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Starting Out Right with this Year's Irrigated Double Crop of Small Grains Forage

Nick Clark – UCCE Kings, Tulare and Fresno Counties

Fall planted small grain crops are at the mercy of mother nature more than their summer forage counterparts (winters in California tend to be more unpredictable than summers). Management of the crop requires close attention from start to finish to achieve desirable results. Here are steps to consider when planting this year's small grain forage crop.

Cultivar Selection
Select a seed based on your needs and desired outcomes. Choose cultivars based on yield, forage quality, disease resistance, and lodging resistance/standability. Planting multiple cultivars on your farm is an opportunity to hedge against disease and lodging. Results of UC small grain forage variety trials (2013-2016) can be found here: http://ucanr.edu/2016sgn, http://ucanr.edu/2015sgn, and http://ucanr.edu/2014sgn.

Visit http://ucanr.edu/sgvar to access the most recent UC Statewide Small Grain Testing program's results and use the interactive tool for selecting cultivars based on customizable searches. Visit http://ucanr.edu/sgres and see the sections "Cultivar Descriptions" and "California Cultivar Tables" for the most recent published descriptions of CA small grain cultivars.

Seed Bed Preparation
Irrigated, conventional cropping during the summer will require cultivation to help decompose crop residue before planting. Chiseling or ripping to improve winter drainage by breaking a plow pan followed by two disk passes is usually sufficient to bury debris deep enough to decompose it. Harrowing breaks up large clods and prepares the seedbed for drilling into pre-irrigated or rain-fed moisture, which is the most common type of planting in the Central Valley. Periodic land leveling is required to avoid low spots where water ponding or freezing air accumulate and injure the plants.

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Also In this Issue…

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Planting
One and a quarter million to 1.5 million seed per acre are typical sowing rates for small grains that are drilled. For wheat and triticale, this usually comes out to 100-150 lbs seed/acre. The higher planting rates should be used for late plantings and broadcast sowings. Caution should be taken since higher density plantings are more prone to lodging when growing conditions are favorable. Care should be taken to plant seed 1-1.5 inches deep, and not deeper than 2 inches, as this can delay emergence and weaken stands. For more information on sowing in conditions other than drilling flat on irrigated cropland, see Chapter 3 of the UC Small Grain Production Manual: http://ucanr.edu/sgprodman. There is a higher risk of lodging, disease, and severe frost injury in late winter when planting is much earlier than November. Plantings delayed beyond late December run a higher risk of being too wet to bring equipment into the field.

Fertilization
Pre-plant applications of nitrogen fertilizer should be limited to one-third of the annual crop nitrogen (N) budget. Small grains tend to utilize N more efficiently when applications are made at the tillering stage or later, depending on the crop's immediate need for N. Broadcasting urea in-season before a rain or irrigation is an efficient and uniform method of delivering N fertilizer to a surface irrigated stand of small grains. See these blog posts for more information on in-season N fertilization of small grains:
http://ucanr.edu/blog1, http://ucanr.edu/blog2.

When Olsen phosphorus and potassium levels are testing below 6 and 40 ppm, respectively, in the top foot of soil, it's time to fertilize. Pre-plant broadcast and incorporation of 11-52-0 and KCl fertilizers should be done to begin building soil test levels up to between 6-12 ppm Olsen P and 40-60 ppm K.

Take-Home Message
A successful crop of small grain forage depends very heavily on early season management decisions. The right cultivar, the right seedbed preparation, the right amount of fertilizer, and the right sowing rate at the right date all play heavily into yield potential of the crop to come. Use the resources cited above to help you start this season off right.

What do California Dairies Look Like?

