Imperial County Agricultural Briefs

Features

From your Farm Advisors

University of California
Agriculture and Natural Resources

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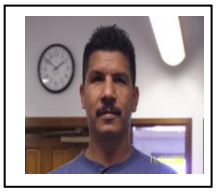
BIOLOGICAL INSECTICIDE EFFICACY IN ALFALFA SEED PRODUCTION, 2012



Eric T. Natwick and Martin I. Lopez

The objective of the study was to evaluate two new biological insecticides for their efficacy against adults and nymphs of lygus bugs and stink bugs on alfalfa grown for seed production under desert growing conditions. An insecticide efficacy trial was conducted at the UC Desert Research and Extension Center on a stand of CUF-101 alfalfa on beds of 40 inch centers; the stand was clipped-back on 13 Apr 2012 to initiate seed production. The experimental design was RCB using 4 replicates with 5 insecticide treatments and an untreated check. Plots were eight beds 50 ft wide by 75 ft long, with 5 ft buffers between replicate blocks. The insecticide treatments were applied on the dates at the specified rate equivalencies listed in the tables. All insecticide treatments were applied on 4 and 14 Jun except the treatment of MBI-206 applied on 21 Jun. The insecticide treatments were broadcast sprays applied with a Lee Spider Spray Trac, tractor mounted spray boom, equipped with 15 nozzles (TJ-60 11003VS), operated at 20 psi and delivering 30.1 gpa in a 25 ft wide spray swath. Hasten, a modified vegetable oil surfactant (Wilber-Ellis Company) was applied at 0.25% vol/vol in tank mixtures with each insecticide treatment. The pretreatment (PT) insect population data were collected on 29 May. Post treatment data were collected on 7, 12, 18, 21, 25, and 28 Jun, and 2 and 5 Jul 2012. During each evaluation, ten 180° sweeps per plot were collected with a standard 15-inch diameter sweep net. Sweep net samples were bagged, labeled, and frozen for later counting of small lygus bug nymphs (1st through 3rd instars), large lygus bug nymphs (4th and 5th instars) and lygus bug adults, in the laboratory. On 9 Jul 2012, mature seed pods were stripped from a few plants at random in each plot, pods were hand-threshed to prevent loss of damaged seed, and 100 random seeds from each plot were examined under a binocular microscope for lygus bug damage, stink bug damage, alfalfa seed chalcid damage, chewing insect damage, water damage, green seed and good seed. Treatment means were analyzed using 2-way ANOVA and means separated by a protected LSD ($P \leq 0.05$).

Pre-treatment numbers of small lygus bug nymphs, large lygus bug nymphs and adult lygus bug were similar among treatments and the untreated check (Table 1-3). There were no differences

among the means for small lygus bug on 7, 18, 21 and 25 Jun, 2 and 5 Jul. All of the insecticide treatments had fewer small lygus bug nymphs than the untreated check on 12 Jun and 28 Jun and for the post treatment average (PTA), with the exception on 12 Jun of the Beleaf 50 SG treatment that was to be followed by MBI-203 DF2. There were no differences among the means for large lygus bug on 7, 21, 25 and 28 Jun, 2 and 5 Jul. All of the insecticide treatments had fewer large lygus bug nymphs than the untreated check on 12 Jun, with the exception of MBI-203 DF2 to be followed by Beleaf 50 SG. Only MBI-203 DF2 treatments at 2 lb and 4 lb per acre did not have fewer large lygus bug nymphs than the check on 18 Jun. The check had more lygus bug large nymphs than any of the insecticide treatments for the PTA. There were no differences among the treatments for lygus bug adults on any of the sampling dates except 18 Jun when all of the insecticide treatments had fewer lygus bug adults than the untreated check. The check had more lygus bug adults than any of the insecticide treatments for the PTA. There were no differences among the treatment means for all lygus bug for the 29 May PT samples, nor for the post-treatment samples collected on 12, 25, 28 Jun, and 2 Jul (Table 4). All of the insecticide treatments had means for all lygus bug on 12 Jun, 18 Jun and for the PTA. Only the MBI-203 DF2 at 2 lb per acre and the Beleaf treatments had lower means for all lygus bug on 7 Jun. Only the insecticide treatments that included Beleaf 50 SG had means for all lygus bug that were lower than the check on 5 Jul. There were no differences among treatments means for SB on any of the sampling dates (Table 5). All of the insecticide treatments had significantly higher percentages of good seed compared to the untreated check (Table 6). None of the insecticide treatments had lower percentages of lygus bug damaged seed, SB damaged seed, ASC damaged seed or green seed compared to the untreated check. None of the seed samples showed chewing insect damage or water damaged seed. There were no symptoms of phytotoxicity following any of the insecticide treatments. This research was supported by funding from the California Alfalfa seed Production Research Board and industry gifts.

