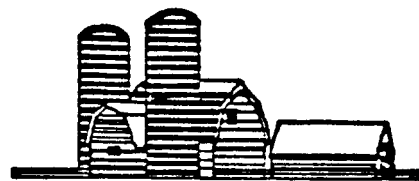


21st Century

Dairying



A dairy newsletter for Fresno and Madera Counties

May 2003

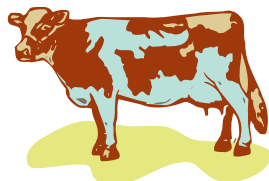
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Environmental Stewardship Shortcourse

For those who haven't attended the Environmental Stewardship Shortcourses that have been held in the past, here is your chance. Classes will be held May 20, 27 and June 3 at the Riverdale Memorial Hall, 3085 W. Mt. Whitney, Riverdale. Classes will be held from 10:00 a.m. - 12:00 noon. These classes will also be held on the same dates from 2:00 - 4:00 p.m. at the Tulare County Ag Building, 4437 S. Laspina, Tulare. These classes are part of the Environmental Stewardship Partnership which helps California dairy producers understand and meet federal, state, regional and local requirements for manure and water quality. In order to be certified, attendance is required at all three classes.

For the Riverdale meeting, please RSVP to the University of California Cooperative Extension office for Fresno County at 559-456-7285. For the Tulare meeting, RSVP to the University of California Cooperative Extension office for Tulare County at 559-685-3303.

If you've already attended some but not all classes and aren't sure what other classes you need to attend please call UCCE Dairy Farm Advisor Gerald Higginbotham at 559-456-7558 to see what classes you need to be fully certified.

Utilization of Rained-on Alfalfa Hay

The unusual wet weather this spring has caused many a headache for alfalfa growers. Cut hay that experiences baling delay due to rain, will loose feed quality in proportion to the length of time the hay lays in the field. Research from Michigan State shows that up to 4% of the dry matter yield will be lost for each day the hay remains laying in the field.

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Rain decreases the nutritional quality of hay by:

1. **Prolonging respiration losses.** Cells of cut forages are alive and functioning until the moisture of hay falls below about 45%. If rain delays drying and cells metabolize for extended periods, sugars in the plant will be depleted and forage quality will be lowered. Respiration will account for 2-8% of dry matter losses during ideal conditions but can reach losses of 15% during poor drying conditions.
2. **Leaching of the energy-rich, water soluble carbohydrates.** Leaching is influenced by type and maturity of forage and the amount and frequency of the rainfall. Bud stage alfalfa will undergo more leaching than full bloom hay due to lower soluble nutrients in mature plants. As shown in Figure 1, significant losses occur from leaching and leaf shatter, even in a light rainfall (1/4 inch). Reducing soluble carbohydrates will result in hay with higher percent fiber content.
3. **Increasing leaf shatter.** Leaf loss also is greater with increasing amounts of rainfall. One research study showed leaf loss increases from 7% with no rain to almost 18% after 2.5 inches. The combined losses from leaching, increased respiration, and leaf loss, increased from less than 10 % for hay that received no rain, to more than 50% for hay that received 2.5 inches.

If you are considering purchasing rain damaged hay due to price, consider the ramifications on milk production. High producing cows need high quality hay and rain damaged hay may not be suitable for maintaining high milk production.

Staph aureus Mastitis – Different Looks

John H. Kirk, DVM, MPVM
Extension Veterinarian
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Mastitis caused by *Staphylococcus aureus* can present the dairyman with several different looks. This fact was brought into focus by two recent mastitis histories. One represented a more sudden occurrence while the other had been going on for several years. Many cows were infected in both herds; however, the indications of infection were different. In the herd outbreak, the dairyman made a quick response while in the other long term situation; the dairyman had delayed action for a long time.

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The sudden outbreak happened in a herd of about 800 cows and represented new infections in a herd that had been relatively free of *Staph. aureus* mastitis. In this herd, the bulk tank count rose quickly to nearly 800,000 cells/ml over a period of a couple of months. During this time, more non-responsive, mild cases of mastitis were seen than normal. The creamery reported finding *Staph. aureus* in their routine bulk tank samples. As this dairyman worked in close association with a veterinarian with an interest in mastitis, a total herd culture was done to identify as many of the newly infected *Staph. aureus* cows as possible. The herd culture found more than 150 cows infected with *Staph. aureus*.

