marketplace should provide like activity for the control of Avocados thrips when used with abamectin based and Delegate insecticides.

Cooperator/Landowner

Cooperator: David Scholle
Organization: F. Russell Ranch

Crop Description

Crop 1: PEBAM Persea americana Avocado
Variety: Hass
BBCH Scale: BPER **Planting Date:** 4/16/01
Rate, Unit: 150 P/A

Pest Description

Pest 1 Type: I **Code:** SCITPE Scirtothrips perseae
Common Name: Avocado thrips
Description: Primary Pest

Pest 2 Type: I **Code:** OLIGPA Oligonychus perseae
Common Name: Persea mite
Description: Secondary Pest

Site and Design

Plot Width, Unit: 20 FT **Site Type:** ORCHARD
Plot Length, Unit: 16 FT
Replications: 4 **Study Design:** Randomized Complete Block

Application Description

	A
Application Date:	5/22/09
Time of Day:	1000
Application Method:	SPRAY
Application Placement:	FOLIAR
Applied By:	Holden
Air Temperature, Unit:	60
% Relative Humidity:	70
Wind Velocity, Unit:	1
Wind Direction:	west
Dew Presence (Y/N):	n
% Cloud Cover:	100

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	PEBAM BPER

Pest Stage At Each Application

	A
Pest 1 Code, Disc., Scale:	SCITPE I
Pest 2 Code, Disc., Scale:	OLIGPA I

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Application Equipment

	A
Appl. Equipment:	Solo
Nozzle Type:	Gearmoore
Carrier:	Water
Spray Volume, Unit:	75
Mix Size, Unit:	2 GAL
Tank Mix (Y/N):	n

Trt No	Treatment Application Comment
1	No phytotoxicity observed with any of the treatments

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Pest Type	I Insect	I Insect	I Insect	I Insect						
Pest Code	SCITPE	SCITPE	OLIGPA	SCITPE						
Pest Name	Avocado thr>	Avocado thr>	Persea mite	Avocado thr>						
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM						
BBCH Scale	BPER	BPER	BPER	BPER						
Crop Name	Avocado	Avocado	Avocado	Avocado						
Crop Variety	Hass	Hass	Hass	Hass						
Part Rated	NYMPH P	NYMPH P	MOTILE P	NYMPH P						
Rating Date	5/15/09	5/26/09	5/26/09	6/2/09						
Rating Data Type	COUINS	COUINS	COUCOL	COUINS						
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER						
Sample Size	2	2	2	2						
Sample Size Unit	LEAF	LEAF	LEAF	LEAF						
Number of Subsamples	2	2	2	5						
Footnote Number										
Assessed By	Holden	Holden	Holden	Holden						
Days After First/Last Applic.	-7 -7	4 4	4 4	11 11						
Trt-Eval Interval	-7 DA-A	4 DA-A	4 DA-A	11 DA-A						
Plant-Eval Interval	2951 DP-1	2962 DP-1	2962 DP-1	2969 DP-1						
Number of Decimals										
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	1	2	3	4
1	Untreated Check					101	0.0	1.0	0.0	1.4
						201	1.0	1.5	0.0	1.4
						301	0.0	0.5	0.0	0.8
						401	2.0	1.0	0.0	3.4
						Mean =	0.8	1.0	0.0	1.8
2	Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v	A	Aerial Applicaiton equivalent		102	2.0	0.0	0.0	0.2
						202	0.5	0.0	0.0	0.2
						302	0.0	0.0	0.0	0.0
						402	3.5	0.0	0.0	0.2
						Mean =	1.5	0.0	0.0	0.2
3	Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v	A	Aerial Applicaiton equivalent		103	0.0	0.0	0.0	0.0
						203	0.0	0.0	0.0	0.0
						303	0.0	0.0	0.0	0.0
						403	0.5	0.0	0.0	0.2
						Mean =	0.1	0.0	0.0	0.1
4	Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100	A	Aerial Applicaiton equivalent		104	0.5	0.0	0.0	0.0
						204	0.5	0.0	0.0	0.0
						304	2.5	0.0	0.0	0.0
						404	0.0	0.0	0.0	0.0
						Mean =	0.9	0.0	0.0	0.0
5	Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v	A	Aerial Applicaiton equivalent		105	1.0	0.0	0.0	0.0
						205	2.5	0.0	0.0	0.0
						305	0.0	0.0	0.0	0.0
						405	0.5	0.0	0.0	0.0
						Mean =	1.0	0.0	0.0	0.0
6	Delegate NR 415 Oil	6 oz/a 4 %v/v	A	Aerial Applicaiton equivalent		106	1.0	0.0	0.0	0.0
						206	0.0	0.0	0.0	0.0
						306	1.5	0.0	0.0	0.0
						406	0.5	0.0	0.0	0.0
						Mean =	0.8	0.0	0.0	0.0
7	Delegate NIS 90	6 oz/a 0.25 %v/v	A	Aerial Applicaiton equivalent		107	1.0	0.0	0.0	0.0
						207	0.5	0.0	0.0	0.0
						307	0.5	0.0	0.0	0.0
						407	1.0	0.0	0.0	0.0
						Mean =	0.8	0.0	0.0	0.0

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Pest Type	I Insect	I Insect	I Insect	I Insect
Pest Code	SCITPE	SCITPE	OLIGPA	SCITPE
Pest Name	Avocado thr>	Avocado thr>	Persea mite	Avocado thr>
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM
BBCH Scale	BPER	BPER	BPER	BPER
Crop Name	Avocado	Avocado	Avocado	Avocado
Crop Variety	Hass	Hass	Hass	Hass
Part Rated	NYMPH P	NYMPH P	MOTILE P	NYMPH P
Rating Date	5/15/09	5/26/09	5/26/09	6/2/09
Rating Data Type	COUINS	COUINS	COUCOL	COUINS
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER
Sample Size	2	2	2	2
Sample Size Unit	LEAF	LEAF	LEAF	LEAF
Number of Subsamples	2	2	2	5
Footnote Number				
Assessed By	Holden	Holden	Holden	Holden
Days After First/Last Applic.	-7 -7	4 4	4 4	11 11
Trt-Eval Interval	-7 DA-A	4 DA-A	4 DA-A	11 DA-A
Plant-Eval Interval	2951 DP-1	2962 DP-1	2962 DP-1	2969 DP-1
Number of Decimals				

Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	1	2	3	4
8	Delegate Organo Silicon	6 oz/a 6 floz/100		A A	Aerial Applicaiton equivalent	108	0.0	0.0	0.0	0.0
						208	0.5	0.0	0.0	0.0
						308	0.5	0.0	0.0	0.0
						408	0.0	0.0	0.0	0.0
						Mean =	0.3	0.0	0.0	0.0
9	Delegate Vintre	6 oz/a 0.1 %v/v		A A	Aerial Applicaiton equivalent	109	0.0	0.0	0.0	0.0
						209	0.0	0.0	0.0	0.0
						309	0.0	0.0	0.0	0.0
						409	0.5	0.0	0.0	0.0
						Mean =	0.1	0.0	0.0	0.0

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Pest Type		I Insect	I Insect	I Insect	I Insect					
Pest Code		OLIGPA	SCITPE	OLIGPA	SCITPE					
Pest Name		Persea mite	Avocado thr>	Persea mite	Avocado thr>					
Crop Code		PEBAM	PEBAM	PEBAM	PEBAM					
BBCH Scale		BPER	BPER	BPER	BPER					
Crop Name		Avocado	Avocado	Avocado	Avocado					
Crop Variety		Hass	Hass	Hass	Hass					
Part Rated		MOTILE P	NYMPH P	MOTILE P	NYMPH P					
Rating Date		6/2/09	6/9/09	6/9/09	6/16/09					
Rating Data Type		COUCOL	COUINS	COUCOL	COUINS					
Rating Unit		NUMBER	NUMBER	NUMBER	NUMBER					
Sample Size		2	2	2	2					
Sample Size Unit		LEAF	LEAF	LEAF	LEAF					
Number of Subsamples		5	5	5	5					
Footnote Number										
Assessed By		Holden	Holden	Holden	Holden					
Days After First/Last Applic.		11 11	18 18	18 18	25 25					
Trt-Eval Interval		11 DA-A	18 DA-A	18 DA-A	25 DA-A					
Plant-Eval Interval		2969 DP-1	2976 DP-1	2976 DP-1	2983 DP-1					
Number of Decimals										
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	5	6	7	8
1	Untreated Check					101	0.0	6.4	0.0	5.4
						201	0.0	4.2	0.0	6.4
						301	0.0	1.2	0.0	8.4
						401	0.0	3.8	0.0	2.2
					Mean =		0.0	3.9	0.0	5.6
2	Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v		A	Aerial Applicaiton equivalent	102	0.0	0.0	0.0	0.0
						202	0.0	0.0	0.0	0.0
						302	0.0	0.0	0.0	0.0
						402	0.0	0.0	0.0	0.2
					Mean =		0.0	0.0	0.0	0.1
3	Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	103	0.0	0.2	0.0	0.0
						203	0.0	0.0	0.0	0.0
						303	0.0	0.0	0.0	0.0
						403	0.0	0.0	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
4	Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100		A	Aerial Applicaiton equivalent	104	0.0	0.0	0.0	0.0
						204	0.0	0.0	0.0	0.0
						304	0.0	0.0	0.0	0.0
						404	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
5	Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v		A	Aerial Applicaiton equivalent	105	0.0	0.0	0.0	0.0
						205	0.0	0.0	0.0	0.0
						305	0.0	0.0	0.0	0.0
						405	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
6	Delegate NR 415 Oil	6 oz/a 4 %v/v		A	Aerial Applicaiton equivalent	106	0.0	0.0	0.0	0.0
						206	0.0	0.0	0.0	0.0
						306	0.0	0.0	0.0	0.0
						406	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
7	Delegate NIS 90	6 oz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	107	0.0	0.4	0.0	0.0
						207	0.0	0.0	0.0	0.0
						307	0.0	0.0	0.0	0.0
						407	0.0	0.0	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
8	Delegate Organo Silicon	6 oz/a 6 floz/100		A	Aerial Applicaiton equivalent	108	0.0	0.0	0.0	0.2
						208	0.0	0.0	0.0	0.0
						308	0.0	0.0	0.0	0.0
						408	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.1

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Pest Type	I Insect	I Insect	I Insect	I Insect					
Pest Code	OLIGPA	SCITPE	OLIGPA	SCITPE					
Pest Name	Persea mite	Avocado thr>	Persea mite	Avocado thr>					
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM					
BBCH Scale	BPER	BPER	BPER	BPER					
Crop Name	Avocado	Avocado	Avocado	Avocado					
Crop Variety	Hass	Hass	Hass	Hass					
Part Rated	MOTILE P	NYMPH P	MOTILE P	NYMPH P					
Rating Date	6/2/09	6/9/09	6/9/09	6/16/09					
Rating Data Type	COUCOL	COUINS	COUCOL	COUINS					
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER					
Sample Size	2	2	2	2					
Sample Size Unit	LEAF	LEAF	LEAF	LEAF					
Number of Subsamples	5	5	5	5					
Footnote Number									
Assessed By	Holden	Holden	Holden	Holden					
Days After First/Last Applic.	11 11	18 18	18 18	25 25					
Trt-Eval Interval	11 DA-A	18 DA-A	18 DA-A	25 DA-A					
Plant-Eval Interval	2969 DP-1	2976 DP-1	2976 DP-1	2983 DP-1					
Number of Decimals									
Trt Treatment No. Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	5	6	7	8
9 Delegate Vintre	6 oz/a	0.1 %v/v	A	Aerial Applicaiton equivalent	109	0.0	0.0	0.0	0.0
					209	0.0	0.2	0.0	0.0
					309	0.0	0.0	0.0	0.0
					409	0.0	0.0	0.0	0.2
				Mean =		0.0	0.1	0.0	0.1

