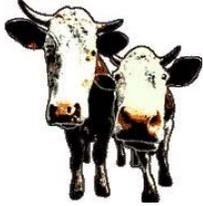




# University of California Cooperative Extension - Solano, Yolo & Napa Counties

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# Local Fodder

March 2002

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WATER QUALITY REGULATION AND IT'S  
IMPACT ON RANCHING OPERATIONS

In the past few years we have been hearing and reading more about water quality issues at the local level. The focus of water quality regulation has been shifting from large industrial polluters to farmers and ranchers, causing the hackles to raise on many small to large landowners and land managers. Understanding water quality issues is not easy because of the complexity of the issues, the jargon used to explain the issues, and the fact that the regulations are still being developed.

In this article, I try to demystify some water quality issues by providing a brief background to the development of water quality regulations and by explaining the status of regulations in Napa, Solano, and Yolo Counties.

In California, recent water quality regulation began with the Porter-Cologne Act of 1969 which required the state to create regional boards to develop and adopt water quality control plans. There are nine regional water control boards in California divided among the following regions: North Coast, San Francisco Bay, Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River Basin, Santa Ana, and San Diego). The San Francisco Bay region has jurisdiction in Napa County and areas of Solano County that drain directly to the bay. The Central Valley region's jurisdiction covers most of Solano County and all of Yolo County.

The Porter-Cologne Act was followed by the federal Clean Water Act of 1972, which created broad regulatory guidelines for states to identify impaired waterbodies and set limits of pollutant levels in those waters. There are two basic strategies within the Clean Water Act. The first strategy is to utilize new technologies to reduce industrial pollution also known as **point-source-pollution**. The classic image we have of an industry with a waste pipe dumping toxic sludge into a waterway is a good example of point-source-pollution. The second strategy is to reduce pollution from all other sources which is termed **non-point-source-pollution**. This includes runoff from rangelands, pastures, cultivated fields, streets and highways, urban landscapes, etc.

To regulate non-point-source pollution, states are to set **total maximum daily loads (TMDLs)** in impaired waterbodies. A TMDL is the total amount of a certain

*(Continued on page 2)*

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pollutant that a waterbody can receive in a single day and still meet water quality standards.

During the 1970's and 1980's, industrial pollution was by far the biggest threat to water quality and therefore received the most attention during those decades. The campaign against industrial pollution was effective, however, many contaminants were still being detected in the state's waterways. As the clean-up of industrial pollution waned during the late 1980's, environmentalists pushed the USEPA to address the "other" sources by filing lawsuits against the USEPA, forcing them to implement TMDLs. As a result, the regional boards and the USEPA have been determining which waterbodies are impaired and by which pollutants. All of the waterbodies considered to be impaired and the corresponding pollutants are listed in what is called the **303(d)** list, referring to section 303(d) of the Clean Water Act.

The regional water quality control boards and the USEPA are then responsible for establishing TMDLs for the impaired waterbodies. This is the stage where many areas of California stand. Establishing a TMDL takes several years and is done by frequent monitoring of the waterbodies for the pollutants and by using the state's water quality standards. The regional boards then must determine the total maximum daily load for the specific pollutants.

One important consideration in the TMDL process is determining how much a specific pollutant naturally occurs in the environment. For example, if a TMDL is being set for sediment in a river, the TMDL should not be set below the amount of sediment that the river would receive without human disturbances in the river's watershed. This is not an easy task since water quality data does not exist for the time before the human disturbances were made.

In the area including Napa, Solano, and Yolo Counties, no TMDLs have yet been established. However, the waterbodies listed to eventually receive TMDLs include Napa River, Cache Creek, Lake Berryessa, Suisun Slough, Suisun Marsh Wetlands, Suisun Bay, and a general listing of the delta waterways. The delta and Suisun waterways, and the Napa River are listed due to pollutants primarily from agriculture and urban runoff. Lake Berryessa and Cache Creek are listed for mercury contamination.

