Western ALFALFA SEED GROWERS Association

NEWS

CALIFORNIA • COLORADO • IDAHO • MONTANA • NEVADA • OREGON • WASHINGTON • WYOMING

SPRING 2009

IN THIS ISSUE

UPCOMING EVENTS

June 16 -18, 2009: NAFA Board Meeting, Pasco, WA

January 18-19, 2010: WASGA Winter Seed Conference. The Golden Nugget Hotel, Las Vegas, NV For more information please call (509) 585-5460.

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41st ANNUAL WINTER SEED CONFERENCE

The Golden Nugget in Las Vegas, NV has been chosen as the site for the 2010 Western Alfalfa Seed Growers Associations Winter Seed Conference. The Conference will begin with a reception on Sunday, January 17 and continue with the main program on Monday and Tuesday, January 18 and 19, 2010. Come and join us at the recently renovated Golden Nugget on historic Fremont Street and see and do all that Las Vegas has to offer. The "Strip" is just a short cab or bus ride from the hotel. We will have a first rate program including excellent research updates and top notch speakers on industry and ag related issues. To reserve your room, at the special rate of $45.00 per night (Sunday - Wednesday), call the Golden Nugget at **(800) 634-3454** by December 18, 2009. When reserving your room make sure to mention that you are attending the Western Alfalfa Seed Growers Associations Winter Seed School. More information will follow as the final arrangements are being made. We look forward to seeing all of you in Las Vegas. If you have any questions please contact us at (509) 585-5460.

Alfalfa Seed - Spring Crop Reports

California - Growers were hoping for a wet winter this past year, but unfortunately they did not get their wish. Instead growers in California are headed for the third consecutive year of drought like conditions. Water will be short this year, forcing some growers to use what little water they have allocated for use on permanent crops. Because of the shortage of water, some growers have been experimenting with growing alfalfa seed using drip irrigation. With that said, alfalfa seed acres are expected to be up slightly this year. Honey bees, which are used as the primary pollinaton for alfalfa seed in Cailfornia, sold for between $40.00 and $50.00 this year.

Colorado - With the higher price for bees, $80.00 to $95.00, and the risk associated with producing alfalfa seed, acres will be down this year in Colorado. A concern is that seed prices have not kept pace with the increasing cost of bees. This spring has been cool and dry, but there is good snow pack in the mountains, so there should be plenty of water for this years crop.

Montana - With the cold spring, the crop looks to be two to three weeks behind schedule. Acres are expected to be about the same as last year. There was some alfalfa seed planted this past fall, but very little spring planting. Bees have been available at a cost of $80.00 to $100.00. Water is in good supply for this years crop.

Nevada - Overall the weather has been favorable this spring. No real concerns about the crop over wintering. Acres are estimated to be about the same this year as they were last year. Water will be a little tight, but not tight enough to affect the crop adversely.

Oregon - Acres are projected to be down slightly from last year. Bees were in good supply at a cost of $85.00 to $95.00. The supply of water is not an issue in the major alfalfa seed producing areas this year.

Wyoming - Along with the cool spring, this spring has been windier than normal, drying out what moisture was in the soil. It is still too early to tell how the crop wintered. Acres are projected to be about the same as last year. Bees have been and still are available at a high cost; $80.00 and above. At this time, the supply of water does not seem to be an issue for this years crop.

Crop Reports - Continued on Page 5

Do Pyrethroid Insecticides Cause Lygus Bug Resurgence in Alfalfa Seed Production Fields?

Eric T. Natwick
Entomology Farm Advisor
University of California ANR Cooperative Extension Imperial County

Two insecticide studies for lygus bug control were conducted at the University of California Desert Research and Extension Center during the 2007 and 2008 alfalfa seed production seasons. Insecticidal treatments included new unregistered experimental chemistries, newly registered insecticides, older registered insecticides, and combinations of chemistries as tank mixtures or in-the-can mixtures. All insecticide treatments were initially efficacious for lygus bug control; however, later in the production season, treatments with pyrethroid insecticides used alone or in combination with other classes of chemistries showed a resurgence of lygus bug that occasionally exceeded the levels in the untreated control plots.