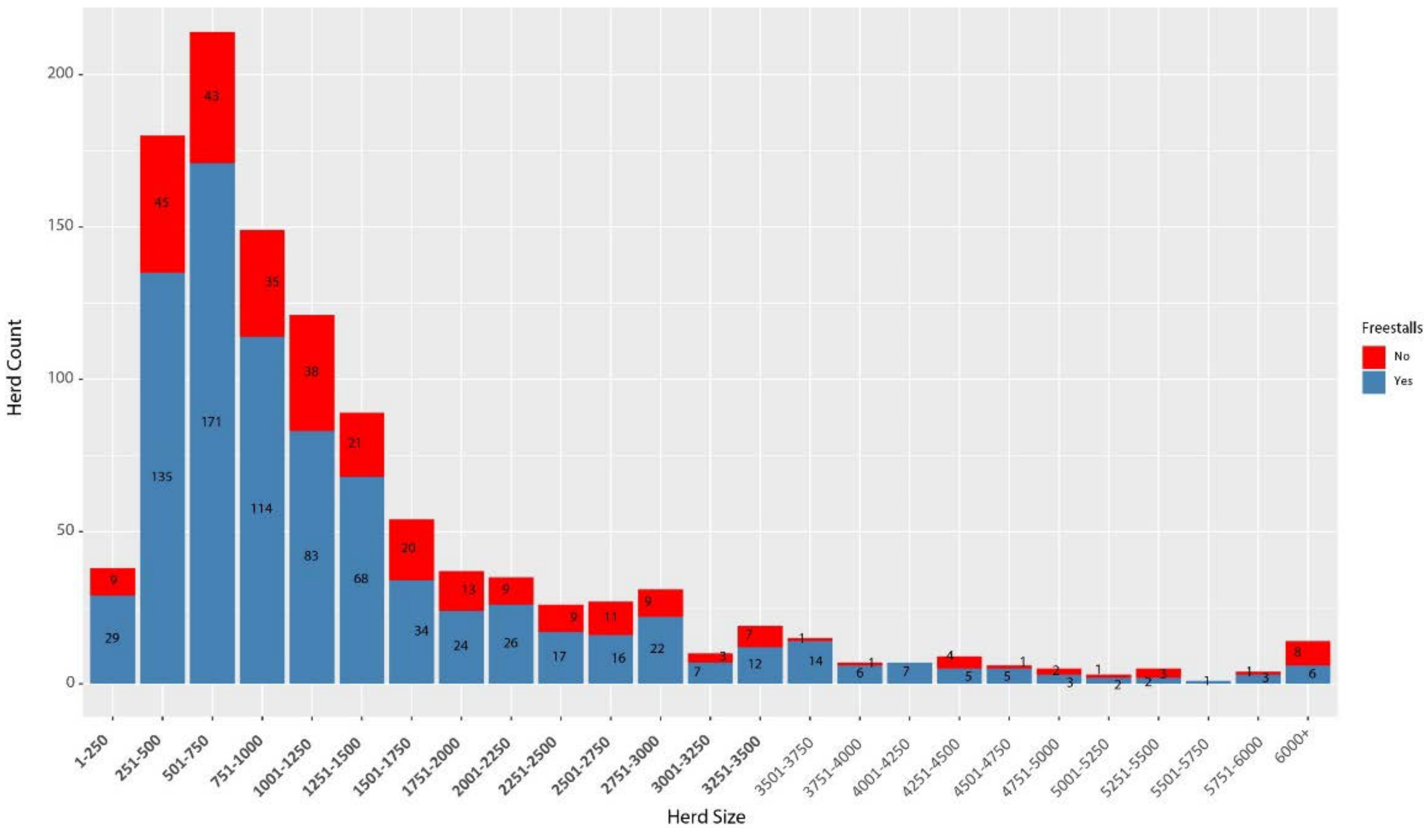
Deanne Meyer - Livestock Waste Management Specialist, Jennifer Heguy - UCCE Merced, Stanislaus, and San Joaquin Counties, Betsy Karle - UCCE Northern Sacramento Valley, Zaira Joaquin Morales – UC Davis

What is a "typical" dairy? Why does anyone or any agency care what typical dairies are? Great questions.

Let's start with the "who cares" question first. Everyone cares. Milk processors want to know where the milk resides. Sales folks like to know their clientele. Regulatory agencies want to identify where emissions come from. Basically, demographic information is valuable on several fronts.

Now for the second question. What is typical? California dairy cows produced 18.4% of the milk in the United States according to the latest figures. We have pasture and confinement dairies. We have a variety of housing and manure management systems as well. All of this information helps inform decisions that shape programs and policies.

