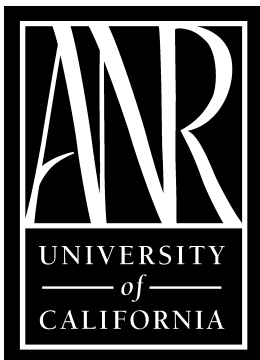




**DRY  
BEAN  
RESEARCH**

***INSECT CONTROL  
TRIALS  
2009***

**SAN JOAQUIN COUNTY**



**Cooperative Extension      University of California  
2101 E. Earhart Ave. Ste 200—Stockton—California—95206**

2009 DRY BEAN

RESEARCH PROGRESS REPORT

Mick Canevari, Farm Advisor

San Joaquin County

ACKNOWLEDGEMENTS

The 2009 dry bean research program for San Joaquin County was conducted on common beans established on the Agronomy Farm, UC Davis. The cooperation and management assistance of Steve Temple and UC Davis staff are greatly appreciated. Many thanks are extended to them for their assistance, interest and patience.

CONTRIBUTING AUTHORS

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Caution

This report is a summary of a dry bean spider mite trial conducted in San Joaquin County. **It should not in any way be interpreted as a recommendation of the University of California but rather a guide as to the progress in finding solutions to problems.**

Acaricide trade names are used in this report, as well as the less familiar common names to familiarize the reader with the various products tested. No endorsement of products mentioned or criticism of similar products is intended.

Acaricide rates in this report are always expressed as **active ingredient (a.i.) of material per treated acre.**

<b><u>Trade Name</u></b>	<b><u>Common Name</u></b>	<b><u>Company</u></b>
Acramite	bifenazate	Chemtura
Agri-Mek	Abamectin	Syngenta
Comite	Propargite	Chemtura
GWN 1708	Experimental	Gowan
Oberon	Spiromesifen	Bayer Crop Science
Onager	Hexythyiazox	Gowan

### **2009 Dry Bean Insect Control Trial Results**

One spider mite control trial was established in San Joaquin County. The trial was established to evaluate the effectiveness of candidate acaricides for controlling spider mites in dry beans. Complete trial descriptions and ratings for the trial follows.

**Two Spotted Spider Mite Control in Dry Beans** Mick Canevari, Randall Wittie, Don Colbert, Scott Whiteley

**OBJECTIVE:** Evaluate new acaracides for bean registration in California. Some registered products have developed resistance leading to unacceptable control. Some products have worker REI limitations that prevent timely field re-entry for best farming practices. Target pest in the trial is the two spotted spider mite (*Tetranychus urticae*).

**MATERIALS AND METHODS:** Experimental and commercially registered acaricides were applied to an increasing population of the two spotted spider mite (TSSM) on July 6, 2009 in a block of dry beans var. Cranberry 0801 established on the Agronomy Farm at UC Davis (Table 1). Plots were 5 ft (2 rows wide) x 30 feet long arranged in a randomized complete block design with four replicates. Treatments were applied foliar with a CO<sub>2</sub> backpack sprayer at 32 psi 30 gpa water applied using a spray boom designed for over the top spray with a twelve inch drop extension and cone nozzles targeting both sides of the plant to improve coverage. Treatment #14 compared over the top spraying vs drop boom side coverage. A later timing treatment of Acramite @ 24 fl oz/A was applied 2 weeks after the first application for comparison of early vs late application. Treatments #1-4 compared two adjuvant systems using Methylated seed oil and a silicone surfactant. Beans were 12-16" ht. and in early bud stage of development. TSSM pre-counts indicated 16 TSSM and 10 eggs/trifoliolate leaf. Post treatment counts were made weekly at 7,14,21,28 and 35 days after treatment (DAT). Ten trifoliolate (30 individual leaves) were sampled per plot and brought back to the lab and counted. The underside of leaves were examined under a microscope and mites, eggs, thrips and predatory mites were counted with data recorded as number/trifoliolate leaf.