### How does this affect you?

For ranchers, sedimentation TMDLs will have the most significance. Most other agriculture contaminants are from cultivated cropping systems. So far, the only waterbody within this area that is listed on the 303(d) list

to receive a sedimentation TMDL is the Napa River. Even though sedimentation TMDLs are currently not scheduled to be implemented in other waterbodies within the three counties, this does not mean they never will be implemented. Nor should we assume that sedimentation will be the only listed contaminant resulting from grazing practices.

Currently, the San Francisco regional board is in the process of establishing TMDLs for the Napa River, and we can expect definite requirements to be finalized within the next few years. Once the TMDLs are established, management plans to meet the new standards will also be established by the regional board. Then there is the very large question of how to execute the plan and regulate compliance among all the stakeholders in the watershed. One thing we can be certain of is that if compliance is not met, the federal government can act with a very big stick as they have done to mitigate industrial pollution.

### What is the best course of action?

In order to protect yourself and avoid future regulation, management practices that enhance water quality in your watershed should be adopted. Another important practice is to have a monitoring plan in which you document the new practices and their impacts. By implementing these practices sooner rather than later, you give the government less of a reason impose future regulations, and yet if they do, you have documented evidence demonstrating your efforts that work towards meeting their goals. I'm sure a rancher that has been proactively trying to improve water quality will be seen much more favorably in the eyes of the government, than someone who has done nothing.

A description of the practices that improve water quality deserves much more space than what is left on this page. In fact, Cooperative Extension has designed a range management short course to address this issue. If you have interest in bringing the range management short course to this area, call my office at (707) 435-2459, and I will compile a list of interested people.

Also, many of the conservation practices that enhance water quality can be done through a cost-share program available through the USDA Natural Resource Conservation Service. To inquire about the cost-share programs call the USDA office in your area, as listed below.

#### USDA-NRCS Offices

Napa County	(707) 252-4189
Yolo County	(530) 662-2037
Solano County	(707) 678-1655
Sacramento County	(916) 714-1104

## **BOVINE VIRUS DIARRHEA: Part I**

Reprinted from the January 2002 issue of  
*California Cattleman's Magazine*

Bovine Virus Diarrhea (BVD) continues to be a problem for the beef cattle industry. This applies to both the feedlot sector of the industry and to the cow/calf sector. Not only does the virus that causes BVD have the possibility of changing, we are continually changing our management practices. The BVD virus makes a lot of “mistakes” when it replicates and thus there are “new” biotypes appearing from time to time. Also, our terminology regarding this virus is changing and becoming more complicated. In this article I will outline what we know about the BVD virus and the diseases caused by this virus.

### ***What is meant by cytopathic and non-cytopathic BVD biotypes?***

These terms refer to a recognizable characteristic of BVD viruses in the laboratory. The BVD virus (like all mammalian viruses) does not grow or reproduce without living cells. In the laboratory we have developed cell lines that will grow in test tubes (actually we use tissue culture plates). These cells growing in the laboratory can be inoculated with samples to see if there are virus particles in the sample, i.e., we attempt to “isolate” a virus. The cytopathic (CPE) BVD biotypes cause visible damage to the cells in cell culture vials in the laboratory. The non-cytopathic (non-CPE) biotypes do not cause any **visible** damage. This does not mean the non-CPE strains are less damaging to cattle, in fact in some respects the non-CPE BVD strains cause more problems. The non-CPE viruses are the biotypes or strains that cause persistently infected (PI) cattle and this is one of our biggest problems in controlling the spread of BVD.

### ***What is the difference between Type I and Type II BVD viruses?***

Again, this is a difference between strains or biotypes of this virus. Certain parts of the virus’s genetic code are different between type I and type II BVD. This difference does not equate to virulence or the ability to cause disease or death. There are type II BVD viruses that cause severe disease and those type II viruses that cause very mild disease. The same holds for type I BVD virus strains. As more research is done to sequence the genetic code of BVD biotypes, this type of classification may become too complicated to use. It is also important to understand that both type I and type II BVD viruses have CPE and non-CPE forms, and in both instances the non-CPE form is the more natural and more common situation in cattle.

