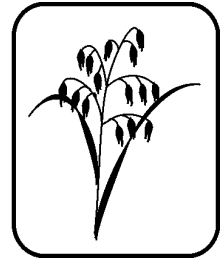




Stanislaus Forage Farmer

University of California Cooperative Extension Stanislaus County



November 2005

GROWING CROPS WITH DAIRY MANURE NUTRIENTS

A seminar for Crop Consultants, CCA credits available

November 28, 2005

9 am to 3:30 pm

Stanislaus County Ag Center

3800 Cornucopia Way, NE corner Service and Crows Landing Roads, Modesto

Cost: \$15.00 covers lunch and materials

This workshop is designed to provide practical tools that crop consultants can use to help dairy operators manage their manure nutrients to meet upcoming regulatory requirements.

Topics include:

- The Current State of the Dairy Industry in Regard to Nutrient Management
- How Much Land Do You Need?
- What is an Agronomic Rate?
- Infrastructure Needed for Nutrient Management
- Sampling and Analyzing Manure, Lagoon Water and Crops
- Timing N Applications to Match Crop Uptake
- Utilizing Mineralized Organic Nitrogen
- Software for Recordkeeping and Targeting Applications
- Automated Data Collection

Speakers include:

- Marsha Campbell Mathews, UCCE Farm Advisor, Stanislaus County
- David Crohn, UCCE Waste Management Specialist, UC Riverside
- Stuart Pettygrove, UCCE Soils and Plant Nutrition Specialist, UC Davis

This is a hands-on workshop!

We recommend bringing a laptop computer with a current version of Excel.

RSVP for lunch and course materials by Monday, November 21, 2005.

For more information please contact Marsha Campbell Mathews or Marie Harter, (209) 525-6800.

A similar workshop for dairy operators is scheduled; January 18, 2006 in Modesto and January 19, 2006 in Tulare.

Looking forward to seeing you there,

Partial funding for this program is provided by an EPA 319 water quality grant administered by the State Water Quality Control Board & the East Stanislaus Resource Conservation District

Marsha Campbell Mathews, Farm Advisor

Wheelchair accessible facilities available. With advance request, efforts will be made to provide accommodations for persons with disabilities.



2005 Small Strip Winter Forage Trial

University of California Cooperative Extension

Location: Stanislaus Farm Supply Research Farm, Modesto
Soil type: Tujunga loamy sand
Planted: November 29, 2005
Irrigated up: 9/30/04-10/1/04
Preplant fertilizer: broadcast 300 lbs/A ammonium sulfate preplant

Fertilizer applications: 1-19-05 150 lbs/A ammonium sulfate
Plot layout: Randomized complete block, 3 replications
Plot size: 12' x 67', commercially swathed, 12' x 20' windrow hand weighed
Harvest: March 9, 2005

Differences between varieties are not statistically significant so they are listed in alphabetical order. We were prepared to take a second cutting of this trial, but regrowth was poor on all varieties. Many thanks to Resource Seeds for planting this trial, and to Stanislaus Farm Supply for hosting it and providing seed, fertilizer and water.

Variety	Forage Type	Supplier	Tons/Acre @ 70% Moisture	Harvest Stage	12/21/04 Height (Inches)	1/6/05 Height (Inches)	1/6/05 Lodging*	3/9/05 Height (Inches)	3/9/05 Lodging*
Cayuse	Oat	Public	11.0	Early Heading	18	23	L1	47	L1
Dirkwin	Wheat	Public	11.2	Early Heading	16	17		35	
Everleaf 114	Oat	RSI	11.2	Boot	23	28		40	L1
Forerunner	Triticale	Lockwood	9.8	Boot	12	5	L2	43	
Kanota	Oat	Public	12.9	Flower	21	22		48	L3
Merlin	Triticale	RSI	9.6	Boot	18	18		42	L2
Super Dirkwin	Wheat	RSI	11.8	Early Heading	18	22		39	
Trical 2700	Triticale	RSI	9.2	Boot	18	19	L1	41	
L1 = 1 Rep Lodged, L2 = 2 Reps Lodged, L3 = All 3 Reps Lodged									

2005 Small Plot Winter Forage Trial

University of California Cooperative Extension

Planted: November 19, 2005
Preplant fertilizer: broadcast 300 lbs/A ammonium sulfate preplant
Fertilizer applications: 1-19-05 150 lbs/A ammonium sulfate

Plot layout: Randomized complete block, 4 replications
Plot size: 4' x 20', 4' x 6' foot hand harvest each cutting