Table 1.

		Small lygus bug nymphs per ten sweeps									
Treatment	**rate/acre**	**29 May**	**7 Jun**	**12 Jun**	**18 Jun**	**21 Jun**	**25 Jun**	**28 Jun**	**2 Jul**	**5 Jul**	**PTA**
MBI-203 DF2	2.0 lb	1.25	3.00	3.00 b-d	4.75	0.50	0.75	1.25 a	0.00	0.50	1.72 b
MBI-203 DF2	4.0 lb	1.25	6.25	2.25 cd	2.25	0.50	0.50	0.00 b	0.00	0.00	1.47 b
Beleaf 50 SG f/b	2.8 oz										
MBI-203 DF2 f/b	2.0 lb	0.25	2.75	6.00 ab	3.75	1.75	0.25	0.00 b	0.00	0.00	1.81 b
MBI-206	2.0 gal										
MBI-203 DF2 f/b	2.0 lb	1.75	6.00	5.25 bc	2.00	0.50	0.00	0.25 b	0.00	0.00	1.75 b
Beleaf 50 SG	2.8 oz										
Beleaf 50 SG	2.8 oz	1.00	2.50	1.50 d	1.75	0.50	0.50	0.00 b	0.00	0.00	0.84 b
Untreated Check	--------	1.50	8.75	8.75 a	6.00	1.00	0.25	0.00 b	0.00	0.75	3.19 a

Means within columns followed by the same letter are not significantly different; *P*>0.05, LSD.

Table 2. Large lygus bug nymphs per ten sweeps

Treatment	rate/acre	29 May	7 Jun	12 Jun	18 Jun	21 Jun	25 Jun	28 Jun	2 Jul	5 Jul	PTA
MBI-203 DF2	2.0 lb	0.75	7.50	7.50 bc	11.50 ab	0.75	0.75	1.00	0.00	0.25	3.66 b
MBI-203 DF2	4.0 lb	1.50	6.50	7.25 bc	10.50 a-c	1.25	1.00	0.75	0.50	0.00	3.47 b
Beleaf 50 SG f/b	2.8 oz										
MBI-203 DF2 f/b	2.0 lb	2.75	1.75	6.25 bc	7.00 bc	0.00	0.50	0.25	0.00	0.25	2.00 c
MBI-206	2.0 gal										
MBI-203 DF2 f/b	2.0 lb	1.75	7.00	10.75 ab	4.00 c	0.00	0.00	0.00	0.00	0.00	2.72 bc
Beleaf 50 SG	2.8 oz										
Beleaf 50 SG	2.8 oz	0.75	4.50	3.25 c	4.25 c	0.25	0.00	0.00	0.00	0.00	1.53 c
Untreated Check	--------	1.75	11.50	14.75 a	16.25 a	0.50	3.00	0.00	0.25	0.00	5.78 a

Means within columns followed by the same letter are not significantly different; *P*>0.05, LSD.

Table 3. lygus bug adults per ten sweeps

Treatment	rate/acre	29 May	7 Jun	12 Jun	18 Jun	21 Jun	25 Jun	28 Jun	2 Jul	5 Jul	PTA
MBI-203 DF2	2.0 lb	28.25	5.25	17.75	3.50 b	1.25	8.75	11.75	2.75	2.00	6.63 b
MBI-203 DF2	4.0 lb	20.25	9.00	13.75	5.25 b	2.00	9.00	10.00	2.75	3.00	6.84 b
Beleaf 50 SG f/b	2.8 oz										
MBI-203 DF2 f/b	2.0 lb	26.25	9.50	16.00	5.50 b	0.75	9.75	7.25	2.50	1.00	6.53 b
MBI-206	2.0 gal										
MBI-203 DF2 f/b	2.0 lb	23.75	13.75	13.75	4.25 b	1.25	7.00	16.75	2.00	2.00	7.59 b
Beleaf 50 SG	2.8 oz										
Beleaf 50 SG	2.8 oz	15.25	10.50	14.00	3.75 b	2.50	6.50	8.00	4.50	2.25	6.50 b
Untreated Check	--------	21.00	12.75	25.50	12.75 a	3.50	14.25	13.50	5.75	4.00	11.50 a

Means within columns followed by the same letter are not significantly different; *P*>0.05, LSD.