### ***When BVD infects an animal, what are the possible outcomes?***

Here is where the story gets complicated. The outcome depends on the BVD biotype and the “resistance” of the cattle involved. In the simplest case, if the cattle are adult, non-pregnant cattle and have been vaccinated against the infecting biotype previously—nothing happens. No disease, no death loss, nothing more than if they received a vaccine booster. Also, the age of the cattle is important, particularly the age of the fetus. If the fetus is exposed to a non-CPE BVD virus prior to day 120 of gestation it is possible the calf born will be an immunotolerant carrier of the virus. That is to say, the fetus may not be killed by the virus (aborted), will not mount an immune response to the virus, will shed large numbers of the non-CPE virus into the environment for as long as it lives. These immunotolerant carriers are called persistently infected (PI) cattle and usually live less than one year before dying. They are not only immunotolerant to the BVD virus, their immune system is permanently damaged putting them at risk for all other infectious diseases. Table 1 is a list of possible conditions that can result from BVD infection.

Table 1. Possible outcomes to BVD virus infection in cattle.

*(Continued on page 4)*

Fetal Infection	Early Embryonic Death Abortion Stillbirths Congenital Birth Defects (eye defects, brain defects) PI Calves (immunotolerant and persistently infected shedders) Normal Calves born with antibodies to the BVD virus.
Acute Infection	Subclinical-No signs of disease Severe BVD signs with diarrhea and lesions in the gut (mouth to anus) Hemorrhagic syndrome (failure of blood to clot normally) BVD infection and respiratory disease (pneumonia) Venereal disease
Mucosal Disease	Infection of PI calves with a CPE virus which causes severe diarrhea, weight loss, damage to the gastrointestinal system, and death.

This table is simplified from what is known to occur in nature; however, it does point out the tremendously complicated nature of disease caused by the BVD virus.

(Continued from page 3)

### **What is the difference between a PI calf and a normal calf with antibodies to BVD?**

In a word, timing! If a fetus is infected after about 180 days its immune system is developed to the point it can “fight off the virus”. Thus this fetus will make antibodies to the virus and develop immunity. On the other hand, if the fetus is infected at day 80 of pregnancy with a non-CPE BVD virus, it may be born as immunotolerant and persistently shedding large numbers of this BVD virus into the environment. This shedding occurs through every secretion from the body (saliva, tears, feces, etc.). This is why the PI calves are such a problem for the herd.

Next month we will discuss some of our current tools available to diagnose BVD infections in cattle.

John Maas, DVM, MS  
Diplomate, ACVN & ACVIM  
Extension Veterinarian  
School of Veterinary Medicine  
University of California, Davis

## COW-CALF QUALITY ASSURANCE PROGRAM AND ADVANCED RESIDUE AVOIDANCE

UC Cooperative Extension and the California Cattle-men’s Association will host a Cow-Calf Quality Assurance Program on March 30 at the Rush Ranch. Since the previous QAP given in this area, about 6 years ago, more training sections have been added. We have also added another training program called Advanced Residue Avoidance, designed to reduce medication residues in carcasses. Both programs provide important practices for cattle producers to follow in an effort to improve beef quality.

The Quality Assurance Program has resulted in a positive impact in the beef industry. In the past decade, the quality of beef has been improving which is thought to be partially responsible for the increase in consumer demand for beef. All cattle producers are encouraged to attend both programs. Those that have previously attended a QAP may want a refresher. Certificates will be given for each program completed.

Please refer the attached flyer for more information on the schedule and directions to the Rush Ranch.

Please RSVP to the Cooperative Extension office by March 28; (707) 435-2801.