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect						
Pest Code	OLIGPA	SCITPE	OLIGPA	SCITPE						
Pest Name	Persea mite	Avocado thr>	Persea mite	Avocado thr>						
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM						
BBCH Scale	BPER	BPER	BPER	BPER						
Crop Name	Avocado	Avocado	Avocado	Avocado						
Crop Variety	Hass	Hass	Hass	Hass						
Part Rated	MOTILE P	NYMPH P	MOTILE P	NYMPH P						
Rating Date	6/16/09	6/22/09	6/22/09	6/29/09						
Rating Data Type	COUCOL	COUINS	COUCOL	COUINS						
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER						
Sample Size	2	2	2	2						
Sample Size Unit	LEAF	LEAF	LEAF	LEAF						
Number of Subsamples	5	5	5	5						
Footnote Number										
Assessed By	Holden	Holden	Holden	Holden						
Days After First/Last Applic.	25 25	31 31	31 31	38 38						
Trt-Eval Interval	25 DA-A	31 DA-A	31 DA-A	38 DA-A						
Plant-Eval Interval	2983 DP-1	2989 DP-1	2989 DP-1	2996 DP-1						
Number of Decimals										
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	9	10	11	12
1	Untreated Check					101	0.0	5.4	0.0	6.2
						201	0.0	7.2	0.0	8.2
						301	0.0	5.8	0.0	6.6
						401	0.0	6.2	0.0	4.8
					Mean =		0.0	6.2	0.0	6.5
2	Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v		A	Aerial Applicaiton equivalent	102	0.0	0.2	0.0	0.0
						202	0.0	0.0	0.0	0.0
						302	0.0	0.0	0.0	0.0
						402	0.0	0.0	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
3	Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	103	0.0	0.0	0.0	0.0
						203	0.0	0.0	0.0	0.0
						303	0.0	0.0	0.0	0.0
						403	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
4	Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100		A	Aerial Applicaiton equivalent	104	0.0	0.0	0.0	0.0
						204	0.0	0.0	0.0	0.0
						304	0.0	0.0	0.0	0.0
						404	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
5	Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v		A	Aerial Applicaiton equivalent	105	0.0	0.0	0.0	0.0
						205	0.0	0.0	0.0	0.0
						305	0.0	0.0	0.0	0.0
						405	0.0	0.2	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
6	Delegate NR 415 Oil	6 oz/a 4 %v/v		A	Aerial Applicaiton equivalent	106	0.0	0.2	0.0	0.0
						206	0.0	0.0	0.0	0.0
						306	0.0	0.0	0.0	0.0
						406	0.0	0.0	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
7	Delegate NIS 90	6 oz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	107	0.0	0.0	0.0	0.0
						207	0.0	0.0	0.0	0.2
						307	0.0	0.0	0.0	0.2
						407	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.1
8	Delegate Organo Silicon	6 oz/a 6 floz/100		A	Aerial Applicaiton equivalent	108	0.0	0.0	0.0	0.0
						208	0.0	0.0	0.0	0.0
						308	0.0	0.0	0.0	0.0
						408	0.0	0.2	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect
Pest Code	OLIGPA	SCITPE	OLIGPA	SCITPE
Pest Name	Persea mite	Avocado thr>	Persea mite	Avocado thr>
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM
BBCH Scale	BPER	BPER	BPER	BPER
Crop Name	Avocado	Avocado	Avocado	Avocado
Crop Variety	Hass	Hass	Hass	Hass
Part Rated	MOTILE P	NYMPH P	MOTILE P	NYMPH P
Rating Date	6/16/09	6/22/09	6/22/09	6/29/09
Rating Data Type	COUCOL	COUINS	COUCOL	COUINS
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER
Sample Size	2	2	2	2
Sample Size Unit	LEAF	LEAF	LEAF	LEAF
Number of Subsamples	5	5	5	5
Footnote Number				
Assessed By	Holden	Holden	Holden	Holden
Days After First/Last Applic.	25 25	31 31	31 31	38 38
Trt-Eval Interval	25 DA-A	31 DA-A	31 DA-A	38 DA-A
Plant-Eval Interval	2983 DP-1	2989 DP-1	2989 DP-1	2996 DP-1
Number of Decimals				
Trt Treatment	Other	Other	Appl	Appl
No. Name	Rate	Rate	Code	Description
				Plot
				9
				10
				11
				12
9 Delegate	6 oz/a	A	Aerial Applicaiton equivalent	109
Vintre	0.1 %v/v	A		209
				309
				409
				Mean =
				0.0
				0.0
				0.0
				0.0

Holden Research and Consulting

					I Insect OLIGPA	I Insect SCITPE	I Insect OLIGPA	I Insect SCITPE		
Pest Type					Persea mite	Avocado thr>	Persea mite	Avocado thr>		
Pest Code					PEBAM	PEBAM	PEBAM	PEBAM		
Pest Name					BPER	BPER	BPER	BPER		
Crop Code					Avocado	Avocado	Avocado	Avocado		
BBCH Scale					Hass	Hass	Hass	Hass		
Crop Name					MOTILE P	NYMPH P	MOTILE P	NYMPH P		
Crop Variety					6/29/09	7/6/09	7/6/09	7/15/09		
Part Rated					COUCOL	COUINS	COUCOL	COUINS		
Rating Date					NUMBER	NUMBER	NUMBER	NUMBER		
Rating Data Type					2	2	2	2		
Rating Unit					LEAF	LEAF	LEAF	LEAF		
Sample Size					5	5	5	5		
Sample Size Unit										
Number of Subsamples										
Footnote Number										
Assessed By					Holden	Holden	Holden	Holden		
Days After First/Last Applic.					38 38	45 45	45 45	54 54		
Trt-Eval Interval					38 DA-A	45 DA-A	45 DA-A	53 DA-A		
Plant-Eval Interval					2996 DP-1	3003 DP-1	3003 DP-1	3012 DP-1		
Number of Decimals										
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	13	14	15	16
1	Untreated Check					101	0.0	7.4	0.0	4.8
						201	0.0	5.0	0.0	4.0
						301	0.0	5.8	0.0	6.4
						401	0.0	5.4	0.0	6.4
					Mean =		0.0	5.9	0.0	5.4
2	Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v		A	Aerial Applicaiton equivalent	102	0.0	0.2	0.0	0.0
						202	0.0	0.0	0.0	0.0
						302	0.0	0.0	0.0	0.0
						402	0.0	0.0	0.0	0.0
					Mean =		0.0	0.1	0.0	0.0
3	Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	103	0.0	0.0	0.0	0.2
						203	0.0	0.0	0.0	0.0
						303	0.0	0.0	0.0	0.2
						403	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.1
4	Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100		A	Aerial Applicaiton equivalent	104	0.0	0.0	0.0	0.0
						204	0.0	0.0	0.0	0.0
						304	0.0	0.0	0.0	0.0
						404	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
5	Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v		A	Aerial Applicaiton equivalent	105	0.0	0.0	0.0	0.0
						205	0.0	0.2	0.0	0.2
						305	0.0	0.2	0.0	0.0
						405	0.0	0.4	0.0	0.2
					Mean =		0.0	0.2	0.0	0.1
6	Delegate NR 415 Oil	6 oz/a 4 %v/v		A	Aerial Applicaiton equivalent	106	0.0	0.0	0.0	0.0
						206	0.0	0.0	0.0	0.0
						306	0.0	0.0	0.0	0.0
						406	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0
7	Delegate NIS 90	6 oz/a 0.25 %v/v		A	Aerial Applicaiton equivalent	107	0.0	0.0	0.0	0.2
						207	0.0	0.0	0.0	0.0
						307	0.0	0.0	0.0	0.0
						407	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.1
8	Delegate Organo Silicon	6 oz/a 6 floz/100		A	Aerial Applicaiton equivalent	108	0.0	0.0	0.0	0.0
						208	0.0	0.0	0.0	0.0
						308	0.0	0.0	0.0	0.0
						408	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect					
Pest Code	OLIGPA	SCITPE	OLIGPA	SCITPE					
Pest Name	Persea mite	Avocado thr>	Persea mite	Avocado thr>					
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM					
BBCH Scale	BPER	BPER	BPER	BPER					
Crop Name	Avocado	Avocado	Avocado	Avocado					
Crop Variety	Hass	Hass	Hass	Hass					
Part Rated	MOTILE P	NYMPH P	MOTILE P	NYMPH P					
Rating Date	6/29/09	7/6/09	7/6/09	7/15/09					
Rating Data Type	COUCOL	COUINS	COUCOL	COUINS					
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER					
Sample Size	2	2	2	2					
Sample Size Unit	LEAF	LEAF	LEAF	LEAF					
Number of Subsamples	5	5	5	5					
Footnote Number									
Assessed By	Holden	Holden	Holden	Holden					
Days After First/Last Applic.	38 38	45 45	45 45	54 54					
Trt-Eval Interval	38 DA-A	45 DA-A	45 DA-A	53 DA-A					
Plant-Eval Interval	2996 DP-1	3003 DP-1	3003 DP-1	3012 DP-1					
Number of Decimals									
Trt Treatment No. Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	13	14	15	16
9 Delegate Vintre	6 oz/a	0.1 %v/v	A	Aerial Applicaiton equivalent	109	0.0	0.0	0.0	0.0
					209	0.0	0.0	0.0	0.2
					309	0.0	0.0	0.0	0.0
					409	0.0	0.2	0.0	0.0
				Mean =		0.0	0.1	0.0	0.1

