



# The Milk Lines



September 2003

## UC Cooperative Extension Resources for the Tulare County Dairy Industry

Nearly two years ago Tom Shultz, the UCCE Dairy Advisor for Tulare County, retired. State budget constraints have seriously set back attempts to refill the position despite the enormous need for an extension dairy program in the country's largest dairy county. In the time since the position has been vacant, a limited level of service for Tulare has been maintained with help from UC specialists and dairy advisors in neighboring counties.

Recently a more formalized effort was made to identify the most critical program needs for Tulare County and to determine how those of us remaining in Extension could most efficiently meet those needs. For starters, we will begin to send out the Milk Lines newsletter on a quarterly basis. The California Dairy Quality Assurance Program, administered by UCCE will continue to be made available locally. On-going UCCE research projects will also continue to involve Tulare County dairies. Several of us are available by telephone or email to help with questions that you may have. In some cases we can make farm calls to your dairy, although this may be limited by our time and travel resources (we are all having to do more with less these days...). You might also find answers to questions by visiting our websites. Carol Collar, Jerry Higginbotham and John Kirk all have dairy expertise. Carol Frate and Steve Wright have expertise in forage crop production and use of dairy nutrients in growing those crops. We have all agreed to work together as a team to do our best to serve your needs. Following is information about how to contact us.

### UCCE Dairy Advisors:

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### VMTRC Specialist:

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### Tulare County Agronomy Farm Advisors:

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## Can Your Herd Benefit from a Shorter Dry Period?<sup>1</sup>

G.E. Higginbotham, Ph.D.  
Dairy Advisor, Fresno/Madera Counties  
UC Cooperative Extension

The average dry period based on California DHIA 2002 statistics is 67 days long. Recent research suggests that shortening the dry period from 60 to 40 days may be more profitable. Dairy herds may be able to gain an additional 27 days of milk income, which in these times sounds appealing.

The current industry recommendation is for a 51 to 60 day dry period. This standard has not changed or been challenged with planned cow experiments for decades. Why? In fact, this recommendation was never based on planned cow experiments in which dry periods of different lengths were assigned to cows at random to determine their effect on subsequent milk production. Instead, the recommendations came largely from analysis of accumulated production records. It is important to realize that most cows that had short dry periods within those records were not assigned at random to have short dry periods. Instead, the short dry period category is comprised primarily of a self-selected population of cows that freshened earlier than expected, for whatever reason.

Milk production subsequent to unplanned short dry periods is likely to be less than production which follows planned short dry periods. When it's planned, the dairy farmer manages the cow to best prepare her to transition into a profitable lactation by monitoring her body condition and providing a close-up ration to meet her requirements. Without planned experiments to test short vs. standard dry periods, we don't have a sound basis to say that the current recommendations are best.

University of Florida researchers have conducted trials where they evaluated shorter dry periods. The studies were small, but telling. One study, conducted on a commercial Florida dairy, indicated that 15 cows with 34-day dry periods produced 20,077 lbs 305d ME while their 19 herdmates with 57-day dry periods

produced 19,771 lbs. Ten cows in the UF/IFAS Dairy Research Unit herd produced 24,268 lbs after 32 days dry while 9 herdmates with 61 days dry produced 23,212 lbs. The short dry periods included no special treatment or medications.

One more thing to consider if you'd like to try 40-day dry periods on your dairy: Based on the evaluation of milk production records, the negative impact of a 31 to 40 day versus a 51 to 60 day dry period on actual 305 d lactation production has been estimated to be about a 4% decrease in subsequent milk yield. Assuming that this 4% value is correct for a present-day cow and management scenario that supports 22,000 lbs of milk production, the total milk production for two consecutive lactations would be unchanged if cows were kept in milk for an additional 20 days to produce the 880 lbs of saleable milk that will be lost in the ensuing lactation as a result of decreasing the preceding dry period by 20 days. Either with or without the use of bST, this level of production in late lactation, 44 lbs/day, is achievable by cows that produce 22,000 lbs milk during a 305 d lactation. Therefore, when parlor pressure does not exist, shorter dry periods can be profitable if milk income per day of continued milking exceeds the difference in the daily variable costs assigned to a cow when she is being managed in the lactating herd instead of the non-lactating herd. Accurate diagnosis of pregnancy is needed to calculate the expected calving date.

