

## Irrigation Management

Irrigation management was also identified as contributing to poor seed production the past several years. Growers were not able to fill the soil profile with water before the season, and many were also very conservative during the season when the supply of water was questionable. Furthermore, growers cut off water early after pollination in order to improve desiccation. This has the effect of shortening the season with consequences in terms of production. For highest production, a deep irrigation during the winter months is recommended. Irrigation management for alfalfa seed depends on the supply and cost of water, and the needs of other crops in the rotation, as well as their economics.

A research project funded by the Alfalfa Seed Production Research Board is in its final year. The objective of this work, conducted by Don Grimes and Bruce Roberts, is to improve the understanding of water requirements and irrigation management for optimal seed yields. Technology has advanced to the point that there are some simple tools available to help growers determine when to irrigate and how much water to apply. The information will be available in the next two years.

## Pollination

Pollination factors were discussed extensively by both growers and beekeepers. Alfalfa seed stresses honey bees more than other crops in which they are used for pollination since the bees remain in the field for long periods during the summer and are exposed to repeated pesticide applications. Consequently, the colonies are weak at the end of the season. When the bees go into the winter in this condition, fewer survive and are available to pollinate crops in the spring.

Most of the colonies in California are infested with mites - Varroa and/or Tracheal mites. We need to learn how to control bee mites and understand the extent and severity of the problem. Are the bees becoming infested because they are in a weakened condition? Or, are the bees in a weakened condition because they are infested? Do we need to begin, or step up, an existing inspection program? Who will pick up the additional costs? How, specifically, are mites influencing pollination success? Larry Atkins at UCR is currently evaluating acaricides for use in the hive to control bee mites.

# PROTECT POLLINATORS



Colony strength and health are important to both the beekeeper and the seed producer. Beekeepers war

Perhaps we need to explore the option of using other pollinators, either exclusively or in combination with honey bees, in seed fields. Leafcutter bees and alkali bees are used in other states and have been tried in the San Joaquin Valley without a great deal of success. Because of the renewed interest this year, several trials will be conducted to examine the pollination of alfalfa seed using Leafcutter bees in both Fresno and Imperial County. At a cost of \$150/acre/year for the bees alone, growers are making a large investment in converting to a leafcutter pollination system. Properly managed, it was estimated that growers could increase production by 250 - 300 lbs./acre.

The relationships between timing of clipback, irrigation scheduling, pesticide applications, and bee activity are important keys to successful production. Growers need to effectively combine these practices to maintain bee activity and produce economic yields of high quality seed.