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect						
Pest Code	OLIGPA	SCITPE	SCITPE						
Pest Name	Persea mite	Avocado th>	Avocado thr>						
Crop Code	PEBAM	PEBAM	PEBAM						
BBCH Scale	BPER	BPER	BPER						
Crop Name	Avocado	Avocado	Avocado						
Crop Variety	Hass	Hass	Hass						
Part Rated	MOTILE P	FRUIT C	FRUUNM C						
Rating Date	7/15/09	8/12/08	8/12/08						
Rating Data Type	COUCOL	DAMINS	DAMINS						
Rating Unit	NUMBER	%	%						
Sample Size	2	25	25						
Sample Size Unit	LEAF	FRUIT	FRUIT						
Number of Subsamples	5	1	1						
Footnote Number		1	1						
Assessed By	Holden								
Days After First/Last Applic.	54 54	-283 -283	-283 -283						
Trt-Eval Interval	53 DA-A	78 DA-A	78 DA-A						
Plant-Eval Interval	3012 DP-1	2675 DP-1	2675 DP-1						
Number of Decimals		1	1						
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	Plot	17	18	19
1	Untreated Check					101	0.0	20.0	0.0
						201	0.0	12.0	0.0
						301	0.0	16.0	4.0
						401	0.0	4.0	0.0
					Mean =		0.0	13.0	1.0
2	Agri-Mek Abamectin NR 415 Oil	15 fl oz/a 4 %v/v	A	A	Aerial Applicaiton equivalent	102	0.0	0.0	0.0
						202	0.0	0.0	0.0
						302	0.0	0.0	0.0
						402	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0
3	Agri-Mek Abamectin NIS 90	15 fl oz/a 0.25 %v/v	A	A	Aerial Applicaiton equivalent	103	0.0	0.0	0.0
						203	0.0	0.0	0.0
						303	0.0	0.0	0.0
						403	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0
4	Agri-Mek Abamectin Organo Silicon	15 fl oz/a 6 fl oz/100	A	A	Aerial Applicaiton equivalent	104	0.0	0.0	0.0
						204	0.0	4.0	0.0
						304	0.0	0.0	0.0
						404	0.0	0.0	0.0
					Mean =		0.0	1.0	0.0
5	Agri-Mek Abamectin Vintre	15 fl oz/a 0.1 %v/v	A	A	Aerial Applicaiton equivalent	105	0.0	0.0	0.0
						205	0.0	0.0	0.0
						305	0.0	0.0	0.0
						405	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0
6	Delegate NR 415 Oil	6 oz/a 4 %v/v	A	A	Aerial Applicaiton equivalent	106	0.0	0.0	0.0
						206	0.0	0.0	0.0
						306	0.0	0.0	0.0
						406	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0
7	Delegate NIS 90	6 oz/a 0.25 %v/v	A	A	Aerial Applicaiton equivalent	107	0.0	0.0	0.0
						207	0.0	0.0	0.0
						307	0.0	4.0	0.0
						407	0.0	0.0	0.0
					Mean =		0.0	1.0	0.0
8	Delegate Organo Silicon	6 oz/a 6 fl oz/100	A	A	Aerial Applicaiton equivalent	108	0.0	0.0	0.0
						208	0.0	0.0	0.0
						308	0.0	4.0	0.0
						408	0.0	0.0	0.0
					Mean =		0.0	1.0	0.0

Holden Research and Consulting

Pest Type Pest Code Pest Name Crop Code BBCH Scale Crop Name Crop Variety Part Rated Rating Date Rating Data Type Rating Unit Sample Size Sample Size Unit Number of Subsamples Footnote Number Assessed By Days After First/Last Applic. Trt-Eval Interval Plant-Eval Interval Number of Decimals	I Insect OLIGPA Persea mite PEBAM BPER Avocado Hass MOTILE P 7/15/09 COUCOL NUMBER 2 LEAF 5 Holden 54 54 53 DA-A 3012 DP-1	I Insect SCITPE Avocado thr> PEBAM BPER Avocado Hass FRUIT C 8/12/08 DAMINS % 25 FRUIT 1 -283 -283 78 DA-A 2675 DP-1 1	I Insect SCITPE Avocado thr> PEBAM BPER Avocado Hass FRUUNM C 8/12/08 DAMINS % 25 FRUIT 1 -283 -283 78 DA-A 2675 DP-1 1	
Trt Treatment No. Name	Other Rate Other Rate Unit Appl Code Appl Description Plot	17	18	19
9 Delegate Vintre	6 oz/a 0.1 %v/v A A Aerial Applicaiton equivalent	109 209 309 409 Mean =	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0

Holden Research and Consulting

Low Volatility Adjuvants as Possible Replacements for Narrow Range 415 Oil for Control of Avocado Thrips.