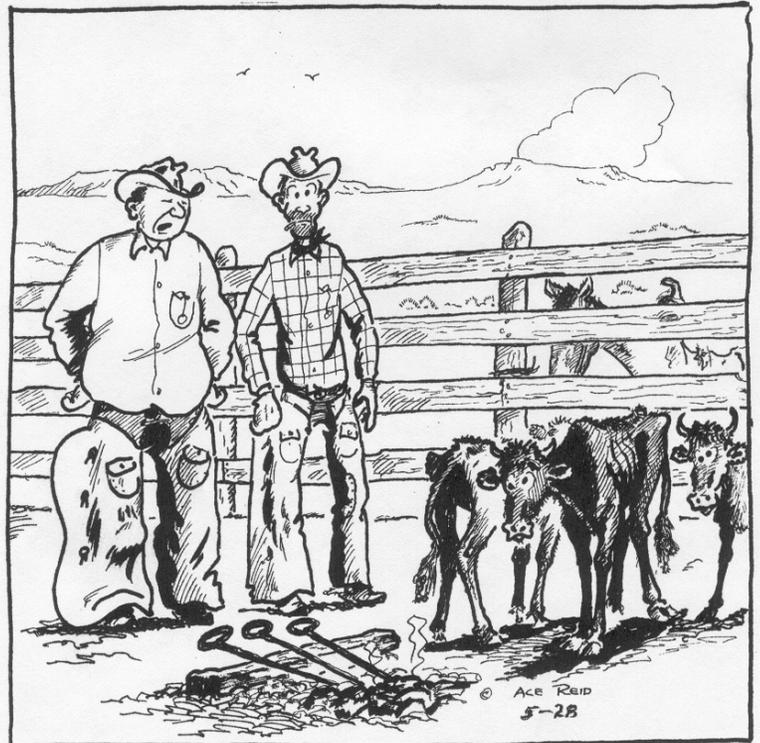
## MEDUSAHEAD CONTROL RESEARCH

According to the *Local Fodder* survey mudusahead (see Figure 1) is ranked as the #1 weed problem the area. This is no surprise given the extensive area covered by medusahead. Also, the use of Transline® has brought considerable control yellow starthistle, which was a close second to medusahead.

We at Cooperative Extension are beginning a set of research projects to investigate different methods of controlling medusahead. The methods we are testing include the use of a new herbicide (Plateau® - not yet registered in California), burning, intensive grazing, and revegetation with native and exotic forage grasses. We will test the methods individually and in combinations to give results of an integrated approach. We will keep you updated and we anticipate complete results within a few years.



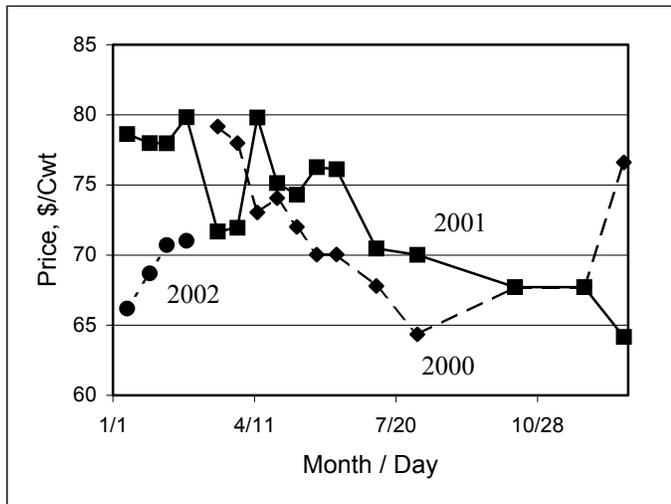
Figure 1.  
Appearance of medusahead inflorescence after the seeds have dropped.