**Table1 - Treatment list**

Treatment	Formulation	Rate Lb Ai/A	Rate Fl Oz/A	Application Date
1.Acramite + Phase	4 EC 100% EC	0.5 0.5% V/V	16	7/6/09 Drop Nozzles
2. Acramite + Phase	4 EC 100% EC	0.75 0.5% V/V	24	7/6/09 Drop Nozzles
3.Acramite + Silwet L-77	4 EC 100% EC	0.5 0.12% V/V	16	7/6/09 Drop Nozzles
4.Acramite + Silwet L-77	4.0 EC 100% EC	0.75 0.12% V/V	24	7/6/09 Drop Nozzles
5. Acramite + Phase	4 EC 100% EC	24 0.5%	24	7/20/09 Drop Nozzles
6.Oberon + No Foam A	2 SC 100% EC	0.2 0.25% V/V	12	7/6/09 Drop Nozzles
7.Onager + No Foam A	0.12 EC 100% EC	0.12 0.25% V/V	15.4	7/6/09 Drop Nozzles
8.Agri-Mek + No Foam A	0.15 EC 100% EC	0.01 0.25% V/V	7.7	7/6/09 Drop Nozzles
9.Comite + No Foam A	6.55 EC 100% EC	2.5 0.25% V/V	48	7/6/09 Drop Nozzles
10.GWN-1708 + No Foam A	20% EC 100% EC	0.2 0.25% V/V	16	7/6/09 Drop Nozzles
11.GWN-1708 + No Foam A	20% EC 100% EC	0.26 0.25% V/V	20	7/6/09 Drop Nozzles
12.GWN-1708 + No Foam A	20% EC 100% EC	0.3 0.25% V/V	24	7/6/09 Drop Nozzles
13.Untreated Check				
14.Acramite + Silwet L-77	4 EC 100% EC	0.75 0.12% V/V	24	7/13/09 Brdcst O-T-T

## **RESULTS AND DISCUSSION:**

### **ACRAMITE:**

**Acramite + Additives:** TSSM control was slightly better with the 24 oz rate than the 16 oz rate. Residual control was better with the addition of the organo-silicon Silwet L-77 than with the addition of the additive Phase.

**Acramite + Drop Nozzles vs Broadcast Over-The-Top:** The 24 oz rate with Silwet L-77 applied with drop nozzles provided slightly better residual control than the same rate and additive applied broadcast over-the-top.

**Acramite + Application Timing:** There were no differences in control when the 24 oz rate + Phase was applied 2 weeks after the 24 oz rate + Phase was applied at the time the trial was initiated.

Excellent residual control is the result when Acramite at 16 or 24 fl oz/A is applied with drop nozzles and Silwet L-77.

**OBERON:** Better than 90% control of the TSSM up to 35 days after treatment (DAT). At 35 DAT control dropped to 70 + %.

**ONAGER:** Excellent residual control of the TSSM for 35 DAT.

**AGRI-MEK:** Control of the TSSM for 35 days was excellent. Control was 80-100%.

**COMITE:** Poor control of the TSSM was the result from the comite application. Less than 70% control through the 35 DAT.

**GWN-1708:** Control was 70-90% 7 DAT when the mite population was low. Control at all three rates was very poor as the mite population increased. From 14 to 35 DAT control was less than 60%.

Acramite, Oberon, Onager and Agri-Mek provided excellent residual control of the TSSM up to 35 days after treatment. Comite and GWN-1708 provided poor control of the TSSM up to 35 days after treatment. No foliar injury noted with any treatment.