In the herd with a long term history of elevated bulk tank somatic cell counts, the bulk tank somatic cell counts ranged from 300,000 to 600,000 with the average of about 450,000 cells/ml. As the counts were generally below the action limit for the cooperative, no corrective action was suggested by the cooperative milk quality representative. On this dairy, there were repeated cases of mastitis with recurrence of mild clinical cases every 3-5 weeks in many of the same cows. Despite intramammary infusion with different antibiotics, signs of mastitis would soon occur again. As mastitis data was kept on a wall calendar, the actual numbers of repeated infections was not readily apparent. This dairyman utilized his veterinarian primarily for emergency situations and had not consulted with him for advice on the on-going mastitis situation. Identification of *Staph. aureus* as the causative bacteria followed the suggestion by the local University of California Cooperative Extension dairy advisor to take some milk samples for culture. Milk culture of the entire herd of about 350 milking cows revealed nearly 60 *Staph. aureus* infected cows.

In the herd with a sudden increase in bulk tank somatic cell count, the outbreak probably resulted from an introduction of *Staph. aureus*-infected cows into the herd. Or perhaps there was a smoldering infection that was allowed to flare up due to a sudden flaw in the milking technique or decreased attention to teat dipping. As most of the cows were not previously infected, their immune systems responded with a huge outpouring of somatic cells to fight these new infections. The result was a rapid increase in bulk tank somatic cell count reflecting the spread of infection to other cows.

The herd with the long-standing infection with *Staph. aureus* had long since past the acute stage of infections. While the mammary glands continued to respond to the infections, these chronic infections had reached a stage of equilibrium between the bacteria and defensive mechanisms. Thus the somatic cell response was sufficient to signal a continuing problem but not enough to trigger an action response from either the cooperative or the dairyman.

These two different situations tell a lot about the dairymen's interaction with their cooperative and veterinarians, but the point to be made here is that under different situations infections with *Staph. aureus* can be anticipated to give widely different bulk tank somatic cell count readings. This variation should be kept in mind when attempting to speculate about the cause of elevated bulk tank somatic cell counts or their causes.

In both of these herds, the veterinarians became totally involved in the mastitis problem. Total herd cultures revealed the extent of the infections within the herds for each dairyman. One herd intensified their efforts to monitor new infections and other began a monitoring program. They used frequent culture of the bulk tank milk as well as culturing all fresh cows and cows with clinical mastitis. Each dairyman renewed their efforts to provide complete teat coverage with a post-milking teat dip using dip cups rather than spraying. One herd began total dry cow antibiotic treatment. All the identified *Staph. aureus*-cows in both herds were put into separate milking strings and milked after all other cows.

These two dairymen will be able to recover from their current situations, however, it will take several years of concentrated effort on their parts. For the time being, they have some additional financial burdens in a time of low milk prices. Over the next year or two they will also be facing the need to market most of the *Staph. aureus* cows as these infections generally respond very poorly to antibiotic therapy. This will also be a financial loss equal to the difference in beef price and replacement price. This can be spread out over time to ease the impact. Hopefully they will be able to sustain their control and prevention efforts to overcome these *Staph. aureus* infections.

FDA Prohibits Extra-label Use of “Bute” in Certain Dairy Cattle

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The FDA has issued an order prohibiting the extra-label use of phenylbutazone, “Bute”, animal and human drugs in female dairy cattle 20 months of age or older. The FDA issued the order based on evidence that extra-label use of “Bute” in these dairy cattle will likely cause an adverse human event. Currently the drug is approved for oral and injectable use in dogs and horses. The use in horses is limited to use in horses not intended for food. No uses are currently approved for food-producing animals.