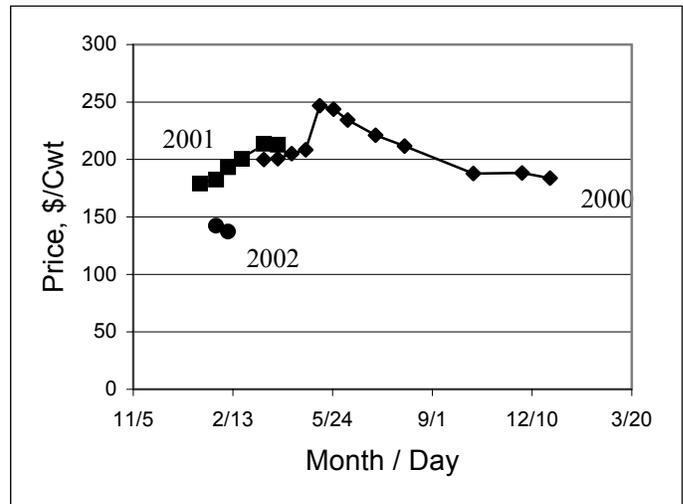
Now brand 'em easy fer as thin as they are you might brand right through 'em.

## MARKET TRENDS

*Live fed steer average prices.*



*Average price Lamb Cutout (65 Lbs. & Dn.).*



## PESTICIDE USE REPORTING

U.C. Cooperative Extension often advises producers on pesticide applications for insect and weed control, but we often overlook the important detail of reporting pesticide applications when used in the process of agriculture production.

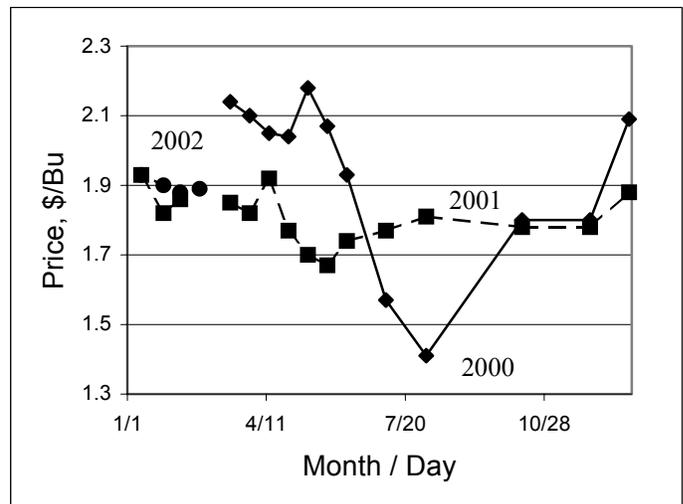
The Solano County Department of Agriculture has provided the following guidelines to help you know when to report pesticide applications. These guidelines are mandated by the state and are applicable in every county in California.

### Grower Responsibilities

A pesticide is any substance or mixture of substances intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest. These include herbicides, insecticides, rodenticides, fungicides, or any product that carries an EPA registration number. Pesticides include, but are not limited to, Roundup or any other nonrestricted material.

Grower responsibilities include obtaining an Operator Identification Number or a Restricted Materials Permit from the Agricultural Commissioner prior to purchasing or using any pesticides for the production of an agricultural commodity. Agricultural commodities include rangeland and pasture. All uses of any pesticide are to be reported to the Agricultural Commissioner by the 10<sup>th</sup> of the following month. Pesticides are to be

*Omaha corn prices.*



properly labeled, and attended or stored in a locked, posted enclosure. All records must be retained for 2 years.

If you have any questions, call your county Agricultural Commissioner's office.