**Table 1 – Control of spider mites in dry beans**

<-----% Control Mites ----->

TREATMENT	FlOz/A	Appl <sup>1</sup> Desc	Appl Date	7 DAT <sup>2</sup>	14 DAT	21 DAT	28 DAT	35 DAT	Avg % Cont	Clean <sup>5</sup> Out %	Yield <sup>4</sup> CWT
1.Acramite + Phase	16.0 + 0.5% V/V	DN	7/6/09 A	52	70	70		14	52	5.34	11.1
2. Acramite + Phase	24.0 + 0.5% V/V	DN	7/6/09 A	73	67	61		59	65	2.38	12.0
3.Acramite + Silwet L-77	16.0 + 0.12% V/V	DN	7/6/09 A	52	74	88		84	75	2.53	11.4
4.Acramite + Silwet L-77	24.0 + 0.12% V/V	DN	7/6/09 A	100	90	79		94	91	2.88	13.1
5.Acramite + Phase	24.0 + 0.5% V/V	DN	7/20/09 C	69		80	67		72	2.5	12.7
6.Oberon + No Foam A	12.0 + 0.25% V/V	DN	7/6/09 A	97	95	99		75	92	2.35	12.3
7.Onager + No Foam A	15.4 + 0.25% V/V	DN	7/6/09 A	88	95	92		92	92	3.53	13.0
8.Agri-Mek + No Foam A	7.7 + 0.25% V/V	DN	7/6/09 A	82	99	99		85	92	1.75	13.5
9.Comite + No Foam A	48.0 + 0.25% V/V	DN	7/6/09 A	48	65	69		57	60	2.55	11.5
10.GWN1708+ No Foam A	16.0 + 0.25% V/V	DN	7/6/09 A	76	55	45		32	52	2.10	13.6
11.GWN1708+ No Foam A	20.0 + 0.25% V/V	DN	7/6/09 A	85	64	50		43	61	1.95	10.9
12.GWN1708+ No Foam A	24.0 + 0.25% V/V	DN	7/6/09 A	91	56	53		54	64	1.80	11.7
13.UTC				12.6 <sup>3</sup>	61.5 <sup>3</sup>	85.6 <sup>3</sup>	131.2 <sup>3</sup>	180.7 <sup>3</sup>		1.59	11.7
14.Acramite + Silwet L-77	24.0 + 0.12% V/V	OTT	7/13/09 B	85	87		72	50	74	3.93	16.4
LSD (P=.05)				1.31	15.02	20.51	23.05	53.93		NSD	NSD

<sup>1</sup> Application Description – DN = Drop Nozzles; OTT = Over The Top

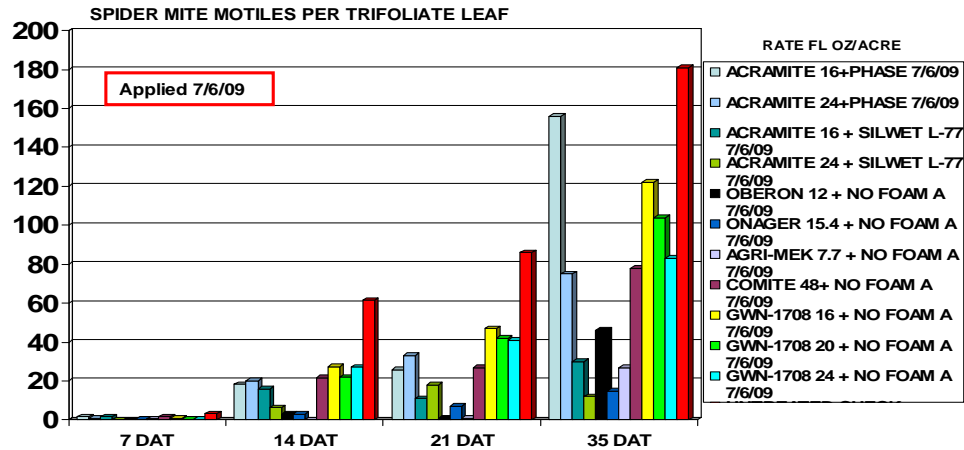
<sup>2</sup> DAT = Days After Treatment

<sup>3</sup> Spider mite population in the untreated check at this evaluation date.