Each year, prior to trial initiation, the alfalfa was cut and irrigated for seed production. Insecticide treatments and untreated control plots measured 13.3 feet by 50 feet arranged in a randomized complete block design. Pre- and post treatment evaluations of lygus bug population levels were evaluated each year. Ten sweeps per plot were collected with a standard 15-inch diameter sweep net. Sweep samples were bagged, labeled, and frozen for later counting of lygus bug. Counts all lygus bugs were tabulated. Test materials were applied on the dates at the specified rate equivalencies indicated in Tables 1 & 2. Raw data were analyzed using ANOVA and means differences were determined using Least Significant Difference Test (LSD; P=0.05).

Table 1. 2007 Lygus Bug Treatments, Holtville, CA

Treatment	oz/acre	Application Dates
Untreated	--------	----------
Furadan 4F	32.0	31 May, 7, 19, 27 Jun, 13 Jul
Carzol 92 SP	17.4	31 May, 7, 19, 27 Jun, 13 Jul
Lorsban 4 E	32.0	31 May, 7, 19, 27 Jun, 13 Jul
Hero	10.0	31 May, 7, 19, 27 Jun, 13 Jul
Beleaf 50 SG	2.8	31 May, 7, 19, 27 Jun, 13 Jul
Rimon 0.83EC	12.0	31 May, 7, 19, 27 Jun, 13 Jul
Rimon 0.83EC + Warrior 1 CS	12.0 + 3.84	31 May, 7, 19, 27 Jun, 13 Jul
Rimon 0.83EC + Warrior 1 CS	8.0 + 3.84	31 May, 7, 19, 27 Jun, 13 Jul
Warrior 1 CS	3.84	31 May, 7, 19, 27 Jun, 13 Jul
BAS 320 05I*	19.0	31 May, 7, 19, 27 Jun, 13 Jul
Endosulfan 3EC f/b Monitor 4	42.7 + 32.0	31 May 7, 19, 27 Jun, 13 Jul

* BAS 320 05I is metaflumizone (Alverde); under development by BASF

In 2007, Rimon @ 8 oz/acre + Warrior (pyrethroid) @ 3.84 oz/acre had lygus bug levels greater (P=0.05) than the untreated control on two of the last three sampling dates in 2007; where as lygus bug levels for the treatment with Rimon @ 12 oz/acre + Warrior mirrored the untreated control. lygus bug levels for Rimon alone and for Beleaf were either lower or not different from the untreated control. lygus bug levels for the treatment with Warrior alone were greater than the untreated control on three of the last five sampling dates; where as non-pyrethroid treatments Alverde and endosulfan followed by Monitor had lygus bug levels that were lower or not different from the untreated control.

Similar results were seen in the 2008 experiment with treatments including a pyrethroid showing greater (P=0.05) lygus bug levels compared to the untreated control. The lygus bug levels for Warrior and Cobalt (chlorpyrifos & gama-cyhalothrin {pyrethroid}) was greater than that of the untreated control in the final sample. All non-pyrethroid insecticide treatments in 2008 had lygus bug levels that were either lower or not different from the untreated control throughout the study.

The cause of the lygus bug resurgence following pyrethroid insecticide treatments has not been determined. Because lygus bug were initially susceptible to pyrethroid insecticide treatment but later populations increased to levels that equaled or exceeded the untreated control, the pyrethriod chemistries may be causing hormoligosis, abnormally high reproductivity. Other possibilities may include the release of lygus bug from natural enemies or development of insecticide resistance. All of these possible causes of lygus bug resurgence need to be investigated.

Not all insecticides listed in the tables or in the text are labeled for use on alfalfa grown for seed. Federal and state laws and regulations require that the alfalfa seed grower has a federal and state label in hand before and insecticides may be applied to the crop.

