Features from your Advisors

August 2016

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MANAGEMENT OF WEB-SPINNING SPIDER MITE IN ALFALFA SEED PRODUCTION

*Eric T. Natwick, Entomology Advisor, UCCE Imperial County*

Web-spinning spider mites are an annual pest problem for alfalfa seed producers in the low deserts of Southern California and Arizona. Spider mites insert their needle-like mouthparts into leaves, removing plant sap and causing chlorotic spots on leaves, called ‘stippling’. Severe feeding damage may turn leaves yellow, then brown from desiccation, causing crop defoliation. Crop damage usually starts in the lower plant canopy and moves upward as the mites move to newer leaves. Severe feeding damage reduces alfalfa seed production. Several spider mite species are found in low deserts:

- Twospotted spider mite (*Tetranychus urticae* Koch)
- Carmine spider mite (*T. cinnabarinus* Boisdival)
- Strawberry mite (*T. turkestani* Ugarov & Nikolski)
- Desert spider mite (*T. desororum* Banks)

Management plan should be developed prior to the start of alfalfa seed production. The plan should include the following components:

- Decision of returning to hay production, managing for future seed production or terminating the alfalfa stand after seed harvest. Returning to hay production greatly limits choices of miticides
- Survey the surrounding crops and weeds for potential sources of spider mites
- Dust mitigation critical around alfalfa seed production fields (via signage to slow vehicles and watering gravel roads)
- Abatement of sources of spider mites
- Scouting plan for spider mites detection and treatment decisions
- Application of miticides as needed to prevent seed yield losses.

Crops such as melons and many weed species can harbor web-spinning spider mites and may become a source of infestation for an alfalfa seed crop. Spider mites may also be harbored on the lower leaves of alfalfa plant throughout the year. Applications of certain insecticide (organophosphate or pyrethroids) to control insect pests during hay production (aphids, weevils, leafhoppers) or during seed production (western tarnished plant bug, *Lygus hesperus* or ‘lygus bug’ and stink bug species), can flare spider mite populations via destruction of predators or through hormoligososis (chemical stimulation of increased egg production). Many predators feed on spider mites including western flower thrips, minute pirate bugs, bigeyed bugs and predaceous mites.
Web-spinning spider mite colony buildup is favored by dry dusty conditions. Dust from field roads drifting onto alfalfa plants may flare-up a web-spinning spider mite infestation. Pesticides may bind to dust particles reducing their efficacy. Treat field roads with water to minimize dust from vehicle traffic. Post speed limit signs (5 mph) on field roads.

Abatement of sources of spider mites is important to reduce the potential for migration into the alfalfa seed field. Abatement should include weed control and if possible weed removal, or treatments of spider mites in surrounding crops such as melons.

Alfalfa seed production fields should be scouted twice weekly for spider mites beginning early season and continuing until the crop is prepared for harvest. Fields should also be monitored for spider mite predators such as western flower thrips, minute pirate bugs, bigeyed bugs, predaceous mites, and other predators. Proper scouting will lead to accurate assessments of spider mite pressure versus the predator population levels that may result in reduced use of chemicals through improved timing of applications. It may be practical to spot-treat only portions of a field where there are spider mite hot-spots.

When web-spinning spider mites are present in an alfalfa field prior to seed production, a miticide spray may be needed to prevent damage and avoid alfalfa seed loss. Stressing the alfalfa for water can stimulate bloom, but also favors the build-up of spider mites. Historical knowledge of spider mite problems influences whether a grower needs to control spider mite populations immediately, or delays treatment for a while. Treat fields before populations reach damaging levels to maximize the efficacy of available chemicals. When possible, spot or strip treat localized spider mite infestation areas. Use ground application equipment when possible (prior to bee placement) to improve coverage. To prevent spider mite problems consider including a miticide with the first insecticide application for lygus bug control. There is historical research trial evidence indicating that an application with a highly efficacious miticide early in the season with the first treatment to control lygus bug can prevent damaging population levels of spider mites for the remainder of the seed production season. Miticides registered for alfalfa seed production work best when used against low populations. However, none can totally resolve a significant spider mite problem.
Common forage problems during summer in the low desert is what is called “summer scalding”. Summer scalding is the killing or reduced growth of plants due to too much water, particularly during the hot summer days. Summer scalding is very common on alfalfa (see embedded picture), but also happens to other low desert forage crops. It commonly occurs at the tail end of fields where water may collect and stand for hours after the irrigation has ended and the maximum air temperature is greater than 100°F. Under such conditions, crop roots suffocate due to lack of oxygen, causing roots to disintegrate. Under high night time temperatures and humidity, plants will have reduced photosynthesis, but increased respiration, resulting in rapid use of carbohydrates and hence reduced growth, reduced yield and poor quality hay. Reduction in yield is due to reduced rebuild of nutrient reserves, reduced plant height, low leaflet size, low number of stems produced per plant and lower growth rates or death of plants. Summer scalding in the low desert usually begins in July and continues throughout the summer season when maximum daily temperatures exceed 90°F.