Boot and Flower Stage Harvest							
Variety	Type	Harvest Date	T/A 70%		Stage	% Moist	
Cayuse	Oat	29-Apr	23.3	bcde	Late Boot / Early Head	77.0	
UC 129	Oat	14-Apr	22.0	cdef	Early Head	73.6	
Everleaf 114	Oat	29-Apr	21.6	defg	Late Boot / Early Head	75.7	
Cayuse	Oat	19-Apr	19.1	efghij	Boot	67.6	
UC 113	Oat	14-Apr	18.6	fghij	Early Head	79.5	
Everleaf 114	Oat	20-Apr	18.5	fghij	Boot	69.8	
UC 148	Oat	13-Apr	17.9	fghijk	Flower	80.9	
Super Dirkwin	Wheat	19-Apr	17.4	ghijkl	Flower	65.9	
UC 130	Oat	13-Apr	16.9	hijkl	Flower	78.3	
Swan	Oat	31-Mar	15.9	ijkl	Flower	79.8	
Kanota	Oat	31-Mar	15.6	jkl	Flower	79.5	
Stan Farm Mix 2	Mix	31-Mar	15.5	jkl	Flower	79.6	
Trical 2700	Triticale	7-Apr	14.9	jkl	Boot	83.4	
Stan Farm Mix 1	Oat	31-Mar	14.8	jkl	Flower	80.5	
Forerunner	Triticale	13-Apr	13.8	kl	Boot	80.9	
UC 142	Oat	13-Apr	13.7	kl	Flower	81.5	
Merlin	Triticale	7-Apr	13.5	l	Boot	80.5	
Lance	Wheat	29-Apr	19.0	Observational	Head	70.4	
Dough Stage Harvest							
Variety	Type	Harvest Date	T/A 70%		Stage	% Moist	
Stan Farm Mix II	Mix	10-May	31.0	a	Hard Dough	53.5	
Swan	Oat	9-May	27.6	ab	Hard Dough	51.0	
Stan Farm Mix I	Mix	10-May	26.3	b	Hard Dough	60.1	
UC 129	Oat	10-May	26.1	bc	Soft Dough	61.4	
UC 142	Oat	10-May	24.1	bcd	Soft Dough	58.1	
Kanota	Oat	9-May	21.7	def	Hard Dough	57.6	
1404	Wheat	29-Apr	20.7	defgh	Soft Dough	62.1	
Super Dirkwin	Wheat	29-Apr	20.0	defghi	Head	65.0	
Standard	Wheat	29-Apr	16.2	ijkl	Dough	59.4	

Roundup Ready® Alfalfa the Future is Here!

Written by Carol Frate, Farm Advisor, UCCE Tulare County (based on a presentation by Shannon Mueller, Farm Advisor, UCCE Fresno County at the September 14, 2005, Alfalfa Meeting, Kearney Ag Center).

Roundup Ready® alfalfa received approval for commercial fields this summer and limited amounts of seed are available for planting this season. My colleague, Steve Wright, and I conducted a trial looking at different herbicide regimes in Roundup Ready® alfalfa for the past two seasons. We didn't compare Roundup Ready® alfalfa to conventional alfalfa but looked at different herbicides, comparing registered materials to Roundup®. The alfalfa we were working with was not yet a commercial variety but did yield respectively (total of 7.0 tons/acre for 6 cuttings in 2004, May through November) and 10.6 tons/acres for 5 cuttings in 2005 (also 5 cuttings; some with long cutting intervals).

The trial was planted in March of 2004 after the main rains had finished. Emergence was a challenge as some of the seed came up with moisture but water had to be added to get the remainder of the seed up. We were left with some alfalfa that was 3 to 4 trifoliate leaves, some in the cotyledon stage, and some not yet emerged at the time that weed control had to be started. This was a situation where Roundup Ready® technology really shined as we could apply Roundup® and not worry about the size of the seedling or soil residual while still getting control of a broad spectrum of broadleaf and grass weeds.

Once the crop was established, weed pressure was fairly light for the rest of the trial. Conventional herbicides such as TR-10®, Zorial®, Prism® and Eptam® provide good control of weeds. For controlling weeds in areas around the edges of the trial and in a large spot in the center of the trial in which the alfalfa had been killed by Phytophthora root rot, the ability to make repeated Roundup® applications without having to be concerned about damage to nearby alfalfa came in handy.

