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University of California
Agriculture and Natural Resources
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UC CE

Pest Control Notes

April 27, 2012

UC Davis Small Grains/Alfalfa Field Day
Wednesday, May 9, 2012

UC Davis Agronomy Field Headquarters, Hutchison Road, Davis, CA
4.0 CE hours (PCA credits) and 6 Certified Crop Advisor (CCA) hours
Free Barbeque lunch, Noon (Thanks to CCIA)

Directions: *take Hwy 113 near Davis to Hutchison Rd. Go west. Right at first rotary, left at second rotary, about 1/3 mile further down on the left.*

8:00 Registration (Coffee and donuts)

8:15am - Noon: Small Grains Field Day

- Welcome and Introductions
- Issues for California Wheat, Pest and Disease Needs – *California Wheat Commission*
- New UC Wheat Varieties and Wheat research– *Jorge Dubcovsky, UC Davis*
- Promising UCD Lines for Future Releases – *Oswaldo Chicaiza, Wheat Breeder*
  - Nitrogen Use Efficiency—*PhD student Nicolas Cobo*
  - Drought tolerance—*PhD Student Tyson Howell*
  - Mapping stripe rust resistance genes—*PhD Student Josh Hegarty*
  - Engineering starch—*PhD student Brittany Howell*
  - Engineering flowering time—*PhD student Rebecca Nitcher*
- California Small Grain Production, Disease Report and Preventative Breeding program for Stem Rust UG99– *Zewdie Abate, UCD Breeding Program*
- Barley and Oats Breeding Programs – *Lynn Gallagher* and *Alicia del Blanco*
- Collaborators Quality Program–*Phil Mayo*
- Statewide Germplasm Development and Evaluation – Wheat & Triticale, Durum, and Barley – *Phil Mayo*, Wheat and Barley Regional Testing Program Coordinator.

Noon - Barbeque Lunch ***(Many thanks to our Sponsor - California Crop Improvement Association, CCIA)***

12:45 p.m. - 3:45 p.m. Alfalfa & Forage Field Day

- Welcome and Introductions
- Water Quality Issues in Alfalfa/Grain–*Yolo County Ag Commissioner's Office*
- Alfalfa Pest Management update–*Rachael Long, UCCE Yolo*
- Growing Camelina and Canola, for Biofuels–*Steve Kaffka, UC Davis*
- Establishing Alfalfa Stands for Weed Management and Stand Longevity–*Dan Putnam, UC Davis*
- Using Buried Drip In Alfalfa—What Is The Research Evidence To Date? –*Bob Hutmacher, CE Specialist, UC Davis, And West Side Field Station, Five Points, CA*
- Using Buried Drip In Alfalfa—What Is The Grower Experience To Date? What Is The Impact On Pest Management?—*Seth Rossow, Grower, Chowchilla, CA*
- Controlling Rodents In Alfalfa Fields—*Roger Baldwin, UC IPM Program*
- The Dirty Dozen - Identify that Weed!—*Brad Hanson, UC Davis (Fabulous Prizes!!)*
- Choosing Alfalfa Varieties for Yield and Pest Resistance—*Dan Putnam, UC Davis*

Poisonous Weeds in Forage

Fiddleneck and groundsel are weeds that are toxic to livestock because they contain liver toxins known as pyrrolizidine alkaloids (PAs). Cattle and horses are most sensitive to PAs; pigs and chickens are less sensitive, and sheep, goats and turkeys are the least sensitive. Younger animals are more susceptible than adults.

PA poisoning is a chronic condition subsequent to cumulative exposure. Typically, animals are exposed to low doses over a period of weeks to months before they develop intoxication. Exposure to high doses of PAs within a period of a few days is rarely seen. There is no effective treatment for PA toxicosis.

The entire plants are toxic in all growth stages. The plant parts ranked in decreasing concentration (highest to lowest) in PAs are: flowers and seeds > leaves > stems > roots. Fiddleneck and groundsel contain PAs in all stages of growth. PAs are heat and desiccant resistant and thus maintain their toxicity in dried plant material and hay. Livestock will selectively graze and avoid groundsel and fiddleneck in pastures, as long as pastures are not overgrazed. However, livestock do not sort the good from the bad plants when dried because these weeds lose their bitterness, but not their toxicity.

There are a number of herbicides that effectively control fiddleneck and groundsel in forage crops when applied at the right time (see http://ipm.ucdavis.edu for more information). Right now, there isn't much one can spray with that will totally eliminate these weeds in forage crop fields. Burning the leaves and stems to a point where they begin to desiccate would reduce the amount of weed biomass, but toxicity will not be reduced.

The best prevention is to avoid PA contaminated feed for horses and cattle. Before cutting and baling your hay, note the areas with high groundsel and fiddleneck (particularly field boarders) and remove these bales from feed.

Greenbug Aphid

The greenbug aphid is a green to yellow-green aphid with a dark green stripe down the back that can be a pest of grains in California (though more likely in the Imperial Valley). This winter, this aphid showed up in orchardgrass in the Sacramento Valley, causing damage to plants, especially in seedling fields. Favorable temperatures last November may have resulted in pest outbreaks (preferred temperature is 55°-65° F). Greenbugs are cool season aphids, so they will disappear with warm weather (>70° F).