Symptoms of summer scalding include an off-color of the foliage and wilting (see embedded picture), even though the soil is still wet. The water-conducting tissue of affected roots become brown and whole plants may eventually die within 3 or 4 days after irrigation. Fields that have been recently cut are much more susceptible to scald than fields closer to harvest.

Scald can be controlled or impacts reduced with proper irrigation management; such as proper drainage of the field, leveling fields and avoiding standing water on ends of fields. Although there is not sufficient research evidence, some researchers suggest the use of fall dormant varieties that may tolerate or resist summer scalding. Reduced irrigation, also known as “deficit irrigation”, is another alternative management strategy that may be
economical as well. Irrigating for relatively short periods when temperatures are high may reduce the likelihood and intensity of scalding. Avoiding irrigation when it is too hot, particularly on newly cut plants until enough regrowth occurs could prevent submersion of entire plants and their sensitivity to scalding. Total elimination of summer scalding may not be possible. Growers are encouraged to consult irrigation and water management advisors for a better understanding of summer scalding and appropriate management strategies.
University of California
Agriculture and Natural Resources

AREA LOW DESERT WEED SCIENCE ADVISOR
Serving Imperial and Riverside Counties
Position Number AP#16-06

Across California, the University of California’s division of Agriculture and Natural Resources (UC ANR) is an engine for problem solving. Serving as the bridge between local issues and the power of UC research, our more than 300 campus-based specialists and county-based advisors work as teams to bring practical, unbiased, science-based answers to Californians.

We seek an academic cooperative extension (CE) low desert weed science advisor who can conduct a multi-county-based extension, education, and applied research program with a focus on biology, ecology and management of weeds of agricultural importance in the low desert cropping areas. Key clientele will include commercial farms (both large and small), pest control advisors, allied industries, commodity groups, seed companies, conservation/environmental groups, public agencies, and consumers. Local collaboration on agronomic crop production, livestock and waste management research and development and delivery of science based information will also be a priority for this CE advisor.

We seek an advisor who is:

- An innovative researcher, who can develop an applied research program, evaluate programs, and report accomplishments, results, and potential or actual impacts to scientific and lay audiences;
- An educator, who can facilitate interactions and information exchange among campus based academics, CE advisors and community stakeholders;
- A collaborator, who can develop partnerships and leverage resources to address priority issues for UC ANR;
- A visionary, who can complement UC ANR’s Strategic Vision, optimizing opportunities for conducting outstanding research and extension programs that meet the needs of Californians.

For information about UC ANR, the rich breadth of program scope and delivery, and how we are making a difference in California, candidates are invited to visit our Web site: ucanr.edu.

Imperial County, the headquarters for this position, is located in Holtville. With a direct link to the research base of the University of California, Cooperative Extension continues to meet the dynamic needs of Imperial and Riverside Counties. Please visit: http://ceimperial.ucanr.edu/ and http://ceriverside.ucanr.edu/ for more information about these areas.

This position is an academic career-track appointment; a minimum of a master’s degree is required in disciplines such as weed science, agronomy, botany or a closely related field. Excellent written, oral and interpersonal communication skills are required. A demonstrated ability in applied agricultural research and extension of information is desirable. The beginning salary will be in the Assistant CE Advisor rank. Click for the current 1015-16 fiscal year salary table.

For a full position vacancy announcement, application procedures, and more about what makes UC ANR a great place to work, please visit http://ucanr.edu/jobs/990/7jobnum=1022 or contact Karen Ellsworth at kaelsworth@ucanr.edu and refer to position listing AP#16-06. To assure full consideration, applications should be submitted by August 14, 2016 to ANRacademicsearch@ucanr.edu.

The University of California offers an attractive benefits package. For more information, please visit a UC benefits web site: http://ucop.ucop.edu/hr/compensation-and-benefits/roadmaps/new-employee.html

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CIMIS REPORT AND UC DROUGHT RESOURCES

Khaled M. Bali, Irrigation & Water Mgmt Specialist, KARE (Kearny)
Sharon Sparks*, Imperial Irrigation District

California Irrigation Management Information System (CIMIS) is a statewide network operated by California Department of Water Resources. Estimates of the daily reference evapotranspiration (ET₀) for the period of August 1 to October 31 for three locations in the Imperial County are presented in Table 1. ET of a particular crop can be estimated by multiplying ET₀ by crop coefficients. For more information about ET and crop coefficients, contact the UC Imperial County Cooperative Extension Office (352-9474) or the IID, Ag Water Science 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 (Google CIMIS for the current link to CIMIS site).

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<th>Station</th>
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<tr>
<td></td>
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</table>

* Ag. Water Science Unit, Imperial Irrigation District

Water and Drought Online Seminar Series

The latest research-based advice on weathering a drought is now available free online. The UC Division of Agriculture and Natural Resources is working to help farmers cope with the unwelcome outcome of historically low rainfall. UC scientists, with support from the California Department of Water Resources, have recorded video presentations on high-priority drought webpages.

Each presentation is about one half hour in length and is available at the link below:

http://ciwr.ucanr.edu/

Then click on the drought resources link.
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