Growers deciding on whether or not to plant Roundup Ready® alfalfa seed need to weigh the costs of seed vs. the benefits of a weed control system in which the herbicide can be applied at anytime in the season, the weeds appear before an application is needed, and one material gets most weeds. However, there are some broader issues that should also be considered. First there are weeds that Roundup® either does not control or that are hard to control. These include some common weeds found in alfalfa such as lambsquarter (*Chenopodium album*), cheeseweed (*Malva parviflora*), and burning nettle (*Urtica urens*). Repeated use of Roundup® in the same field on multiple crops (cotton, corn, alfalfa) can lead to the development of resistant weeds. For example, it is now documented that there is Roundup® resistant horseweed (maretail) in the county. Roundup Ready® technology should be considered as another tool in weed management and not the only strategy to be used.

Seedling Rates for Stand Establishment

When planting alfalfa, the goal is to have 20-50 plants per square foot once the crop has emerged. However, if there are 12 seedlings/sq. ft. and they are distributed well, the stand is considered adequate. From seeding rate trials, we know that by the end of the first harvest season the number of plants per square foot (regardless of the density after crop emergence) will be roughly the same for different seeding rates. This is because seedlings compete with each other and there is a natural thinning out process. Stand counts after the first harvest season tended to range from 10 to 19 plants per sq. ft. in trials even when counts after emergence were 30-40 plants per sq. ft.

There are from 200,000 to 250,000 seeds in a pound of raw alfalfa seed. Roundup Ready® seed has 8% fewer seeds per pound than raw seeds because these seeds have a light coating applied to them. In addition, about 5-10% of the Roundup Ready® seedlings will be killed with first application Roundup® because there is a small percentage of seed that does not have the Roundup® resistance gene. Traditional coated seed has about 1/3 fewer seeds per pound than raw seed.

At a seeding rate of 25 lbs/acre of raw seed, there would be about 129 seeds per sq. ft., which should be plenty if the seed bed is good and weather cooperates. That same seeding rate with Roundup Ready® seed, given 8% fewer seeds, would give 119 seeds/sq. ft. Then there could be up to a 10% loss with the first Roundup® application. With traditional coated seed, the number of seeds would be about 85 seeds/sq. ft. at a 25 lb/acre planting rate.

Fifteen pounds of raw seed per acre can be sufficient for a successful stand under ideal conditions. Under good conditions, 22-25 lbs seed/acre should be sufficient for a good stand. Consider increasing seeding rates if the seedbed is rough, moisture is marginal, soil has salinity problems, or other adverse conditions exist.

Be sure to calibrate the planter. Raw seed flows through a planter differently than coated seed. Don't wait until after the field is planted to figure how much seed was being applied per acre.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

Winter Forage Choices

Those of you who have not yet planted your winter forage may find that your choices of what to plant are limited to what is available. Here are some tips if you find that you cannot plant what you are used to planting.

In the southern San Joaquin Valley, it is common to grow grain wheat and harvest it at the soft dough stage, and these are sometimes marketed as forage wheats in this area. Grain wheats are earlier maturing than we typically expect forage wheats to be, and are usually shorter statured. Most have awns (beards). Because they are intended for grain, some varieties do not produce much leafy bulk, resulting in lower yields in the boot or flower stage. High yields and high nitrogen removal rates are common for wheat harvested at this stage, and wilting is seldom necessary. The forage product from soft dough silage is handled in the ration more as an energy source than as a protein source as in boot or flower stage forage. Although early harvest on these varieties is often too early to avoid rainy weather, waiting for the soft dough stage delays corn planting enough to eliminate the possibility of triple cropping.

The possibility of stripe rust infestation is present for all types of wheat, because in recent years the organism that causes the disease has been mutating faster than breeders can develop new resistant varieties. Recent studies with grain wheats have shown that a fungicide application can be profitable if you have **all three** of the following conditions, as suggested by an article written by Jerry Schmierer, UCCE Farm Advisor for Colusa; Sutter and Yuba Counties (see the whole article at <http://cesutter.ucdavis.edu/newsletterfiles/newsletter818.htm>):

- a) You have a variety that is susceptible to the Stripe Rust strains that are occurring in your area.
- b) Signs of Stripe Rust are showing up in your field.
- c) Weather conditions that are conducive to Stripe Rust development. Optimum conditions are temperatures between 50-60 degrees F. with intermittent rain or fog (needs mild temperatures and moisture). Conversely, high temperatures and no rain in March and April, like occurred in 2004, retard the development of Stripe Rust and reduce the need for treatment.