Pyrethroid - Continued on Page 3

Pyrethroid - Continued from Page 2

Table 2. 2008 Lygus Bug Insecticide Treatments, Holtville, CA

Treatment	oz/acre	Application Dates
Untreated	--------	----------
Carzol 92 SP	17.4	26 May, 10 June
Rimon	12.0	26 May, 10 June, 1 July
Rimon 0.83EC f/b Lorsban 4E	12.0 f/b 32.0	26 May 10 June
NAI-2302 15EC*	27.0	26 May, 10 June
NNI-0101 20SC**	6.37	26 May, 10, 20 June
Beleaf 50 SG	2.8	26 May, 10 June
Beleaf 50 SG	5.6	26 May, 10 June
Beleaf 50 SG + Hero 1.25 EC	2.8 + 10.3	26 May, 10, 20 June, 1 July
Cobalt	32.0	26 May, 10, 20 June, 1 July
Lorsban 4E	32.0	26 May, 10 June, 1 July
Warrior 1 CS	3.84	26 May, 10, 20 June, 1 July

*NAI-2302 is Tolfenpyrad; under development by Nichino America Inc.
**NNI-0101 is Pyrifluqinazon; under development by Nichino America Inc.

Alfalfa Seed Row Spacing and Seed Spacing Field Burning Study

Doug Walsh & Sally O'Neal, WSU Prosser, Rick Boydston & Lyndon Porter, USDA-ARS Prosser

In June of 2007 we received a second 2-yr grant from the Washington State Department of Ecology Agriculture Burning Task Force. Our 1st project with the task force covered the period from July 2005 through June 2007. Results from these studies indicated that one way to reduce smoke emissions from field burning would be to decrease the plant density, thereby decreasing straw stubble in the field. However, we knew that decreasing plant density could also have some important effects like decreasing the alfalfa stands' ability to compete against weeds, changing the fields' susceptibility to white mold, and impacting the population abundance of pest and beneficial insects. On July, 31, 2007, utilizing a precision planter (graciously provided for us by Forage Genetics) and pelleted seed, we established a series of test plots at Wagoner farms near Touchet, Washington. Plots were established on a row spacing of 22 or 30 inches with a seeding density of 1-5/8 or 3-3/8 inches in row for a total of 4 treatments. During 2008 our grower collaborators Mark and Tim Wagoner farmed the field commercially and we took readings on yield when the plots were harvested in late July, 2008. A total of 16 replicate plots of 30 to 33 feet wide by 490 or 720 feet were planted in each row spacing/ seeding density combination. In the fall 2008 newsletter we detailed that the greatest yields were obtained with the 20 inch row spacing and 1-5/8 inch seed spacing. In February 2009 we imposed our additional treatments to the plant spacing trial. These treatments included burning, mowing, tilling, and a completely untreated control. We are now monitoring these plots for insects, weeds and disease. This data will be included in our fall report. Now we in turn wanted to evaluate how would decreasing the plant density and subsequent field residues impact smoke emissions? We calculated our values from a prior study that was funded by the Department of Ecology that determined that when a burn was conducted at an 87% efficiency on stubble left in a "low load" grass seed field that the smoke emitted from 1800 lbs of stubble resulted in 2,881 lbs of carbon dioxide (CO_2), 291 lbs of carbon monoxide (CO), 18 lbs of methane (CH_4), 73 lbs of particulate matter less then 10 microns in diameter (PM_{10}), and 58 lbs of particulate matter less then 2.5 microns in diameter ($PM_{2.5}$). Using these values we extrapolated the smoke quantities emitted for our test plots below.

Row Spacing	Seeds in Row	Plants per acre	Yield lbs/acre	Stubble lbs/acre	Particles emitted of smoke in lbs/acre CO_2	CO	CH_4	PM_{10} [1]	$PM_{2.5}$ [2]
22"	1-5/8"	117,000	571±36	1467± 66.7*	2,337	309	29	53	42
22"	3-3/8"	80,000	565±54	1081± 71.4	1,729	228	22	39	31
30"	1-5/8"	71,000	899±44**	1215±106.0	1,953	258	24	44	35
30"	3-3/8"	48,000	696±53	1162± 68.6	1,857	245	23	42	45

**/ yields in July 2008 were significantly ($p<0.01$) greater in the 30" row space an 1/58" seed in row plots then any of the other treatment combinations in pairwise t-tests.
*/ Stubble/ residue left in the field was significantly ($p<0.05$) greater in the 22" row space an 1/58" seed in row plots then any of the other treatment combinations in pairwise t-tests.

In this study we have determined that by manipulating plant density we can maximize seed yield and significantly reduce the smoke emissions.