<sup>4</sup> Replicate #3 was not included in the summary due to a bindweed infestation.

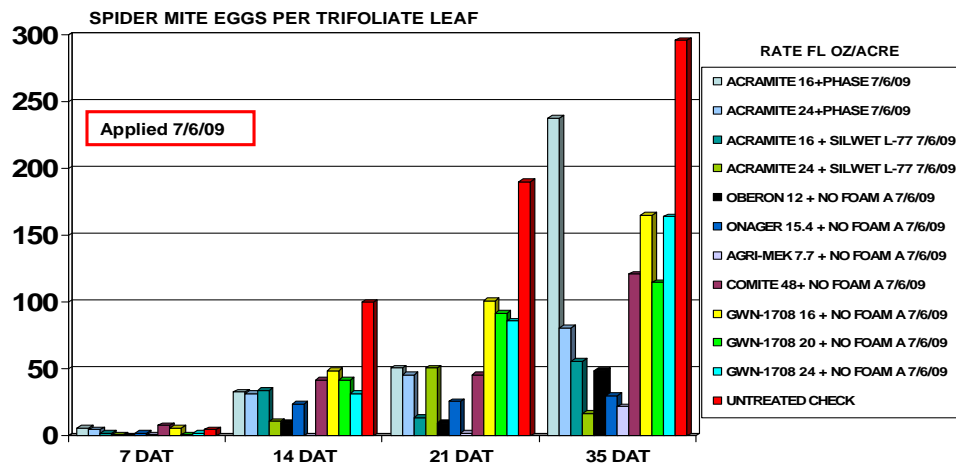
<sup>5</sup> Clean Out % = Small seeds, cracked seeds, small twigs, chafe, dirt

# DRY BEAN SPIDER MITE TRIAL 2009



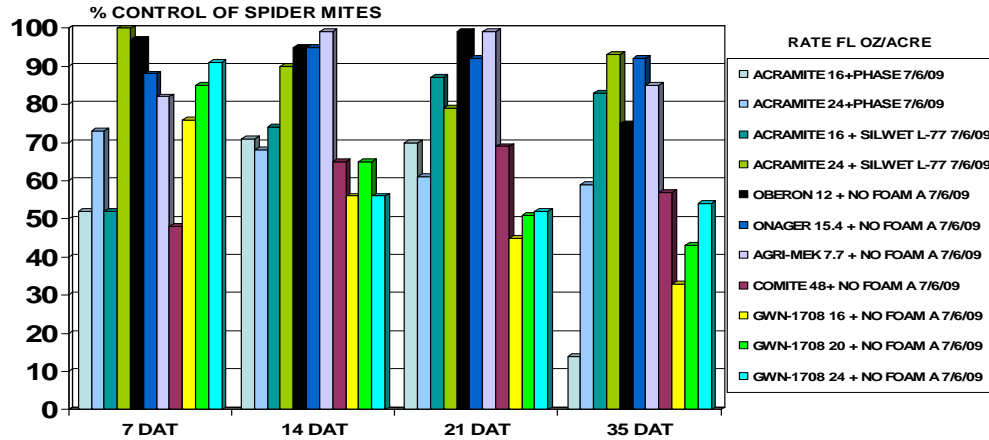
APPLICATION: 30 GPA with drop nozzles, PHASE @ 0.5%V/V, SILWET L-77 @ 0.12%V/V, NO FOAM A @ 0.25% V/V

