

SEED CROP NOTES

April 19, 1988

"CASH FLOW" VS. "PROFIT" IN MANAGING ALFALFA SEED CROPS
HONEY BEE IN-FIELD WATERING SITES PAY OFF
USEFUL AND USEABLE RESULTS FROM FRESNO COUNTY SEED STUDIES
WELCOME TO SHARON MUELLER, NEW ALFALFA ADVISOR
GROWER MEETING - MAY 10 - U.C. WESTSIDE FIELD STATION

"Cash Flow" vs. "Profit" in Managing Alfalfa Seed Crops

"It takes a buck to make a buck." How many times have you heard that? It is even more true today than at any other time in the history of production agriculture. Yet, many cost-effective management practices go undone today because growers, or bankers, won't commit that investment buck at the right time and place.

If we do all of the right things to produce alfalfa seed, but do them a few days late, the results are not cost-effective. This includes clipping back, weed control, insect control, pollination, irrigation and harvesting.

Production knowledge and tools are available to contend with most non-weather related problems which face seed producers. It is up to the skilled manager to put the puzzle together in a cost-effective way. Some seed growers in Fresno County consistently produce ranch yields in excess of 850 lbs. clean seed per acre. Some rarely exceed 700 lbs./acre.

Clip back; Cultivate; Apply herbicide; Roll beds

Now is the time for each of these activities to be done quickly, if they haven't already been done, on old stands of alfalfa seed in Fresno County.

Clipping of spring growth between April 1 - 20 will assist in controlling seed chalcid and get the seed crop underway in time to harvest in late August. Crops clipped after April 20th usually are faced with higher lygus bug population pressures during the pollination period.

This drives the insect control costs up and severely reduces crop pollination by honey bees. Honey bee visitation in alfalfa seed fields usually drops drastically by the second week of July. (For more detail refer to research report article in this newsletter.)

Reduce Dirt "Cleanout" Problems Now

Now is the time when growers can reduce the dirt and weed seeds in the alfalfa seed harvest bin next fall.

Following cultivation and herbicide incorporation, it may be necessary to roll some fields with a ring-roller or smooth roller to knock clods off of the plant bed. If this is not done, the harvester will pick up excess dirt during the harvest. If the harvester cutter bar is lifted to avoid picking up dirt, this results in leaving portions of plants lodged in the furrow, causing lower yields and more volunteer alfalfa problems the following year.

Honey Bee In-field Watering Sites Pay Off

Field tests in 1984 and 1985 have consistently proven the cost-effective value of maintaining in-field water barrels near the honey bee drop locations. This is even true in seed fields which are bordered by full irrigation canals.

Some Fresno County growers are using plastic trash cans with fastening lids for water containers in seed fields this year. When these are set on pallets and covered with a shade they should provide an excellent water source for honey bees in the field. I strongly suggest having these water sources available to the bees at the time they are brought into the seed field to avoid any problems in the orientation of new bees in finding a water source. During the move into the seed field, honey bees have been deprived of water for quite some time. They will need to have a fresh water source available in the near vicinity. I suggest that you give this idea some serious consideration immediately. This is a low-cost management practice which can produce significant economic returns.

Approximately 20,000 acres of alfalfa seed fields had in-field watering barrels maintained for honey bees in Fresno County during 1987.

Watering barrels should be clean and free from any oil. Landing floats in the barrels are also necessary to prevent bees from drowning. Water will need refreshing twice each week during the pollination period.

Bees can be "trained" to look for water sources. For this reason it would make sense for beekeepers to place water barrels in their apiaries before moving the bees into alfalfa seed fields. Bees will then be pre-conditioned to the water source and not waste time scouting long distances from the seed field for water.

Useful and Useable Results from Fresno County Seed Studies

In recent years, I have been involved in several field research studies to improve

seed crop pollination in Fresno County. Two of these are reported here in hopes you can and will apply the information developed to help improve your seed yields and spend your investment dollars in a wise and timely way.

Value of Adding Extra Honey Bee Colonies in early July for Pollination of Alfalfa Seed In Fresno County.

Honey bee field visitation levels in alfalfa seed crops drop rapidly during the first week of July in the central San Joaquin Valley. In nine seed fields during 1985 the average bee visitation field counts peaked on June 16th with 21 bees/minute on 60 ft. of row. This average count dropped to two bees/minute by July 10th. These dates are quite similar to previous year's results of bee visitation counts in this area.