Comparable studies have not been conducted on wheat for forage, however anecdotal reports have indicated that fungicide treatment can be cost-effective. Check labels carefully for preharvest intervals and registration restrictions for forage.

In general, triticales are more resistant to Stripe Rust than is wheat. Although current varieties have thus far not been a susceptible host to the Stripe Rust of wheat, they can still incur damage from their own immune response to the disease. Triticale also comes in both grain and forage types so make certain you know the characteristics of the variety you are considering.

Oats are not susceptible to the same rust strains as wheat, however, seed for popular varieties may be limited this year due to seed crop failures. Early maturing oats such as Kanota and Swan are traditionally harvested in the flower or soft dough stage. Another option is to plant a later maturing, heavy producing oat and harvest it at the boot stage. Cut this early, even thick stemmed oats can produce high-quality forage. One such oat, Cayuse, has consistently out-yielded early oats when cut at the boot stage in my trials, including last year's. Although it is a common constituent in mixes, Cayuse can be an excellent silage oat on its own if cut at the proper stage. Other varieties of big late oats are currently being developed and are worth considering.

Money for Dairy Improvements-Deadline December 2

The NRCS has recently been given 10 million dollars to fund improvements to nutrient management systems on dairies. The funds will be disbursed through the already-established EQIP process. These funds can be used as matching funds for dairy improvements funded through the Prop 50 dairy water quality grant program. The deadline for applying for the Prop 50 grants individually has passed, but several dairy organizations applied for these funds in order to make them available to their dairy operators. So, between the two programs, it is possible to have your entire project funded. Details on the Prop 50 grant program will not likely be available right now since funded projects have not yet been announced, however, the NRCS deadline is December 2, 2005. The Regional Water Quality Control Board has made it clear that they will very soon be requiring dairy operators to report on the amount of nutrients being applied to each field. Now is the time to apply for funds to install the new pipelines, larger lagoons, metering runs, and/or solid separation systems that will be needed in order to be able to meet this requirement.

Separate from these programs, I still have money to provide \$1000 rebates on lagoon nutrient flow measurement systems installed between June, 2004 and February 1, 2006. Contact our office for more information.



35th California Alfalfa and Forage Symposium

Visalia Radisson, Visalia, CA – December 12-14, 2005

Monday, December 12, 2005

10:00 a.m. – 5:00 p.m. Agricultural Tour of the Lower San Joaquin Valley

Visit the heart of California's alfalfa production and dairy region – agricultural sites of interest including Friesian Horses, Heritage Museum, dairy farm, cheese making, alfalfa and winter forage production. For further details, see the website. The tour includes lunch and returns about 5:00 p.m. Space is limited, so sign up early, first-come first-served.

Tuesday, December 13, 2005

Main Session - Industry Trends and Environmental Issues

Moderator: Carol Frate, UCCE, Tulare, CA

8:00 Announcements and Welcome

8:15 Alfalfa supply and demand situation - Bees Butler, UC Davis, CA

8:40 Critical issues facing the dairy industry - Mike Marsh, Western United Dairymen, Modesto, CA

9:05 Air quality issues with the dairy forage system – Frank Mitloehner, UC Davis, CA

9:30 Implications of deficit irrigation management of alfalfa – Steve Orloff, UCCE, Yreka, CA

9:55 Discussion

10:00 Break

Main Session - Industry Trends and Environmental Issues (continued)

Moderator: Ron Vargas, UCCE, Madera, CA

10:30 Recycling manures using forage crops -Marsha Mathews, UCCE, Modesto, CA

10:55 Central Valley waivers and forage crops -Allan Fulton, UCCE, Red Bluff, CA

11:20 Groundwater protection areas and forages - Larry Schwankl, UC Davis, CA

11:45 Discussion

12:00 Banquet Lunch (raffles and awards)

Breakout Session I. Pest Management

Moderators: Tim Hayes, PCA, Lancaster, CA and Mike Rethwisch, UCCE, Blythe, CA

1:30 Problem weeds in hay and forages for livestock - Birgit Puschner, UC Davis, CA

1:50 Stand establishment: Round-Up and other herbicides - Mick Canevari, UCCE, Stockton, CA

2:10 Controlling weeds in established alfalfa - Ron Vargas, UCCE, Madera, CA

2:30 Sclerotinia in alfalfa: biology and control - Carol Frate, UCCE, Tulare, CA

2:50 Discussion

3:00 Break

3:30 Biological control of weevils; current status - Karey Windbiel, UC Davis, CA

3:40 Controlling weevils in alfalfa - Larry Godfrey, UC Davis, CA

3:55 Control of beet armyworm and alfalfa caterpillar - Eric Natwick, UCCE, El Centro, CA

4:15 Rodents and their control - Terry Salmon, UCCE, San Diego, CA

4:35 New insect threats to California forages - Charlie Summers, Kearney Ag Center, Parlier, CA

4:55 Discussion

5:00-6:30 Exhibit Hall Mixer: Refreshments and Cash Bar

Make your hotel plans now at the
Visalia Radisson: 559-636-1111 or
800-333-3333, \$89 Conference Rate.
For registration, see
<http://alfalfa.ucdavis.edu> or use the
form below.