"Typical" is region specific within California. Average herd size (milking and dry cows) varies by region within California: North Coast (370 cows), Central Valley (1403 cows) and Southern California (Chino/San Jacinto; 1002 cows). As expected, distribution of herd size also varies by Region. The figure (next page) shows herd distribution by housing type for Central Valley dairies (Region 5 Water Quality Control Board).



Knowing herd size distribution and housing type is important. One way to use this information is to think about the effectiveness of manure treatment technologies. We know herd size and housing affect the amount of manure that is collected and stored in solid or liquid forms. Attention to the use of manure treatment technologies to reduce methane emissions remains high. One approach is to generate, collect, and utilize biogas (anaerobic digesters in clusters) to minimize methane emissions. The other approach is to prevent manure from being in an anaerobic condition (keep solids out of ponds), referred to as "Alternative Manure Management Practices" (AAMP).

Funding Opportunities for Alternative Manure Management Projects

Shulamit Shroder- Climate Smart Agriculture Community Education Specialist

The California Department of Food and Agriculture has grants available for dairy operators interested in changing the way they manage manure. The Alternative Manure Management Program (AMMP), which is separate from the dairy digester program, will fund projects that reduce methane emissions from manure storage by removing manure solids from the system. It will fund projects like conversion from flush to scrape, solid separation, alternative manure treatment and storage, or transition to a pasture-based system.

You can reduce manure methane emissions by decreasing the amount of time that the manure is wet. Practices such as solar drying, daily spread, solid storage, and composting in conjunction with conversion from flush to scrape or solid separation will enable you to accomplish that. Interested in learning more? Check out the CDFA website: http://bit.ly/CDFAAMMP

Reach out to your closest Climate Smart Agriculture Community Education Specialist for technical assistance at no cost to you. Contacts are on the next page.

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High Bacterial Counts in Pasteurized Waste Milk?

Yalcin Alper Ozturan – VMTRC, Rúbia Branco Lopes - VMTRC, Jennifer Heguy – UCCE Merced, Stanislaus, and San Joaquin Counties, and Noelia Silva-del-Río – UCCE Dairy Herd Health Specialist

Approximately 44% of California dairy operations feed waste milk (WM) to dairy calves. One challenge associated with feeding WM is its potential to cause illness due to bacterial load. Pasteurization along with proper handling and storage can help with this problem!

During pasteurization, milk is heated at 145ºF for 30 minutes (low temperature, long time; batch) or 161ºF for 15 seconds (high temperature, short time; HTST). Both batch and HTST can help to reduce the bacterial load in milk. Standard plate count of pasteurized WM should be < 20,000 CFU/ml. However, even with pasteurization, WM may still have a high bacterial load. Here are some ideas to trouble-shoot this problem:

After harvest, WM should be pasteurized immediately or cooled to 40 ºF until pasteurization occurs. Pasteurization is effective only when the bacterial load of raw WM is below 1,000,000 CFU/ml. If WM sits for a long period of time before pasteurization, bacteria will grow to a point that pasteurization may not work. This problem can arise, for example, when calf operations receive WM transported without cooling from far away source dairies, especially during summer.

During pasteurization, WM should reach 145ºF for 30 min (batch) or 161ºF for 15 seconds (HTST). Heating uniformity is critical; agitators inside pasteurizers must work properly. Overheating or double pasteurization must be avoided as it damages WM protein, making it indigestible. When pasteurization temperatures fall short or heating times are insufficient, the reduction of microbial load in WM will be inadequate. A thermometer and a stopwatch can be used to confirm the duration of pasteurization and to evaluate the final temperature that WM reaches. Also, alkaline phosphatase (ALP) test strips can be quickly used on-farm to ensure WM has reached adequate temperature. ALP is an enzyme that gets destroyed during pasteurization; if it is present, WM has not reached the adequate temperature. ALP test strips are available through various online suppliers.

After pasteurization, WM should be fed to calves (≈110º F) or preserved at 40 ºF to minimize bacterial growth. If WM is not cooled, microbial load of pasteurized WM can reach pre-pasteurization levels. HTST pasteurizers are equipped with automatic cooling systems, which minimize post-pasteurization bacterial growth. Batch pasteurizers require additional cooling equipment.

