

Pest Management Plan for Seed Alfalfa Spider Mites

General Information

- Spider mite populations in the Central San Joaquin Valley are generally identified as Twospotted, Strawberry, and/or Pacific spider mites. They begin to appear in seed fields as early as April and remain there until the crop begins to dry down prior to harvest.
- Knowledge of historical spider mite problems influences whether a grower controls spider mite populations immediately, or delays treatment for a while.
- Once pollination begins, all materials are typically applied by air. Ground rigs (traffic) negatively impact seed yield. Aerial applications are generally less effective than ground applications. Rates should be adjusted to account for reduced coverage in dense canopies.
- All miticides work best when applied against low populations. None of the materials can resolve a significant problem. Broad spectrum insecticides applied to control other pests in the field tend to flare spider mites.
- Growers consider tank mix combinations depending on the complex of insects and mites present in the field. When miticides are applied alone, they are fairly selective, and will not disrupt other insect populations in the field.

Review of Registered Materials

- **Comite** (propargite) has been registered [24(c) Registration] for spider mite control in seed alfalfa for many years. Growers average two applications per season at rates of 3 pints per acre to control spider mites. Resistance has been reported. The 21-day reentry restriction is also a problem. In cotton, Beth Grafton-Cardwell reported 25% of fields surveyed in June 1996 in Kern County had Twospotted spider mites that were resistant to Comite before Comite was applied.
- **Zephyr** (abamectin) is selective against spider mites and appears to be effective in seed alfalfa when applied by air or ground. It provides a long period of control in comparison to other miticides evaluated in trials conducted in 1996 and 1997. It is a different chemistry, so can be rotated with Comite to delay the onset of resistance. Limiting applications to once per season would further delay the development of resistance. In cotton, where Zephyr has been used for several years, resistance is being monitored, but has not been reported to date.
- Another option for spider mite control is **Temik** (aldicarb). It can be applied early in the season, just prior to row closure, to keep spider mite populations at low levels for 3-5 weeks. Temik could be part of a "preventative" pest management program, which could include mites, aphid, and lygus. Maintaining lower populations from the outset will delay subsequent miticide applications, and improve efficacy if applications are necessary later in the season.

Review of Unregistered Materials

- **Savey** (hexythiazox) is an ovicide/miticide and will selectively kill spider mite eggs as well as immature spider mites. This material will sterilize eggs within spider mite adult females exposed to the residue on foliage. Since it acts on eggs and young larvae, growers will not see a quick knockdown of adults and need to take this into consideration when evaluating field populations post-treatment. When used alone, timing is critical with this material. It needs to be applied early - as populations are building. If the population is already high, Savey can be applied in combination with an adulticide like Comite or Zephyr to knock down adults and the Savey would kill the eggs which should eliminate or significantly reduce subsequent miticide applications. Restricting this material to one application per year would delay resistance development.

Alert (chlorfenapyr) is an insecticide/miticide that has been shown to be effective on both mites and worms. It is a new pyrrole from American Cyanamid. Its effect on mites is short-lived and it is less selective than Zephyr, Comite, Savey, and Ovasyn. Therefore, it should be used at the end of the season.

Other Control Options

There has been some research conducted using predacious mites to control spider mite populations in seed alfalfa. These trials met with limited success. The predacious mites were very expensive and didn't distribute themselves well in the field, resulting in an inadequate level of control.

It has been reported that when sulfuric acid is applied to established seed fields during the winter months, spider mite populations the following season are reduced - even to the point where no miticide applications are required. The impact on lygus is unknown.

Guidelines

- Routinely scout fields during the season to monitor spider mite populations.
- Treat fields before spider mites populations reach significant levels in order to maximize the efficacy of available chemicals. Spot or strip treat when possible and use ground application equipment when possible to improve coverage.
- Limit use of individual materials to once per season if possible.
- Rotate materials during the season if available.
- Monitor development of resistance using bioassays.
- Use selective pesticides whenever possible, especially early in the season, to preserve natural enemies

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SPIDER MITE MANAGEMENT PLAN

SCOUTING RECOMMENDATIONS: Scout fields twice weekly beginning early season and continuing until the crop is prepared for harvest. By continuously monitoring predators and pests in the field, accurate assessments can be made that will result in reduced use of chemicals and improved timing of applications. Occasionally it is practical to treat only portions of a field.

NOTE: As additional miticides are registered for use on alfalfa seed or other crops, they can be incorporated into this Pest Management Plan during the mid through late season as part of a Resistance Management Program.

TEMIK may be applied prior to row closure or second crop irrigation, whichever occurs later. It is taken up by the plant following subsequent irrigation or rainfall, and does not become effective for spider mite control until that time.

Monitor fields throughout the season and rotate between **ZEPHYR** and **COMITE** applications as spider mite populations build. Choose to apply Zephyr *first* if field is in a Comite resistant area. If in an area where resistance has not been reported, begin with either product. (Note 21-day reentry restriction for Comite).

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