Trial ID: 09cacthrips01
 Location: Camarillo, Ca

Protocol ID: 09cacthrips01
 Study Director: Guy Whitney
 Investigator: David Holden

Pest Type	I Insect	I Insect	I Insect	I Insect	I Insect					
Pest Code	SCITPE	SCITPE	OLIGPA	SCITPE	OLIGPA					
Pest Name	Avocado thr>	Avocado thr>	Persea mite	Avocado thr>	Persea mite					
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM	PEBAM					
BBCH Scale	BPER	BPER	BPER	BPER	BPER					
Crop Name	Avocado	Avocado	Avocado	Avocado	Avocado					
Crop Variety	Hass	Hass	Hass	Hass	Hass					
Part Rated	NYMPH P	NYMPH P	MOTILE P	NYMPH P	MOTILE P					
Rating Date	5/15/09	5/26/09	5/26/09	6/2/09	6/2/09					
Rating Data Type	COUINS	COUINS	COUCOL	COUINS	COUCOL					
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER					
Sample Size	2	2	2	2	2					
Sample Size Unit	LEAF	LEAF	LEAF	LEAF	LEAF					
Number of Subsamples	2	2	2	5	5					
Footnote Number										
Assessed By	Holden	Holden	Holden	Holden	Holden					
Days After First/Last Applic.	-7 -7	4 4	4 4	11 11	11 11					
Trt-Eval Interval	-7 DA-A	4 DA-A	4 DA-A	11 DA-A	11 DA-A					
Plant-Eval Interval	2951 DP-1	2962 DP-1	2962 DP-1	2969 DP-1	2969 DP-1					
Number of Decimals										
Trt No.	Treatment Name	Other Rate	Other Rate Unit	Appl Code	Appl Description	1	2	3	4	5
1	Untreated Check					0.8 a	1.0 a	0.0 a	1.8 a	0.0 a
2	Agri-Mek Abamectin NR 415 Oil	15 floz/a	4 %v/v	A	Aerial Applicaiton equivalent	1.5 a	0.0 b	0.0 a	0.2 b	0.0 a
3	Agri-Mek Abamectin NIS 90	15 floz/a	0.25 %v/v	A	Aerial Applicaiton equivalent	0.1 a	0.0 b	0.0 a	0.1 b	0.0 a
4	Agri-Mek Abamectin Organo Silicon	15 floz/a	6 floz/100	A	Aerial Applicaiton equivalent	0.9 a	0.0 b	0.0 a	0.0 b	0.0 a
5	Agri-Mek Abamectin Vintre	15 floz/a	0.1 %v/v	A	Aerial Applicaiton equivalent	1.0 a	0.0 b	0.0 a	0.0 b	0.0 a
6	Delegate NR 415 Oil	6 oz/a	4 %v/v	A	Aerial Applicaiton equivalent	0.8 a	0.0 b	0.0 a	0.0 b	0.0 a
7	Delegate NIS 90	6 oz/a	0.25 %v/v	A	Aerial Applicaiton equivalent	0.8 a	0.0 b	0.0 a	0.0 b	0.0 a
8	Delegate Organo Silicon	6 oz/a	6 floz/100	A	Aerial Applicaiton equivalent	0.3 a	0.0 b	0.0 a	0.0 b	0.0 a
9	Delegate Vintre	6 oz/a	0.1 %v/v	A	Aerial Applicaiton equivalent	0.1 a	0.0 b	0.0 a	0.0 b	0.0 a
LSD (P=.05)						1.29	0.20	0.00	0.55	0.00
Standard Deviation						0.88	0.14	0.00	0.38	0.00
CV						129.73	122.47	0.0	173.09	0.0
Bartlett's X2						19.736	0.0	0.0	18.791	0.0
P(Bartlett's X2)						0.011*	.	.	0.001*	.
Replicate F						0.365	1.000	0.000	1.314	0.000
Replicate Prob(F)						0.7787	0.4098	1.0000	0.2929	1.0000
Treatment F						1.045	24.000	0.000	9.474	0.000
Treatment Prob(F)						0.4319	0.0001	1.0000	0.0001	1.0000

