



# SUPERIOR CALIFORNIA



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## Lagoon Water Nutrient Workshop Scheduled

Learn how to turn your water into a valuable nutrient source for crops by attending this three-day workshop.

### Riverdale

Riverdale Memorial Hall • 3085 West Mt. Whitney • Riverdale, CA

9:30 a.m. - 1:00 p.m.

Session 1: February 4<sup>th</sup>

Session 2: February 7<sup>th</sup>

Session 3: February 8<sup>th</sup>

### Session 1: Manure Composition & Management

An update on nutrient management regulations, managing dry manure, biology of dairy lagoons, lagoon water lab analysis, when and where to sample lagoon water, managing salts in lagoon water.

### Session 2: How to Measure and Adjust Lagoon Water Applications

Measuring nitrogen concentrations with quick tests, methods of measuring lagoon water application, adjusting lagoon water applications rates, record keeping.

### Session 3: Balancing Nutrient Applications with Crop Uptake

Applying lagoon water through irrigation systems, seasonal patterns of crop nutrient uptake, using plant and soil tests, pathogens in lagoon water.

This course is funded through a grant from the USDA NRCS EQIP (Environmental Quality Incentives Program), so there is no fee for the shortcourses. Anyone who is interested may attend. This is the third and final year for funding for the series.

Please call (209) 525-6800 to reserve a syllabus and a space, or for more information. Don't forget to bring a sample of your lagoon water to the first class for a free on-the-spot nitrogen determination.

# Nitrogen Fertilization of Winter Forage

Marsha Campbell Mathews, Farm Advisor,  
Stanislaus County

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## How much nitrogen does the crop need?

The total amount of nitrogen taken up by a winter forage crop is influenced by many factors, but is mainly determined by the yield, the variety and the amount of nitrogen available to the plant. Book values are available, but a far better method is to calculate the nitrogen uptake yourself using your own values. If you know the nitrogen concentration (usually reported in percent of dry matter) of your forage, you can calculate the pounds of nitrogen harvested.

Example:

- 4.5 ton/Acre oat hay at 10% moisture with 1.9% nitrogen
- 10% moisture is the same as 90% dry matter (100%-10%).
- 90% dry matter can be written .90 dry matter.
- 4.5 tons of hay x .90 dry matter is 4.05 tons of dry matter.
- 4.05 tons of dry matter x 2000 lbs in a ton = 8100 lbs dry matter.
- 8100 lbs dry matter x 1.9% N or .019 = 154 lbs of N taken up by the crop.

## When does winter forage need nitrogen?

Winter forage planted after mid-October will usually take up no more than about 50-75 pounds of nitrogen by mid-January, and often takes up much less. Winter forage in our area begins to take up most of its nitrogen starting in early February. Different types of winter forage may take up more or less in February and early March depending on the characteristics of the variety. Early maturing Swan oats, for example, will begin to take up nitrogen earlier in the spring than will Dirkwinn wheat, even though Dirkwinn may ultimately take up more total nitrogen than Swan.

## When should the nitrogen be applied?

Nitrogen should be applied so that crop needs are met during the time the crop needs the nitrogen. Nitrogen applied ahead of time may not still be in the soil when the crop needs it. For example, a field (loamy sand) was planted and irrigated up around the middle of September this past fall. Stubble from a grain corn crop was disced in prior to planting, and 300 lbs of ammonium sulfate (63 lbs actual N) was applied. Soil samples were taken down to

4 feet just before and again just after a fresh water irrigation was applied on October 19. There were about 100 pounds of N in the nitrate form in the top foot prior to the irrigation. After the irrigation, there was less than 25 pounds of nitrate in the top foot prior to the irrigation. After the irrigation, there was less than 25 pounds of nitrate in the top foot, while the second, third and fourth feet increased by a total of almost 50 pounds. But since winter forage roots seldom reach more than about 18 inches, we could expect that most of the nitrogen in the lower part of the soil would be lost. Nitrogen in the ammonium form was less than 10 pounds in the top foot and did not change much as a result of the irrigation.

## What happened to the nitrogen?

When either commercial or manure nitrogen is applied, the available nitrogen is usually in the ammonium form. This form is positively charged and adheres to the negatively charged soil particles. After it has been in the soil for 1-2 weeks at 75EF, all of the ammonium has been converted by soil microorganisms. The nitrate is negatively charged, tends to stay away from the soil particles, and is subject to being washed out (leached) when water moves through the soil during rainfall or irrigation.

Ammonium in fertilizer or lagoon nutrient water applied when the soil is cold takes much longer to convert to nitrate, up to 12 weeks at a soil temperature of 50EF. Ammonium form fertilizer applied in late January or early February could, therefore, be expected to stay in the ammonium form and not be as subject to leaching until later in the spring. However, volatilization losses could occur with commercial ammonium form of urea (urea converts rapidly to ammonium) nitrogen if the material is applied to the surface and is not incorporated by rainfall within a few days.





## 2002 California Holstein Association Convention

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The Holiday Inn in Chico, California will be the location of the 2002 California Holstein Association Convention scheduled for January 31 - February 2, 2002.

Registration will be held from 12:00 p.m. to 4:00 p.m. on Thursday, January 31<sup>st</sup>, and will kick off a jam-packed three days for those in attendance.

Also scheduled for Thursday are the Junior Interviews and the Senior Board Meeting, which will be held in the morning. Guided tours of the Sierra Nevada Brewery in Chico will be conducted during the afternoon. That evening, Sierra Nevada will host a cocktail hour and dinner at their beautiful, recently expanded facility. Shuttle buses will provide transportation back to the Holiday Inn every half hour.

On Friday, February 1<sup>st</sup>, the Past Presidents will hold their breakfast at 7:30 a.m., followed by the Junior Dairy Bowl at 8:00 a.m. "Biotechnology for Today and Tomorrow" will be the topic of the Breed Improvement Program, scheduled for 9:00 a.m.

For the ladies in attendance who will not be participating in the Convention, a luncheon program and a Bidwell Mansion Tour will begin at 10:00 a.m.

The Junior Luncheon and the Men's Luncheon will begin at 12:00 noon, the Annual meeting will start at 1:30 p.m., and the day will conclude with a Senior Banquet at 7:00 p.m.

The California State Holstein Convention Premier Sale will be held on Saturday, February 2<sup>nd</sup> at 10:00 a.m., at the California State University, Chico Farm.

This year's California Holstein Association Convention promises to be an educational as well as fun-filled experience.

For additional information, please call (530) 893-3131 or (530) 824-4546.

### Regional Water Quality Control Boards

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If you have any questions regarding water quality and regulatory matters, you can contact the people listed below at the Regional Water Quality Control Board.

#### Redding Office - Shasta & Tehama Counties

Jim Rohrbach                      530-224-4859

#### Sacramento Office - Butte, Glenn, Colusa Counties

Bob Matteoli                      916-255-3035

John Menke                        916-255-3024

John Collins                        916-255-0753



