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University of California
Agriculture and Natural Resources
Making a Difference for California

UCCE

Field Crop Notes
Tulare County

Vol. 9, Issue 2, August 2012

2012 Alfalfa and Forage Field Day

Wednesday, September 5, 2012
UC Kearney Research and Extension Center
9240 S. Riverbend Ave., Parlier, CA

7:30 am **Registration and Continuing Education Signups**

7:45 **Tram Leaves for Tour of Field Trials – *Please be Prompt!***

Choosing Alfalfa Varieties for Yield and Pest Resistance
Shannon Mueller, Farm Advisor, UC Cooperative Extension, Fresno County
Forage Sorghum Variety Selection and Irrigation
Bob Hutmacher, Coop. Extension Cotton Specialist and Center Director, West Side REC
Nitrogen Management of Forage Sorghums
Dan Putnam, Extension Agronomist and Forage Specialist, UC Davis
Organic Alfalfa Stand Establishment
Dan Putnam, Extension Agronomist and Forage Specialist, UC Davis

10:00 **Conference Room Presentations (20 minutes each)**

Optimizing Small Grain Yields (varieties, disease resistance, herbicides)
Steve Wright, Farm Advisor, UC Cooperative Extension, Tulare County
Alfalfa Stand Establishment and Managing Seedling Diseases
Carol Frate, Farm Advisor, UC Cooperative Extension, Tulare County
Improving Irrigation Efficiency
Blake Sanden, Farm Advisor, UC Cooperative Extension, Kern County

Break

Alfalfa Weevil Management in 2012
Pete Goodell, IPM Advisor, UC Cooperative Extension, Kearney Ag Center, Parlier
Alfalfa Fertilization
Michelle Leinfelder-Miles, Farm Advisor, UC Cooperative Extension, San Joaquin Co.

12:00 pm **Adjourn**

PCA/QAC Credit Approved – 1.5 Hours (Other)
CCA Credit Approved – 3.5 Hours (0.5 IPM, 1.5 Crop Mgt., 1.0 Nutrient Mgt., 0.5 Soil & Water Mgt.)

For additional information contact: Shannon Mueller at (559) 600-7233

Directions to the UC KRC are available at http://cefresno.ucdavis.edu//files/118418.pdf

Our programs are open to all potential participants. Please contact the Fresno County UCCE office two weeks prior to the class, at (559) 600-7233, if you have any barriers requiring special accommodations.

Conservation Agriculture & Controlled Traffic Farming 2012

Five national and international speakers will be addressing the following topics in an interactive meeting format to encourage discussion of the following:

- What are conservation agriculture and controlled traffic farming systems?
- What are the benefits of these systems?
- Will these systems be important in future systems in California's Central Valley?
- What is the science and practical aspects of these practices?

Speakers include:

Jerry Hatfield, Director of USDA-ARS Soils Tilth Lab; Ames, Iowa
Don Reicosky, Retired USDA-ARS
Clay Mitchell, Farmer; Geneseo, Iowa
Rolf Derpsch, No-Till Expert, Paraguay
John McPhee, Tasmanian Institute of Agriculture; Tasmania, Australia

Your choice of dates & location:

DATE	TIME	CITY	LOCATION	PHONE
August 28	1 – 4 pm	UC Davis	Heidrick Ag Equipment Center 113/Hutchinson Drive	(530) 752-1898
August 29	8 – 11 am	Modesto	UCCE Office 3800 Cornucopia Way	(209) 525-6800
August 29	1 - 4 pm	Five Points	UC West Side Field Station 17353 West Oakland	(559) 884- 2416
August 30	8 – 11 am	Bakersfield	UCCE Office 1031 South Mount Vernon Way	(661) 868-6200

For more information, check the following web site: http://ucanr.org/sites/ct/

Check Blackeye Fields for Fusarium Wilt Symptoms

Fusarium wilt of blackeyes (caused by a different fungus than Fusarium wilt of cotton) is the reason CB 46 is the standard blackeye variety grown in CA today. Prior to 1988, CB 5 was the variety planted in almost every field, but if the field had Fusarium wilt fungus in the soil, the results could be dramatically reduced yields. By the 1980's it was very common to have Fusarium wilt (Race 3) fungus in fields.

Then CB 46 was developed by breeders and released by UC Davis. It is resistant to Fusarium wilt Race 3. Since the early 1990's, CB 46 has been the predominant variety – and for good reason: it is high yielding, is a nice compact plant, and has resistance to the common Fusarium wilt fungus in our area. There have been isolated cases, few and far between, of CB 46 becoming infected with what is called Race 4 of the Blackeye Fusarium wilt fungus (again this is different from the Race 4 Fusarium wilt in cotton).

However, I recently saw a CB 46 field with large areas exhibiting symptoms typical of Fusarium wilt. Pathologists at UC will be confirming this diagnosis, but it appeared to be classic Fusarium wilt. In advanced cases, the plants were dead. In less advanced diseased areas, the plants had dead lower leaves and upper leaves that were wilting. In plants with early stage infection, just some of the leaves were beginning to yellow and wilt. When these plants were dug up, the area of the root just at and below the soil level was swollen, but there was

no rot. The key diagnostic symptom was that the vascular system several inches above, or higher, than the soil line was brick red when the stem was "skinned" with a knife.