# DRY BEAN SPIDER MITE TRIAL 2009



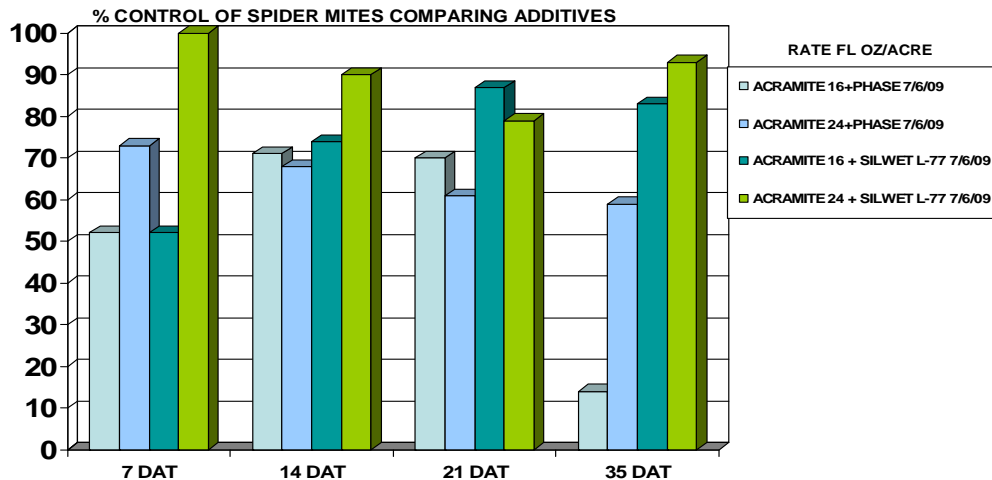
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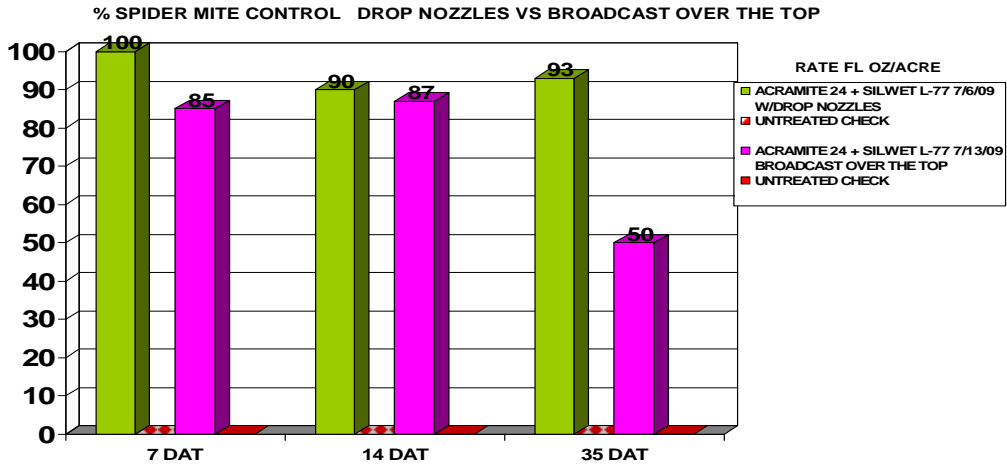
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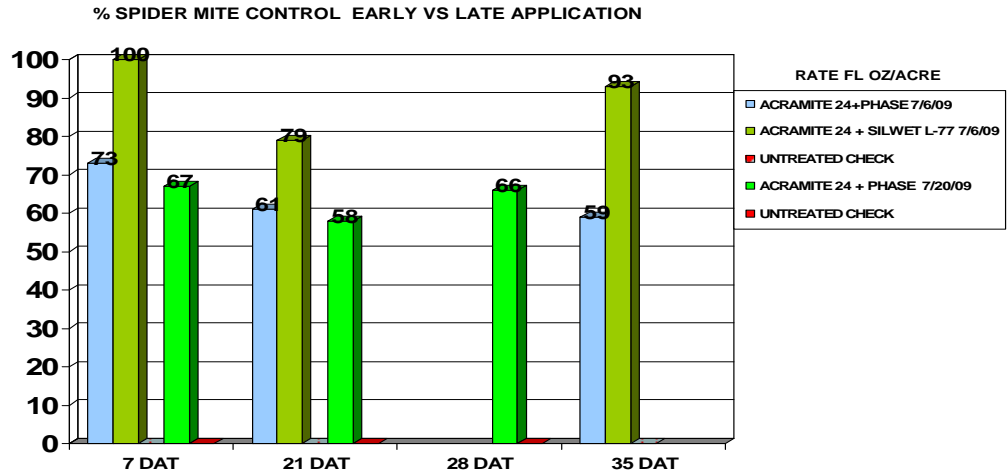