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect	I Insect
Pest Code	SCITPE	OLIGPA	SCITPE	OLIGPA	SCITPE
Pest Name	Avocado thri>	Persea mite	Avocado thri>	Persea mite	Avocado thri>
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM	PEBAM
BBCH Scale	BPER	BPER	BPER	BPER	BPER
Crop Name	Avocado	Avocado	Avocado	Avocado	Avocado
Crop Variety	Hass	Hass	Hass	Hass	Hass
Part Rated	NYMPH P	MOTILE P	NYMPH P	MOTILE P	NYMPH P
Rating Date	6/9/09	6/9/09	6/16/09	6/16/09	6/22/09
Rating Data Type	COUINS	COUCOL	COUINS	COUCOL	COUINS
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
Sample Size	2	2	2	2	2
Sample Size Unit	LEAF	LEAF	LEAF	LEAF	LEAF
Number of Subsamples	5	5	5	5	5
Footnote Number					
Assessed By	Holden	Holden	Holden	Holden	Holden
Days After First/Last Applic.	18 18	18 18	25 25	25 25	31 31
Trt-Eval Interval	18 DA-A	18 DA-A	25 DA-A	25 DA-A	31 DA-A
Plant-Eval Interval	2976 DP-1	2976 DP-1	2983 DP-1	2983 DP-1	2989 DP-1
Number of Decimals					
Trt Treatment	Other	Other	Appl	Appl	
No. Name	Rate	Rate	Unit	Code	Description
6					
7					
8					
9					
10					
1 Untreated Check					3.9 a
2 Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v	A	A	Aerial Applicaiton equivalent	0.0 b
3 Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v	A	A	Aerial Applicaiton equivalent	0.0 a
4 Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100	A	A	Aerial Applicaiton equivalent	0.0 b
5 Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v	A	A	Aerial Applicaiton equivalent	0.0 a
6 Delegate NR 415 Oil	6 oz/a 4 %v/v	A	A	Aerial Applicaiton equivalent	0.0 b
7 Delegate NIS 90	6 oz/a 0.25 %v/v	A	A	Aerial Applicaiton equivalent	0.0 a
8 Delegate Organo Silicon	6 oz/a 6 floz/100	A	A	Aerial Applicaiton equivalent	0.0 b
9 Delegate Vintre	6 oz/a 0.1 %v/v	A	A	Aerial Applicaiton equivalent	0.0 a
LSD (P=.05)	1.03	0.00	1.27	0.00	0.39
Standard Deviation	0.71	0.00	0.87	0.00	0.27
CV	154.77	0.0	136.44	0.0	38.33
Bartlett's X2	32.915	0.0	40.117	0.0	24.448
P(Bartlett's X2)	0.001*	.	0.001*	.	0.001*
Replicate F	1.267	0.000	0.848	0.000	0.704
Replicate Prob(F)	0.3082	1.0000	0.4815	1.0000	0.5591
Treatment F	13.434	0.000	18.222	0.000	227.980
Treatment Prob(F)	0.0001	1.0000	0.0001	1.0000	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect	I Insect
Pest Code	OLIGPA	SCITPE	OLIGPA	SCITPE	OLIGPA
Pest Name	Persea mite	Avocado thr>	Persea mite	Avocado thr>	Persea mite
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM	PEBAM
BBCH Scale	BPER	BPER	BPER	BPER	BPER
Crop Name	Avocado	Avocado	Avocado	Avocado	Avocado
Crop Variety	Hass	Hass	Hass	Hass	Hass
Part Rated	MOTILE P	NYMPH P	MOTILE P	NYMPH P	MOTILE P
Rating Date	6/22/09	6/29/09	6/29/09	7/6/09	7/6/09
Rating Data Type	COUCOL	COUINS	COUCOL	COUINS	COUCOL
Rating Unit	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER
Sample Size	2	2	2	2	2
Sample Size Unit	LEAF	LEAF	LEAF	LEAF	LEAF
Number of Subsamples	5	5	5	5	5
Footnote Number					
Assessed By	Holden	Holden	Holden	Holden	Holden
Days After First/Last Applic.	31 31	38 38	38 38	45 45	45 45
Trt-Eval Interval	31 DA-A	38 DA-A	38 DA-A	45 DA-A	45 DA-A
Plant-Eval Interval	2989 DP-1	2996 DP-1	2996 DP-1	3003 DP-1	3003 DP-1
Number of Decimals					
Trt Treatment	Other	Other	Appl	Appl	
No. Name	Rate	Rate	Unit	Code	Description
1 Untreated Check					
2 Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v		A		Aerial Applicaiton equivalent
3 Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v		A		Aerial Applicaiton equivalent
4 Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100		A		Aerial Applicaiton equivalent
5 Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v		A		Aerial Applicaiton equivalent
6 Delegate NR 415 Oil	6 oz/a 4 %v/v		A		Aerial Applicaiton equivalent
7 Delegate NIS 90	6 oz/a 0.25 %v/v		A		Aerial Applicaiton equivalent
8 Delegate Organo Silicon	6 oz/a 6 floz/100		A		Aerial Applicaiton equivalent
9 Delegate Vintre	6 oz/a 0.1 %v/v		A		Aerial Applicaiton equivalent
LSD (P=.05)	0.00	0.68		0.00	0.53
Standard Deviation	0.00	0.46		0.00	0.36
CV	0.0	63.77		0.0	52.36
Bartlett's X2	0.0	10.651		0.0	22.246
P(Bartlett's X2)	.	0.001*		.	0.001*
Replicate F	0.000	1.147		0.000	0.865
Replicate Prob(F)	1.0000	0.3503		1.0000	0.4725
Treatment F	0.000	85.540		0.000	117.546
Treatment Prob(F)	1.0000	0.0001		1.0000	0.0001

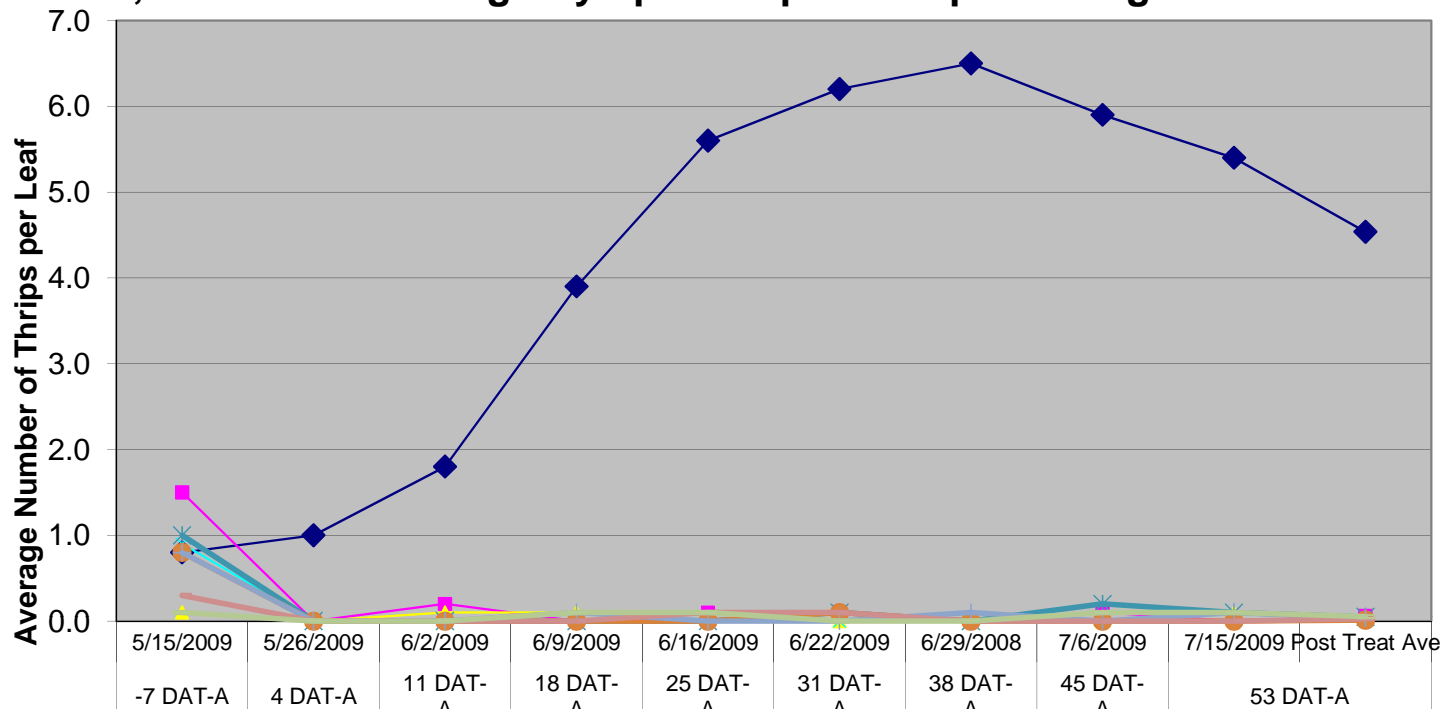
Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Holden Research and Consulting