Table 4.

		All lygus bug per ten sweeps									
Treatment	**rate/acre**	**29 May**	**7 Jun**	**12 Jun**	**18 Jun**	**21 Jun**	**25 Jun**	**28 Jun**	**2 Jul**	**5 Jul**	**PTA**
MBI-203 DF2	2.0 lb	30.25	15.75 b	28.25 b	19.75 b	2.50	10.25	14.00	2.75	2.75 ab	12.00 b
MBI-203 DF2	4.0 lb	23.00	21.75 ab	23.25 b	18.00 b	3.75	10.75	10.75	3.25	3.00 ab	11.81 b
Beleaf 50 SG f/b	2.8 oz										
MBI-203 DF2 f/b	2.0 lb	29.25	14.00 b	28.25 b	16.25 b	2.50	10.50	7.50	2.50	1.25 b	10.34 b
MBI-206	2.0 gal										
MBI-203 DF2 f/b	2.0 lb	27.25	26.75 ab	29.75 b	10.25 b	1.75	7.25	17.00	2.00	2.00 b	12.09 b
Beleaf 50 SG	2.8 oz										
Beleaf 50 SG	2.8 oz	17.00	17.50 b	18.75 b	9.75 b	3.25	7.00	8.00	4.50	2.25 b	8.88 b
Untreated Check	--------	24.25	33.00 a	49.00 a	35.00 a	5.00	17.50	13.50	6.00	4.75 a	20.47 a

Means within columns followed by the same letter are not significantly different; $P>0.05$, LSD.

Table 5.

		Stink bugs per ten sweeps								
Treatment	**rate/acre**	**7 Jun**	**12 Jun**	**18 Jun**	**21 Jun**	**25 Jun**	**28 Jun**	**2 Jul**	**5 Jul**	**PTA**
MBI-203 DF2	2.0 lb	0.25	0.00	0.00	1.75	2.00	1.25	1.50	1.00	0.97
MBI-203 DF2	4.0 lb	0.00	0.25	0.25	1.50	0.75	0.25	1.50	0.50	0.63
Beleaf 50 SG f/b MBI-203 DF2 f/b MBI-206	2.8 oz 2.0 lb 2.0 gal	0.00	0.00	0.75	0.75	0.75	1.00	1.50	0.75	0.69
MBI-203 DF2 f/b Beleaf 50 SG	2.0 lb 2.8 oz	0.25	0.00	0.25	3.50	1.25	0.50	0.50	0.75	0.88
Beleaf 50 SG	2.8 oz	0.00	0.00	0.50	3.75	0.75	1.00	4.75	1.00	1.47
Untreated Check	--------	0.00	0.25	1.00	1.00	0.75	0.75	2.00	0.25	0.75

Means within columns followed by the same letter are not significantly different; *P*>0.05, LSD.

Table 6.

Percentage of seed damaged from lygus bugs, stink bugs, alfalfa seed chalcids and percentages of green seed and healthy seed

Treatment	rate/acre	Lygus Bug	Stink Bug	Seed Chalcid	Green Seed	Good Seed
MBI-203 DF2	2.0 lb	6.25	3.25	5.00	0.00	85.50 a
MBI-203 DF2	4.0 lb	7.25	2.75	3.00	0.25	86.75 a
Beleaf 50 SG f/b	2.8 oz					
MBI-203 DF2 f/b	2.0 lb	5.75	4.25	3.75	0.50	85.75 a
MBI-206	2.0 gal					
MBI-203 DF2 f/b	2.0 lb	7.00	3.75	3.00	0.50	85.75 a
Beleaf 50 SG	2.8 oz					
Beleaf 50 SG	2.8 oz	3.00	4.50	7.75	0.25	84.50 a
Untreated Check	--------	11.00	5.25	8.00	1.50	74.25 b

Means within columns followed by the same letter are not significantly different; *P*>0.05, LSD.