Breakout Session II. Producing High Quality Forages for Dairy Systems

Moderators: Steve Wright, UCCE, Tulare, CA and Carol Collar, UCCE, Hanford, CA

- 1:30 Winter forage options for dairy systems - Gene Aksland, Resource Seeds, Visalia, CA
1:50 Utilizing the BMR trait in sudangrass and sorghums - Jon Reich, Cal West, Woodland, CA
2:10 Cool season annual and perennial grasses - Devesh Singh, Barenbrug USA, Tangent, OR
2:30 Current status of elephantgrass as a potential forage crop – TBA
2:50 Discussion

3:00 Break

- 3:30 Changing role of forage fiber in dairy rations - Peter Robinson, UC Davis, CA
3:50 Harvesting silage corn at the right time - Roger Vinande, Pioneer Hi-Bred, Modesto, CA
4:10 Monitoring phosphorus for alfalfa production - Jerry Schmierer, UCCE, Colusa, CA
4:30 Producing organic alfalfa - Rachael Long, UCCE, Woodland, CA
4:50 Discussion

5:00-6:30 Exhibit Hall Mixer: Refreshments and Cash Bar

Wednesday, December 14, 2005

6:30 Complimentary CAFA Breakfast (See CAFA booth for tickets.)

Main Session – Forage Quality

Moderator: Blake Sanden, UCCE, Bakersfield, CA

- 8:05 Diurnal changes in forage quality - Hank Mayland, USDA-ARS, Kimberly, ID
8:30 What are you missing with your hay quality tests? - Mary B. Hall, USDA-ARS, Madison, WI
8:55 Balancing quality and yield using cutting schedules and varieties – Dan Putnam, UC Davis, CA
9:20 Postharvest changes in alfalfa quality - Alan Rotz, USDA-ARS, College Park, PA
9:45 Discussion

9:55 Break

Main Session – Forage Quality and Genetic Engineering

Moderator: Mick Canevari, UCCE, Stockton, CA

- 10:20 Establishing a top-notch alfalfa stand - Shannon Mueller, UCCE, Fresno, CA
10:45 Do GE crops impact animal health and food products? - Alison Van Eenennaam, UC Davis, CA
11:10 Coexistence of GE and non-GE alfalfa - Dan Putnam, UC Davis
11:35 Reinventing alfalfa – future innovations for alfalfa - Neal Martin, Madison, WI
12:00 Discussion

12:10 Adjourn

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35th California Alfalfa and Forage Symposium – Registration Form

Please complete one form per person attending. Name

Company/Ranch

Address

City, State, Zip Code

Phone
Fax

E-mail (important) Confirmation by E-Mail only

Pre-Symposium Tour \$40.00

Pre-Registration (before 12/1/05) \$125.00

Late Registration (after 12/1/05) \$160.00

Single Day Registration \$100.00 (circle 12/13/2005 or 12/14/2005) Guest Banquet Lunch Ticket \$27.00

Additional Copy of Proceedings @ 12.00 ea. (one included with registration)

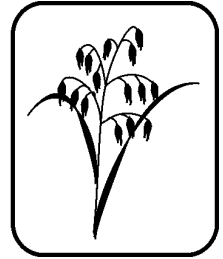
☞ Register online go to our website at <http://alfalfa.ucdavis.edu>.

Mail your check, made payable to "UC Regents," to Janice Corner (jecorner@ucdavis.edu or 530-752-7091), Department of Plant Sciences, PRB, MS-5, UC Davis, Davis, CA 95616-8780.



Stanislaus Forage Farmer

University of California Cooperative Extension  Stanislaus County



Coming Up:

Growing Crops with Dairy Manure Nutrients
Workshop for Crop Consultants, Modesto, CA
November 28, 2005

&

35th California Alfalfa and Forage Symposium
Visalia, CA - December 12-14, 2005