Pest Type	I Insect	I Insect	I Insect	I Insect
Pest Code	SCITPE	OLIGPA	SCITPE	SCITPE
Pest Name	Avocado thrips	Persea mite	Avocado thrips	Avocado thrips
Crop Code	PEBAM	PEBAM	PEBAM	PEBAM
BBCH Scale	BPER	BPER	BPER	BPER
Crop Name	Avocado	Avocado	Avocado	Avocado
Crop Variety	Hass	Hass	Hass	Hass
Part Rated	NYMPH P	MOTILE P	FRUIT C	FRUUNM C
Rating Date	7/15/09	7/15/09	8/12/08	8/12/08
Rating Data Type	COUINS	COUCOL	DAMINS	DAMINS
Rating Unit	NUMBER	NUMBER	%	%
Sample Size	2	2	25	25
Sample Size Unit	LEAF	LEAF	FRUIT	FRUIT
Number of Subsamples	5	5	1	1
Footnote Number			1	1
Assessed By	Holden	Holden		
Days After First/Last Applic.	54 54	54 54	-283 -283	-283 -283
Trt-Eval Interval	53 DA-A	53 DA-A	78 DA-A	78 DA-A
Plant-Eval Interval	3012 DP-1	3012 DP-1	2675 DP-1	2675 DP-1
Number of Decimals			1	1
Trt Treatment	Other	Other	Appl	Appl
No. Name	Rate	Rate	Unit	Description
1 Untreated Check				
2 Agri-Mek Abamectin NR 415 Oil	15 floz/a 4 %v/v		A	Aerial Applicaiton equivalent
3 Agri-Mek Abamectin NIS 90	15 floz/a 0.25 %v/v		A	Aerial Applicaiton equivalent
4 Agri-Mek Abamectin Organo Silicon	15 floz/a 6 floz/100		A	Aerial Applicaiton equivalent
5 Agri-Mek Abamectin Vintre	15 floz/a 0.1 %v/v		A	Aerial Applicaiton equivalent
6 Delegate NR 415 Oil	6 oz/a 4 %v/v		A	Aerial Applicaiton equivalent
7 Delegate NIS 90	6 oz/a 0.25 %v/v		A	Aerial Applicaiton equivalent
8 Delegate Organo Silicon	6 oz/a 6 floz/100		A	Aerial Applicaiton equivalent
9 Delegate Vintre	6 oz/a 0.1 %v/v		A	Aerial Applicaiton equivalent
LSD (P=.05)	0.60	0.00	3.66	0.97
Standard Deviation	0.41	0.00	2.51	0.67
CV	64.98	0.0	141.14	600.0
Bartlett's X2	32.333	0.0	7.857	0.0
P(Bartlett's X2)	0.001*	.	0.049*	.
Replicate F	0.779	0.000	1.318	1.000
Replicate Prob(F)	0.5175	1.0000	0.2918	0.4098
Treatment F	75.508	0.000	11.400	1.000
Treatment Prob(F)	0.0001	1.0000	0.0001	0.4613

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

**Chart 1: CAC Trial for the Control of Avocado Thrips - Spring 2009-
Camarillo, California - Average Nymphal Population per Rating Date**