Recent investigations by FDA and similar state agencies have found “Bute” on dairy farms and identified tissue residues in marketed dairy cattle. The USDA Food Safety Inspection Service has reported residues in marketed dairy cattle present for slaughter for human food. They feel that this is evidence of the extra-label use of “Bute” in female dairy cows 20 months of age or older. They also think this use will result in residues in human food at toxic levels.

AMDUCA allows veterinarians to prescribe extra-label use of approved animal drugs and human drugs in animals. However, the FDA can specifically prohibit the use of certain drugs in animals when such use presents a risk to public health. Phenylbutazone became available for human use in 1949. However, it was removed from use when it became apparent that patients using the drug were experiencing severe toxic reactions and other less toxic drugs became available for treatment. Phenylbutazone is known to cause blood problems that may lead to death, hypersensitivity reactions, and cancer.

The FDA order will become effective on May 29, 2003 unless the FDA revokes or modifies the order or extends the comment period.

Other drug currently prohibited from extra-label use in food-producing animals are:

Chloramphenicol

Clenbuterol

Diethylstilbestrol (DES)

Dimetridazole

Ipronidazole and other nitroimidazoles

Furazolidone, nitrofurazone and other nitrofurans

Sulfonamide drugs in lactating dairy cows (except approved use of sulfadimethoxine,

Sulfabromomethazine, and sulfaethoxyridazine

Fluoroquinolones

Glycopeptides

New Insecticide Products for Control of House Flies

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Fly baits (or scatter baits) have been used by animal producers for many years to manage house flies as part of an integrated pest management program. At times of the year when house fly populations were high, these baits could be used to supplement the primary fly control techniques of sanitation and manure management. Fly baits were used by scattering the bait granules on the ground near animal pens and corrals or by placing them into bait stations.

Until recently, all fly baits registered for use in California were similar. All of the baits contained the fly killing chemical Methomyl and the fly pheromone attractant Muscalure to attract flies. Baits differed only in the size, shape, and color of the bait granules, and perhaps in the composition of feeding attractants added to the granular bait. Recent studies by University of California researchers have shown that house fly resistance to the Methomyl insecticide used in these products is very high in many house fly populations in California. This resistance may explain the failure of these Methomyl baits to kill house flies that has been noted by producers over the last 5-10 years.

Recognizing that the Methomyl baits were no longer performing as well as they had prior to the 1990's, it was clear that new chemical baits were needed. In response, two new fly bait products have become available in California. The two products are a fly bait strip called "QuickStrike" produced by Starbar and a granular fly bait called "QuickBayt" produced by Bayer Animal Health. Like other fly bait products, these new products contain the fly pheromone Muscalure as well as feeding attractants. What is new about these products is that they both use new chemical insecticides to kill houseflies. Both of these products can be purchased through local farm and feed stores.

QuickStrike is a bait strip with the fly bait material housed within a plastic strip frame. QuickStrike contains the fly killing chemical Nithiazine which offers a fast knockdown of flies that eat the bait. The bait strip can be placed near animal pens and corrals out of reach of the animals and is best placed low to the ground and near areas where flies already congregate.

QuickBayt is sold as a granular bait containing the fly killing chemical Imidacloprid (the same chemical used to control fleas on dogs). Imidacloprid also offers a fast knockdown of flies that eat the bait. QuickBayt can be scattered on the ground or placed into a bait station near animal pens and corrals. QuickBayt can also be mixed with water and painted onto surfaces to kill resting flies. Painted surfaces should be cleaned or repainted after 2-3 weeks to prevent flies from rapidly developing resistance to the Imidacloprid chemical. This granular bait is best used by scattering the bait on the ground in the vicinity of animal pens where flies tend to congregate.

Although these new products have not been tested by University of California researchers to ensure that they work, it is presumed that these new products will outperform the old Methomyl products as flies should not be resistant to the new chemicals. As with all chemical products, read the label prior to use and follow label instructions for use and storage. Also, please keep in mind that chemicals are the means of last resort for management of house fly. A proper sanitation and manure management program should ensure that house fly populations are kept low through most of the year.

¹Dr. Gerry is a newly hired extension veterinary entomologist at the University of California at Riverside. He specializes in the management of insect pests of confined livestock and in the control of insect and tick transmitted diseases of animals.

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