APPLICATION: 30 GPA, PHASE @ 0.5%V/V, SILWET L-77 @ 0.12%V/V

# DRY BEAN SPIDER MITE TRIAL 2009



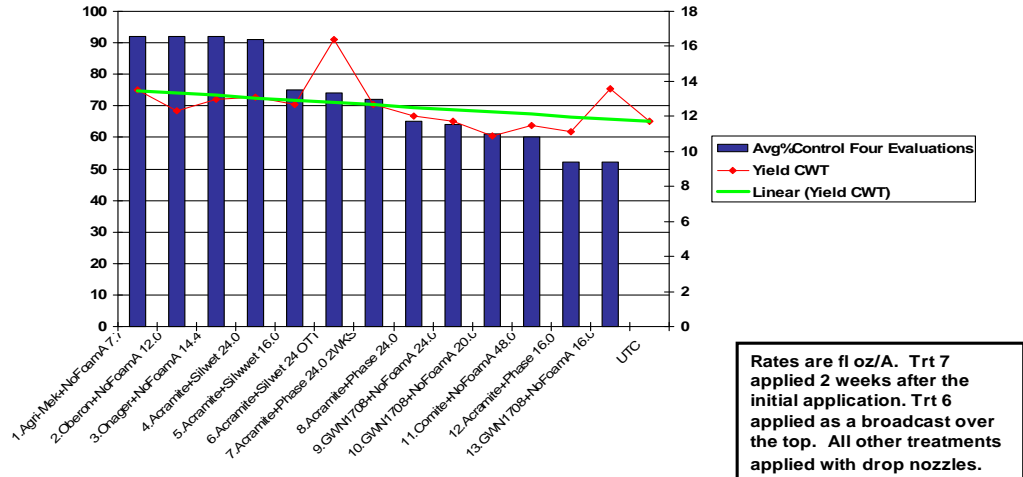
# DRY BEAN SPIDER MITE TRIAL 2009



# DRY BEAN SPIDER MITE TRIAL

## % Control vs Yield (CWT)

### 2009



PLOTS WERE CUT ON 9-3-09; PLOTS WERE THRASHED ON 9-10-09

This is a work in progress only. The chemicals and uses contained in this publication are experimental data and should not be considered as recommendations for use.

Until the products and their uses given in this report appear on a registered pesticide label or other legal, supplementary direction for use, it is illegal to use the chemicals as described.

## **WARNING ON THE USE OF CHEMICALS**

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets and livestock.

Recommendations are based on the best information currently available, and treatments based on them should not leave exceeding the tolerance established for any particular chemical. Confine chemicals to the area being treated. **THE GROWER IS LEGALLY RESPONSIBLE** for residues on his crops as well as for problems caused by drift from his property to other properties or crops.

Consult your County Agricultural Commissioner for correct methods of disposing of leftover spray material and empty containers. Never burn pesticide containers.

## **PHYTOTOXICITY**

Certain chemicals may cause plant injury if used at the wrong stage of plant development or when temperatures are too high or when overcast conditions occur. Injury may also result from excessive amounts or the wrong formulation or mixing incompatible materials. Inert ingredients such as wetters, spreaders, emulsifiers, diluents, and solvents, can cause plant injury. Since formulations are often changed by manufacturers, it is possible that plant injury may occur, even though no injury was noted in previous seasons.

**No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.**

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