Management of Spider Mite Pests in Alfalfa Produced for seed

Doug Walsh, Washington State University, Prosser

Spider mite outbreaks are a frequent nuisance during high summer in fields of alfalfa produced for seed. Several spider mite species can achieve pest status at high population abundance. The predominant species I have observed is the two-spotted spider mites (*Tetranychus urticae*). However, I have also observed McDaniel spider mites (*Tetranychus mcdanieli*) feeding in alfalfa seed fields. All spider mite species develop through several developmental stages. These include egg, six-legged larva, and eight-legged protonymph, deutonymph, and adult. Males typically reach maturity before females, and will position themselves near developing quiescent females. Under optimal Eastern Washington State summer conditions two-spotted spider mites can develop from egg to adult in six to ten days. Egg laying by adult females can begin as soon as one or two days following maturity. Damage from mite feeding can cause leaf bronzing, stippling, or scorching. In alfalfa produced for seed economic loss is caused by a drop in yield, seed size, and seed quality due to the reduction in photosynthesis and the stippling damage that results from mite feeding on the leaves and seed pods. Water stress, wind, and dust all contribute to the potential for outbreak of mite populations. Fortunately we have been able to register some potent acaricides on alfalfa seed over the past several years.

Recent acaricide registrations on alfalfa produced for seed

Bifenazate (Acramite® Chemtura Corp)
Acramite's active ingredient, bifenazate, belongs to the carbazate class of chemistry. This is a relatively new mode of action for an acaricide. Acramite™ is very active against all stages of spider mites. The proposed use for bifenazate is 0.75-1.0 lbs active ingredient per acre. One application per year is permitted per year. There is a 12 hour re-entry interval requirement. Bifenazate provides quick mite knockdown through contact activity and provides a fairly long residual control. Acramite is not systemic in action; therefore complete coverage is essential for product activity.

Abamectin (Agrimek™, Syngenta Chemical Co. and several new generic products) is a compound made by isolating the fermentation products from mycelial extracts of Streptomyces species. Abamectin is locally systemic (translaminar) in succulent plant tissues. In my experience working with this compound manufacturing quality control is extremely important. Some of the generics are substantially cheaper then the name brand, but effectiveness still needs to be evaluated.

Pending acaricide registrations on alfalfa produced for seed

Etoxazole (Zeal®) is a acaricide that is pending a 24C registration at the departments of agricultures for Washington, Oregon, Idaho, and Nevada. Etoxazole kill the eggs and early developmental stages of mites. It should be a good fit for growers that need a acaricide during the peak alfalfa bloom period.

Alfalfa seed field trials with candidate acaricides
Research plots were set up in an alfalfa field at the Prosser Research Station to test the acaricides for their ability to suppress pest spider mites. Bifenthrin at a rate of 0.025 lb ai per acre was applied on 11 May to disrupt and flare spider mites. The actual acaricide treatment list is detailed below. The acaricides were applied on June 8, 2007.

Treatment	**lb ai/A**
1. UTC	
2. JMS Stylet Oil	2% sol.
3. propargite/Comite	1.00
4. fenpyroximate/Fujimite	0.15
5. abamectin/Agrimek w/oil	0.019
6. bifenazate/Acramite 50WS[2]	0.50
7. bifenazate/Acramite 4SC[2]	0.75
8. etoxazole/Zeal	0.135
9. fenpropathrin/Danitol 2.4 EC	0.400
10. spiromesifen/ Oberon 2SC	0.25
11. spiromesifen/ Oberon 2SC	0.187

[1]includes 30% overage.
[2]Add Ad-Wet to solution at label rate
Plot size = 6'x15
Treatment 5 included JMS stylet oil at 0.5% v/v solution

	Mites per 5 leaves± SE on	
Treatment (Pre-bloom)	14 June 2007	28 June 2007
Acramite 4SC	36.00±4.72**	3.00±0.81**
Acramite 50WS	30.00±4.65**	4.00±1.00**
Agrimek w/oil	14.50±8.96**	4.00±1.73**
Comite	23.00±8.37**	8.50±5.56**
Danitol	18.75±6.30**	2.00±1.00**
Fujimite	1.75±1.10**	3.00±1.15**
JMS Stylet Oil	7.50±5.19**	2.00±0.57**
Oberon	3.25±2.59**	1.50±0.50**
Oberon	2.25±1.11**	3.00±1.15**
Zeal	18.50±4.50**	1.50±1.00**
UTC	58.50±2.87	47.50±6.07

**/ significantly lower ($p<0.05$) spider mite population abundance in treated plots compared to the no treated plots in pairwise *t*-tests.