Solano County	(707) 421-7465
Napa County	(707) 253-4357
Yolo County	(530) 666-8140
Sacramento County	(916) 875-6603

Morgan Doran  
Livestock & Natural Resources Farm Advisor  
mpdor@ucdavis.edu

# BEEF & RANGE FIELD DAY

UC Sierra Foothill Research & Extension Center

APRIL 18, 2002

## DRAFT AGENDA

Master of Ceremonies – Marc Horney, Livestock & Natural Resources Advisor, UCCE Colusa/Glenn/Tehama

- 9:00am      Registration (\$15 includes lunch & proceedings) – UC Davis Young Cattlemen (Sainz to confirm)
- 9:30am      Welcome – Mike Connor, Superintendent, UC-SFREC
- 9:35am      Diamond in the Rough (SFREC History) – Charles A. Raguse, Professor Emeritus, Agronomy & Range Science, UC Davis
- 9:45am      Niche Marketing – Roger Ingram, Farm & Livestock Advisor, UCEE Placer/Nevada Counties
- 10:00am     Experiences in Direct Marketing of Beef – Jim Gamble
- 10:20am     Direct Marketing Beef in Farmers' Markets – Tyler Dawley
- 10:40am     Chico State Experiences with Developing Alternative Marketing Programs – Dave Daley, Professor, Animal Science, CSU - Chico
- 11:00am     Alternative Markets Panel Discussion – Ingram, Gamble, Dawley, Daley
- 11:20am     Growing/Finishing Systems – Roberto D. Sainz, Assoc. Professor, Animal Science, UC Davis
- 12:00noon   **LUNCH – Tri-tip BBQ** served by Yuba-Sutter Cowbells & SFREC Staff. During Lunch: CCA Officers Industry Update
- 1:30pm      Ranch Biosecurity Considerations – John Maas, Veterinarian, Vet. Med. Extension, UC Davis
- 1:45pm      Forage Management and Strategic Supplementation Effects on Rebreeding and Weaning Weights – James Oltjen, Management Systems Specialist, Animal Science Dept., UC Davis
- 2:05pm      **Breakout Sessions** (Choice of two 20 min. sessions)  
Cattle Health – John Maas  
Feeding Rice Straw – Glenn Nader, Livestock & Natural Resources Advisor, UCCE Butte/Sutter/Yuba Counties  
Fenceline Weaning – Ed Price, Professor, Animal Science Dept., UC Davis

# Beef Producer Meeting

Date: March 20, 2002

Time: 8:30 a.m., coffee, doughnuts & introductions  
9:00 a.m., Pfizer Herd Health Presentation  
10:00 a.m., Johnes Disease Information Update  
12:00 a.m., lunch served (there is a free lunch)

Place: Cody's Deli, 314 Railroad Ave., Winters, CA

**Join Solano, Yolo & Mendocino County Cattlemen to discuss  
Johnes Disease and how it is affecting your herd management.**

Presented By: Randy Anderson, DVM CDFA  
David Ewey, DVM USDA  
John Maas, DVM UCD, Cooperative Extension

R.S.V.P. By March 18, 2002  
Berryessa Veterinary Services  
530-795-6090

Sponsored By:  
Pfizer Animal Health  
Berryessa Veterinary Services

CALENDAR OF EVENTS

Beef Producer Meeting - herd health and Johnes Disease  
Location: Cody's Deli, 314 Railroad Ave. in Winters; 8:30 AM—12 Noon  
Free; RSVP to Berryessa Veterinary Services by March 18, (530) 795-6090

Quality Assurance Program & Advanced Residue Avoidance for Beef Producers  
Location: Rush Ranch, located on Grizzly Island Road, 2 miles south of Hwy. 12 near Fairfield  
Free; RSVP to the Cooperative Extension office by March 28, (707) 435-2801

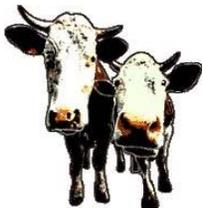
82nd Annual California Ram Sale  
Location: Hanford California  
For more information, contact the California Wool Grower Association (916) 444-8122  
or on the web at [www.woolgrowers.org](http://www.woolgrowers.org)

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COOPERATIVE EXTENSION  
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Local Fodder

March 2002

Si desea folletos en Español, llámame a teléfono 707-435-2459 o 530-666-8739, informame de su nombre y dirección de correo.