The California Alfalfa Seed Production Research Board and UC Cooperative Extension invite you to attend a

Combine Clinic

July 15, 2013
Desert Research and Extension Center (DREC), El Centro, CA

Join us for a day of classroom instruction and hands-on training on how to set up a combine to improve your alfalfa seed harvest. Topics include improving harvest efficiency, reducing seed losses, and harvesting higher quality seed. Alfalfa seed growers and combine operators are both urged to attend!

AGENDA

10-12 AM	Classroom Lecture with John Aubin – Handouts will be provided. *John has spent a lifetime helping growers with harvest issues in almost all 50 states and many other countries.*
12-1 PM	LUNCH (Sponsored by the Alfalfa Seed Industry)
1-3 PM	Hands-on training with combines including combine configuration, combine harvesting functions and safety procedures. Location to be specified soon.
3-4 PM	Question and Answer Session, Final wrap-up.

IF YOU WOULD LIKE TO RECEIVE ADDITIONAL INFORMATION OR RESERVE A PLACE IN THE CLASS, PLEASE RSVP WITH YOUR NAME, PHONE NUMBER, AND E-MAIL ADDRESS BY JULY 10TH.

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Our programs are open to all potential participants. Please contact the Desert Research and Extension Center office two weeks prior to the class at 760-356-3060, if you have any barriers requiring special accommodations.

The University of California Cooperative Extension, in Collaboration with the California Farm Labor Contractor Association, presents:

Managing Human Resource Risks in Agriculture: Farm Labor Supervisor Training & FLC, Ag Employer Updates

Location: Desert Research and Extension Center, 1004 E. Holton Road, El Centro, CA
Date: June 12, 2013 Cost: $25.00 per person

AGENDA:

7:30 am Registration (Coffee and Pastries)

FARM LABOR SUPERVISOR TRAINING (IN SPANISH)

8:00 am Welcome, acknowledgements, overview of Seminar.

8:10 am "Understanding the Supervisors' Primary Roles & Responsibilities" (2 Hours)

- Where You Fit in the Company
- Challenges and Difficulties
- Compliance with Basic Laws and Regulations
- Managing People - Different Leadership Styles

10:00 am Break

10:15 am "Work Injury Prevention & Cal OSHA Compliance" (2 Hours)

Common Cal OSHA Violations and Basic Requirements
Supervisor Roles in Safety Management
Heat Illness Prevention Requirements

12:00 Noon Lunch (Provided)

- Luncheon Presentations on UC-ANR & USDA (RMA, FSA) Resources for Farmers by Local Farm Advisor or USDA Representative.

- Farm Labor Supervisors may choose to stay or adjourn after lunch.

FARM LABOR CONTRACTOR & AGRICULTURAL EMPLOYER UPDATES

1:00 pm Issues Impacting Farm Labor Contractors and other Agricultural Employers

- Overview, Affordable Care Act - Basic Pay or Play Requirements
- Updates on Other New Laws and Regulations
- New I-9 Form
- Human Trafficking Notice requirements
- New Fines for Unlicensed FLCs
- 2012 Brinker Decision - rest and meal periods
- Joint Liability Issues - Growers and FLCs

3:00 pm Adjourn

CIMIS REPORT AND UC DROUGHT MANAGEMENT PUBLICATIONS

Khaled Bali and Sharon Sparks*

California Irrigation Management Information System (CIMIS) is a statewide network operated by California Department of Water Resources. Estimates of the daily reference evapotranspiration (ET_o) for the period of June 1 to August 31 for three locations in the Imperial County are presented in Table 1. ET of a particular crop can be estimated by multiplying ET_o by crop coefficients. For more information about ET and crop coefficients, contact the UC Imperial County Cooperative Extension Office (352-9474) or the IID, Irrigation Management Unit (339-9082). Please feel free to call us if you need additional weather information, or check the latest weather data on the worldwide web (visit http://tmdl.ucdavis.edu and click on the CIMIS link).

Table 1.Estimates of daily Evapotranspiration (ET_o) in inches per day

Station	June		July		August	
	1-15	16-30	1-15	15-31	1-15	16-31
Calipatria	0.39	0.40	0.39	0.38	0.35	0.32
El Centro (Seeley)	0.36	0.38	0.38	0.37	0.32	0.29
Holtville (Meloland)	0.38	0.39	0.39	0.38	0.34	0.31

* Irrigation Management Unit, Imperial Irrigation District.

* Ag Water Science Unit, Imperial Irrigation District.

Link to UC Drought Management Publications

http://ucmanagedrought.ucdavis.edu/