The greenbug aphid damages plants by: 1) removing sap and stressing plants via loss of water and nutrients; 2) injecting a toxic salivary secretion leading to a yellowing or reddening discoloration and eventually death of infested tissues; and 3) they can transmit plant diseases such as the barley yellow dwarf virus in small grains and maize dwarf mosaic virus in sorghum. Information on management practices and control recommendations for this pest can be found at http://www.ipm.ucdavis.edu/PMG/r730300411.html

Barley yellow dwarf virus (BYDV) symptoms generally appear on older leaves in young plants as discolored (yellowish, reddish, or purple) areas along the margins and tips of leaves, followed by stunting of plants. If you notice these symptoms in orchardgrass, please let me know, as we're not sure how much of a problem BYDV is in this forage crop.

Recent Cost of Production Studies available at http://coststudies.ucdavis.edu:

Baby and large lima beans, 2010; Sunflowers for seed, 2011; Safflower, 2011

Oat hay, 2012 (coming soon!) - Montezuma and California Red are the most commonly planted oat hay varieties in California for forage, but are very susceptible to crown and stem rusts and barley yellow dwarf virus. More recently released varieties include UC 113, UC 128, UC 148, UC 132, and UC 142 (Howard). These varieties are expected to replace older varieties, such as Cal Red, Montezuma, Sierra, Swan, Kanota, Bates 89, Pert, and Curt, because of better disease resistance and higher forage and grain yields. More information on these varieties compared to Montezuma (or Curt for forage quality) bred and/or selected at UC Davis from 1983 to 2007 will be available in this new cost study.

Onion Seed Production

Continued research documents the importance of limiting the number of insecticide applications for onion thrips control due to impacts on honey bees. In general, the more insecticide sprays (ie. above 4 pesticides, including insecticide tank mixes) used in onion seed fields, the lower the honey bee activity and subsequent yields. In addition, it appears that some insecticides used at maximum allowable field rates affect the ability of female flowers to receive pollen (all insecticides in our trials were applied pre-bloom). We have not found any reduction in honey bee activity or yield associated with fungicide use.

Alfalfa Pests and Diseases

Stem Nematode management

Alfalfa stem nematode is a serious problem this spring in a number of alfalfa stands in our area. Best management practices for this pest include crop rotation (alfalfa must be completely out of the field for 2-4 years), use of stem nematode resistant alfalfa varieties, and cleaning equipment when moving between infested and clean fields. We are in the process of evaluating pesticides for stem nematode control, but have not come up with any material that enhances yields compared to untreated control plots.

Diseases

Common leaf spot is prevalent in alfalfa fields this year. Symptoms include small, circular, brown-to-black spots on leaves. As this fungal disease progresses, infected leaves turn yellow and drop. This disease does not kill plants, but defoliation reduces vigor, hay quality, and yield.

Downy mildew was also fairly common in alfalfa fields this winter. Symptoms include lighter yellow-colored mottled leaves. Sometimes entire buds and leaves become infected, resulting in a general yellowing and distortion of leaves. Infected leaves drop off the plant, reducing yield and quality. Bluish-gray areas of fungal mycelia mats and spores can be seen with a hand lens on the undersides of leaves. Spring-planted fields are impacted the most because plants are in the seedling stage when the weather tends to be most favorable for the disease. Stand survival is usually not affected.

An early first cutting will limit loss of foliage in fields infected with these diseases. Common leaf spot and downy mildew are usually minor problems after the first cutting. These are cool-season diseases that require moisture, so disappear as the weather warms and dries

Pristine (BASF) is a new fungicide for use in alfalfa. This material provides excellent control of Sclerotinia, a fungal disease also known as white mold or stem and crown rot that can cause extensive losses to alfalfa seedling fields if left untreated. Pristine also has downy mildew and leaf spot on the label, but may not be economical for control of these diseases in alfalfa. We're currently in the process of evaluating Quadris for control of foliar diseases in alfalfa.

Mealybugs

Alfalfa ground mealybugs are small, whitish insects that feed on the roots of alfalfa, reducing plant growth. Infestations in alfalfa fields generally occur in circular patches that spread slowly and are most evident during summertime. This Spring, we also found this pest damaging orchardgrass fields in our area.

There are no thresholds or control measures for this pest. Crop rotation will help reduce pest pressure (fields must be completely free of alfalfa). In research trials, the greatest survival of this pest was on potato, tomato, safflower, and alfalfa, followed by cotton, cantaloupe, rice, sugarbeets, and wheat. There was only slight survival of alfalfa mealybugs on field corn and kidney beans.

Lygus and Mite Control in Lima Beans

Insecticide trials at UC Davis in lima beans showed that pyrethroids (i.e. Warrior® II) give good lygus bug control. Dimethoate is still viable as well, though has shorter residual activity. Brigadier® gives good lygus control and will keep aphids from flaring. There are several new insecticide chemistries on the horizon that show promise on lygus that should be available in the future for dry beans; however, cotton is first priority.

The supplemental label for Agri-Mek in lima beans has been submitted to DPR by Syngenta (previously a section 18 in some counties) and was posted for the 30-day public comment period on April 12. Full registration for this added use will follow thereafter, and should be available in time for seasonal applications.

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