Spider Mite - Continued on Page 5

Spider Mite - Continued from Page 4

Spider mites were effectively controlled with all of the candidate compounds compared to the untreated control for 4 full weeks following acaricide application. Acramite, Agrimek, JMS Stylet Oil, and Comite are all registered for use on alfalfa grown for seed. The registration for Zeal is pending and it should be registered before mite outbreaks in 2009. Oberon will not be registered on alfalfa, and Fujimite will be tested again and a registration may be sought in the future.

Pollinator Safety of candidate acaricides

These tests were designed to determine the residue hazard of the candidate acaricides. The products were tested at the maximum label rate for registered products or at the maximum rate that that the registrants suggested for the use of their product for insect or mite control on alfalfa seed

bifenazate/ Acramite 4SC, propargite/ Comite, fenpyroximate/ Fujimite, spiromesifen/ Oberon, etoxazole/ Zeal

Tests were conducted with pesticides applied with a R&D CO_2 pressurized sprayer at a rate of 26 gallons per acre using a handheld boom applied to 0.01 acre plots of first or second growth alfalfa. Field weathered residual test exposures were replicated 4 times with 4 foliage samples per treatment and time interval. Samples consisting of about 400 cm of foliage taken from the upper 15 cm portions of plants and clipped to 1 inch lengths were placed into each plastic Petri dish (15 cm diameter) whose tops and bottoms were separated by a wire screen (6.7 meshes/cm) insert (45 cm long and 5 cm wide).

Alfalfa leafcutting bees (LB) were collected and chilled at 35 degrees F. to facilitate handling. Residual test exposures were replicated 4 times by caging 20 LB with each of four foliage samples per treatment and time intervals. Bees in cages were fed syrup 91:1 ratio) in a wad of cotton (5 x 5 cm), and the bees held at 75 degrees F. for 24 hour mortality counts.

Materials that cause less than 25% mortality with 2 hour residues can probably be applied with little or no hazard to bees. All the miticides tested could be considered safe, as detailed in the table below.

Mortalities of alfalfa leafcutting bee (LB) exposed to different age residues of pesticides applied to 0.01 acre plots of alfalfa. Prosser, WA. 2007. Percent corrected mortality for control mortality after 24 hours of exposure.

	age of residues	
Treatment	1 h	8 h
bifenazate/ Acramite 4SC	0	
fenpyroximate/ Fujimite	4.70	
spiromesifen/ Oberon	9.64	
etoxazole/ Zeal	3.87	

Some of the pesticides discussed in this (publication or presentation) were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to $7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.

Crop Reports - Continued from Page 1

Idaho - The cool dry spring has the crop about two weeks behind. Growers are expecting to have an average year in regards to availability to water this growing season. Acres are expected to remain the same as last year, with growers waiting for the decision on the Round Up Ready case to make any changes. Clover seed has seen an increase in acres in the alfalfa seed production areas in Idaho. Bees were available this winter at $90.00 to $100.00. The prices have come down a little in the past weeks.

Washington:

Touchet - Acres are going to be down slightly from last year. There was very little spring planting going on, mainly due to the higher cost of bees, which have been in the $85.00 to $90.00 range. The cool spring has the crop behind where it is normally at this time.

Columbia Basin - Acres are going to stay about the same this year as last. There has been some spring planting done. With the cool spring the crop is a little behind, so growers may have to adjust their bee dates. Bees have been available for $75.00 to $95.00 with the bulk going in the $80.00 to $85.00 range.

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Western ALFALFA SEED GROWERS Association

Western Alfalfa Seed Growers Association New Web Address

With the change in the Associations name, from Northwest Alfalfa Seed Growers to Western Alfalfa Seed Growers, comes a change to the web address. The WASGA website can now be viewed by going to **www.wasga.org**. The site has been updated and the layout has been changed slightly. Visit the website to view the current Import and Export data, find out information about the upcoming Winter Seed Conference, or view current and past newsletters. The site will be updated on a regular basis, so check back often to stay current on the happenings with the Western Alfalfa Seed Growers Association.

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