Clean the pasteurizer after use following the manufacturer's recommendations. If your alkaline or acid detergent requires hot water, ensure the temperature reaches 170º to 190º F. Do not let the detergent solution sit inside the pasteurizer, as detergents lose their antimicrobial effect and may favor microbial growth. If you have hard water, consider milk stone removers to improve the cleaning activity of detergents. Remember, cleaning chemicals lose activity when they are not properly stored or are past their expiration date.

Take-Home Message
Waste milk is a good feed source for calves when handled properly. Good management and properly trained employees may make a world of difference in your WM feeding program.

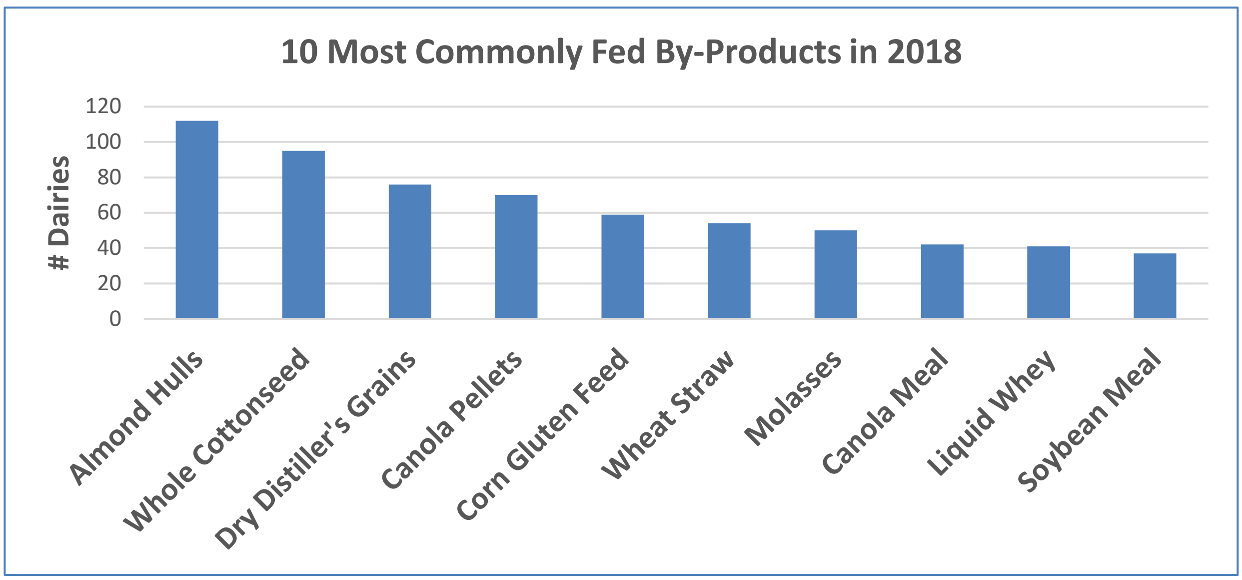
Research Roundup: Preliminary By-Product Feeding Survey Results

Jennifer Heguy – UCCE Merced, Stanislaus, and San Joaquin Counties

First things first, a huge THANK YOU to everyone who took the time to answer the by-product survey. Your time is greatly appreciated. The project is on-going, and I'll be following up with some folks regarding specifics of their by-product feeding program before 2019 ends.

We have by-product feeding information from 156 California dairies. Here's a quick snapshot of preliminary results from the survey:

- 18 dairies, or about 11.5% of responding dairies, did not feed by-products.
- Of the dairies feeding by-products, herd average was 1,490 milking cows, with a range of 30 to 5,500.
- The most commonly fed by-product was almond hulls (112 dairies; 81%). The top 10 most commonly fed by-products are included in the figure below.
- Surveyed dairies fed 58 unique by-products in 2018.



If you have any questions about this project and how we'll be using the data, please feel free to call or email me at jmheguy@ucdavis.edu or 209-525-6800.

Daniela Bruno, UCCE Dairy Advisor, Now Serving Kings County

Daniela Bruno has taken over the dairy program in Kings County. Daniela also serves Fresno and Madera Counties, and can be reached at (559)241-7552 or dfbruno@ucanr.edu

University of California Cooperative Extension

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