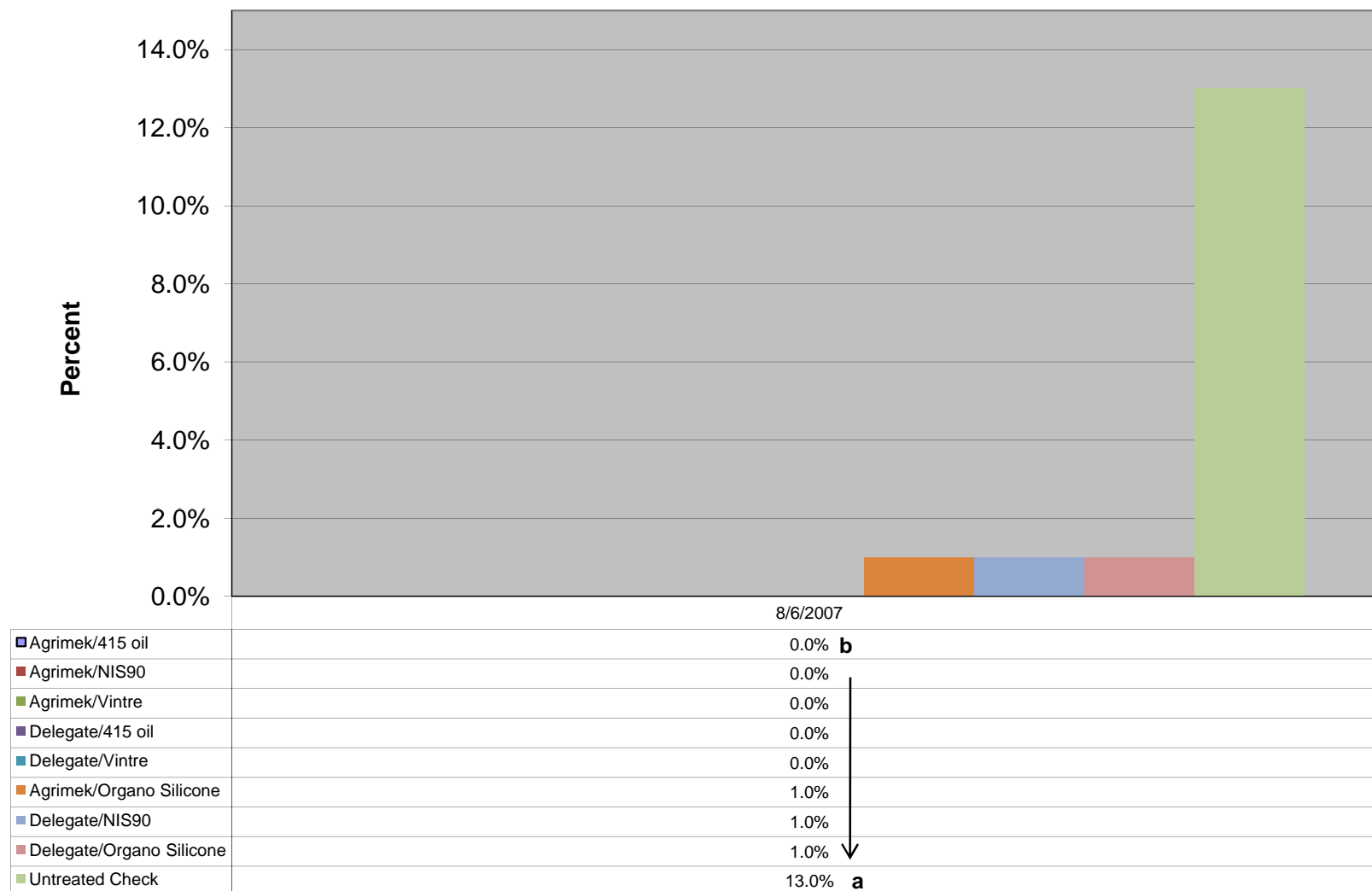


	5/15/2009 -7 DAT-A	5/26/2009 4 DAT-A	6/2/2009 11 DAT-A	6/9/2009 18 DAT-A	6/16/2009 25 DAT-A	6/22/2009 31 DAT-A	6/29/2008 38 DAT-A	7/6/2009 45 DAT-A	7/15/2009 53 DAT-A	Post Treat Ave
◆ Untreated Check	0.8	1.0	1.8	3.9	5.6	6.2	6.5	5.9	5.4	4.5
■ Agrimek/415 oil	1.5	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1
▲ Agrimek/NIS90	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0
✕ Agrimek/Organo Silicone	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
✱ Agrimek/Vintre	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1
● Delegate/415 oil	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
+ Delegate/NIS90	0.8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0
— Delegate/Organo Silicone	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
— Delegate/Vintre	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1

Allowed by same letter do not significantly differ (P=.05, Duncan's New Multiple Range Test)

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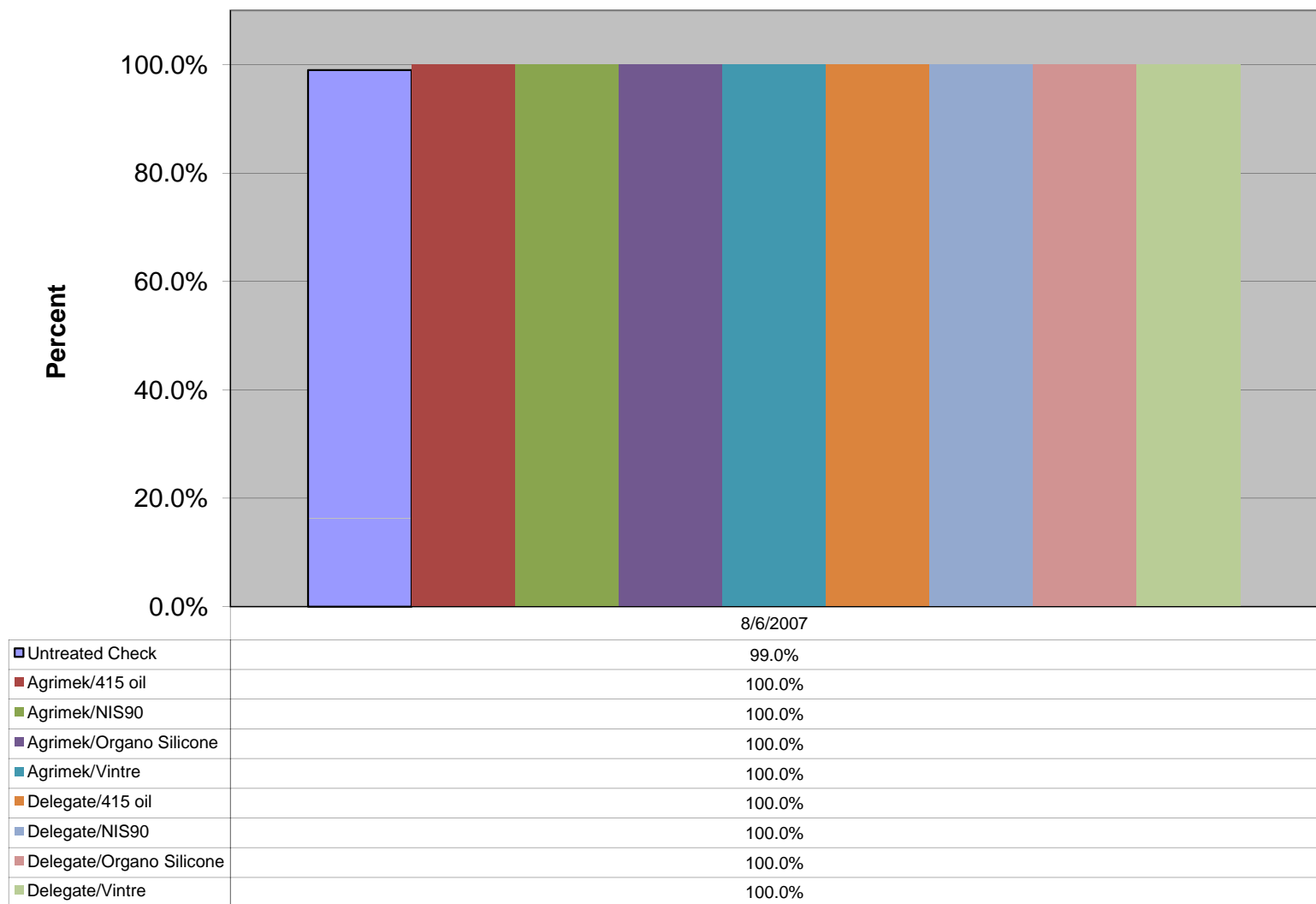
Chart 2: CAC Trial for the Control of Avocado Thrips - Spring 2009 - Incidence of Thrips damage to New Fruit



Allowed by same letter do not significantly differ (P=.05, Duncan's New Multiple Range Test)

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Chart 3: CAC Trial for the Control of Avocado Thrips - Spring 2009 - Percent of Fruit Marketable as First Grade



llowed by same letter do not significantly differ (P=.05, Duncan's New Multiple Range Test

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