Most seed fields have potential for increased seed production after July 10th if water is available for bloom and seed development. If new bee colonies (inexperienced to the area) are moved into a seed field after the bee visitation drops to 2 bees/minute per 60 ft. of row it is possible to increase bee visitation for about three weeks. This fact was demonstrated in a two-year experiment near San Joaquin on the Don Gragnani Ranch.

A 120-acre alfalfa seed field was used for two seasons (1984 and '85) in this study. Each year the field was stocked with three bee colonies per acre in early June. One hundred extra colonies of bees were moved to one location on the outside end of the field when bee visitation dropped to a low level. This date was July 6, in 1984 and July 8, in 1985. Extra bees were placed at the east end of the field in 1984 and at the west in 1985. Honey bee visitation counts were taken twice each week during the bloom period at three stations representing each end and the middle of the field. Five-acre strips were harvested in the areas where bee counts were made.

Results:

Clean Seed Yields/Acre

	<u>*East End</u>	<u>Middle</u>	<u>West End</u>
1984 **	1,035	857	786
1985	1,101	716	** 784

* Soil at east end holds water better than middle or west end.

** Location of additional 100 colonies in July.

During both '84 and '85 the bee visitation numbers improved on the entire field for about three weeks as a result of adding bee colonies to one end of the field in July. The visitation levels were a function of the number of colonies added.

(Bee Visitation Counts/Minute/60 ft. of Row (1985))

7/10	2/minute	(additional colonies added)
7/21	9/minute	
7/26	6/minute	
8/1	6/minute	
8/5	1/minute	

Conclusions:

1. Visitation levels of bees in alfalfa seed fields during July can be increased in Fresno County for about three weeks by adding new bee colonies after the bee visitation level from initial colonies drops to a very low level (2/minute/60 ft. of row).

2. Providing plant bloom and soil moisture is available during July and early August, seed yields can be increased by providing increased bee visitation in July.

Irrigation and Pesticide Affects Upon Honey Bee Visitation in Alfalfa Seed

Bee visitation was monitored in ten fields of alfalfa seed during the summer of 1985. This presented an opportunity to obtain honey bee visitation counts in the fields before and after irrigation events. In several instances the bee visitation data were affected by pesticide applications, however bee visitation in undisturbed field situations were also recorded.

From all of the data collected it is evident that both pesticide applications and late-June to mid-July irrigations have a depressing affect upon honey bee visitation in alfalfa seed fields for a period of time following the application.

Larry Atkins has clearly documented that field visitation suppression of honey bees from pesticide applications is affected by amounts of pesticides applied. In the 1985 fields monitored in Fresno County, four different pesticides or combinations of pesticides resulted in three to five days of suppressed honey bee activity in these alfalfa seed fields.

Early crop irrigations, prior to June 15th, did not have a depressing affect upon honey bee visitation. However, irrigations from mid-June to mid-July on Merced clay soils resulted in suppressed bee visitations of 6 to 11 days. In five clear instances, free of pesticide conflict, the period of time between irrigation and restored bee visitation strength were six days (once), 11 days (once), and 8-10 days (three times). These results are similar to those measured in 1984 projects with Larry Atkins in Kings and Fresno County seed fields where 7-10 day drops in bee visitation occurred 1-2 days after irrigation events.

Conclusion:

If pesticide applications can be timed to be applied just after irrigations, the honey bee suppression periods of these two events can overlap and result in less time lost for bee visitations. Alternate block irrigation procedures appear to retain all bees foraging in or on one alfalfa field.

(more)

This procedure appears to maximize bee visitation by honey bees placed on a single alfalfa seed field.

WELCOME TO SHARON MUELLER

I am pleased to introduce Sharon Mueller, your new Farm Advisor for alfalfa, seed production, certification, oil crops and honey bee management. Sharon joined the Fresno staff this week, and is anxious to get acquainted with growers and industry representatives.

No stranger to the San Joaquin Valley (she grew up in Visalia), Sharon recently completed her Ph.D. work in Agronomy at Cornell. She completed her undergraduate work at the University of California Riverside campus.

I have thoroughly enjoyed my contact and friendship with all of you for the past 28 years. It is a pleasure to be able to turn these responsibilities over to such a capable person. We look forward to making a smooth assignment transition over the next few months.

GROWER MEETING - MAY 10, 1988

Topic: Drought Irrigation Strategies for Alfalfa Seed, Cotton, Vegetables and Sugar Beets.
Where: U.C. Westside Field Station
When: 10:00 a.m. - 12:00 p.m., Tuesday, May 10, 1988
Speakers: U.C. Farm Advisors (R. Sheesley, D. May, B. Fisher, L. Zelinski)

Sincerely,

Bob Sheesley

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County Director

Sharon Mueller

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