Check your fields to see if there are small or large areas with these symptoms. The Fusarium wilt fungus lives in soil and once a field is infested, it will stay infested. Planting a susceptible blackeye variety in the field in the future will almost certainly result in larger infected areas and reduced yields. There is currently one blackeye variety, CB 27, with resistance to Race 4 of blackeye Fusarium wilt. It has had a hard time out-performing CB 46 in non-wilt conditions, but when Race 4 is present in a field, CB 27 should be seriously considered. If Race 4 is present in a field, equipment and tailwater may spread the fungus to other fields. Your best defense is to know if you have Fusarium wilt symptoms in your current crop of blackeyes.
(Photos can be seen in color at: http://cetulare.ucdavis.edu/files/149901.pdf)

View of "hot spot" in a field

Swollen area of root just below soil line

Typical discolored vascular system when stem is cut at an angle

Planting Alfalfa this Year?

Variety Selection The UC Statewide Extension Alfalfa and Forage Specialist, Dan Putnam, oversees a coordinated statewide alfalfa variety testing program. Results are available at: http://alfalfa.ucdavis.edu/ This web address will take you to the home page of the UC Alfalfa Workgroup. There is a lot of alfalfa and forage information available on the site. In the brown horizontal bar near the top of the home page, "click" on "Variety Selection", and it will list several locations. For the San Joaquin Valley, use the Parlier (Kearney) location for sandy to loam soils, and choose the Five Points (West Side) location for clay soils. Remember not to make decisions on just the first year of a trial because early front runners often fail to continue leading the pack, and slow starters can often increase production during the 2nd and 3rd years of a trial. It is impossible to test all potential varieties – if you can't find the one you are looking for, check other locations and previous years.

Another helpful web site for choosing alfalfa varieties is http://www.alfalfa.org/, the home page for the National Alfalfa Alliance. "Click" on "Education" in the green horizontal bar near the top of the page for a drop down list that includes "Alfalfa Variety Leaflet." This leaflet has the list of commercial varieties and who markets them. Varieties are listed by their dormancy class (8 and 9's are at the end). It also includes how the variety is rated for resistance to various pests and diseases, a useful tool for selecting which one to plant.

Pre-Plant Fertilization In Tulare County, the nutrient most commonly deficient in alfalfa production is phosphorus, and the nutrient taken up by alfalfa in the second largest amount is potassium. (Nitrogen is the nutrient used by alfalfa in the greatest amount). Soil tests are very good indicators for phosphorus and potassium and can be used before planting to determine if applications are needed. Sampling procedure is very important because the samples should represent the field. If some areas of a field are a different soil type or there are areas where the previous crop showed different growth, then sample those areas separately. Consult with your crop consultant, lab, or farm advisor for more information on sampling procedure.

UC guidelines for **phosphorus** (analyzed with the bicarbonate extract) indicate that 5 ppm or less is deficient, 5-10 ppm is marginal, 10-20 ppm is adequate and greater than 20 ppm is high.

For **potassium** (analyzed with ammonium acetate as the extract), less than 40 ppm is deficient, 40-80 ppm is marginal, 80 – 125 ppm is adequate, and more than 125 ppm is high.

Fertilizing Established Alfalfa Stands

Tissue testing is usually the recommended method for determining the need to fertilize established plantings. Collect 40-60 stems from at least 30 plants in each representative area of the field just before harvest. Different parts of the plants are analyzed for the different nutrients. For phosphorus and potassium, the stems from the middle third of the plant are used. For sulfur, leaves from the middle third of the plant are tested. For boron and molybdenum (not usually deficient in our area), the top third of the plant is analyzed.

Interpretation of test results for alfalfa plant tissue samples taken at one-tenth bloom***

Nutrient	Plant part	Unit	Deficient	Marginal	Adequate	High
Phosphorus (PO_4-P)	Middle 1/3 stems	ppm	300-500	500-800	800-1,500	>1,500
Potassium	Middle 1/3 stems	%	0.40-0.65	0.65-0.80	0.80-1.5	>1.5
Sulfur (SO_4-S)	Middle 1/3 leaves	ppm	0-400	400-800	800-1,000	>1,000
Boron	Top 1/3	ppm	< 15	15-20	20-40	>200
Molybdenum	Top 1/3	ppm	<0.3	0.3-1.0	1-5	5-10

***Almost all alfalfa is now cut younger than 1/10th bloom. Phosphorus concentration should be higher if alfalfa is cut at bud stage: 1,200 ppm at mid-bud, and even higher 1,600 ppm, if cut at very early bud stage. Other nutrient concentrations should be approximately 10% higher than when sampled at 1/10th bloom growth stage (multiply tabular values by 1.10)
(From:*Irrigated Alfalfal Management for Mediterranean & Desert Zones*, UCANR Publication 3512)

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August 2012

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- **Fertilizing Established Alfalfa Stands**

Carol Frate, Farm Advisor