Dr. Mike Overton from the Tulare VMTRC and I are currently developing an experimental protocol for conducting a comparison of 40 and 60 day dry periods on cooperating dairies. Previous trials such as in Florida were conducted with small numbers of cows. Larger numbers are needed to further substantiate the benefits of a planned short dry period. If you would like your herd to be considered for such a trial please feel free to give me a call at 559-456-7558. You must be on DC305 or DHI Plus for Windows in order to collect the needed data for the trial.

<sup>1</sup>Adapted from University of Florida Dairy Newsletter, Winter 2002. A 40-day dry period right now! K.C. Bachman

## **Dairy Herdsman Shortcourse**

We are once again offering the Dairy Herdsman Shortcourse. It will be held October 28-30, 2003, at the CSU-Chico Agriculture Teaching and Research Center. Registration materials are available at the UCCE Tulare Co website <http://cetulare.ucdavis.edu>. If you need further information, please feel free to give Jerry Higginbotham a call at 559-456-7558.

### **Assessing Your Johnes Disease Risk**

**John H. Kirk, DVM, MPVM,  
Extension Veterinarian, VMTRC, Tulare**

Johnes Disease exists in California livestock. It's a fact. The health and economic impacts of Johnes Disease are probably much less in California than in the Midwest or eastern dairy herd. Nevertheless, there is some impact. There are two steps that each California dairyman should take regarding Johnes Disease. The initial step is to become well informed about Johnes and the follow-up step is to have your veterinarian do a Johnes risk assessment for your dairy.

Over 150 California veterinarians have been trained and certified by CDFA and USDA veterinary medical officers using educational materials developed by the California Johnes Disease Advisory Committee, a module in the California Dairy Quality Assurance Program. These veterinarians have the interest, know-how, and materials to provide you with the latest information on prevention and control of this disease. Information in the educational phase of the California Johnes Control Program is California-specific and can be readily applied to your dairy. Contact your local veterinarian to arrange for a presentation in your area.

Once you have completed the educational phase of the California Johnes Control Program, you will have the knowledge necessary to have a risk assessment done by your veterinarian. This assessment will cover all areas of Johnes Disease. When finished, you and your veterinarian will know the strong and weak points for prevention and control of Johnes specifically for your dairy. You can

begin to improve those areas that will have the greatest impact on Johnes Disease.

You can also have your risk assessment reviewed by the California Johnes Disease Epidemiologist, Dr. Randy Anderson. He can be contacted at the CDFA Animal Health Branch in Modesto at 209-491-9350. Dr. Anderson also has a list of veterinarians that have completed the Johnes Disease certification program. You can contact Dr. Anderson to get names of certified veterinarians in your area.

You may not feel that Johnes Disease has an important impact on your dairy at this time. However if you continue to avoid the issue, you may be allowing a relatively silent but destructive disease to creep through your herd. Begin now by becoming knowledgeable about Johnes Disease and follow up by completing the herd assessment. These steps could prevent a serious disease outbreak on your dairy in the future. You have seen the oil change ad on TV....pay me now; or pay me later! It is strongly suggested that you pay a little now to prevent paying a lot later. This philosophy also applies to Johnes Disease. Check it out with your veterinarian.....now.

### **Chlorhexidine Not Recommended To Halt Lactation of Chronically Infected Quarters**

**John H. Kirk, DVM, MPVM,  
Extension Veterinarian, VMTRC, Tulare**

Chlorhexidine (Nolvasan), along with several other solutions, has been recommended to halt milk flow in quarters of dairy cows that have been chronically infected and non-responsive to antibiotic therapy. The usual recommendation is to infuse the infected quarter with one gram of chlorhexidine after milking and repeat the infusion in 24 hours. After the infusions, the quarter is not milked for the remaining of the lactation.

A recent report<sup>1</sup> suggests that there is a danger of inhibitory residue in milk and a potential, but minimal, risk to human health. In this study, 6 cows were infused with chlorhexidine in a single infected quarter. The remaining 3 quarters were milked for another 42 days. Milk

samples were periodically taken from all 4 quarters (treated and controls) for analysis of chlorhexidine concentrations for 8 days in three cows and 42 days in three other cows. Chlorhexidine could be detected in all treated quarters for up to 42 days following the infusions. It was also detected in milk from some of the untreated quarters.

The report indicates that the half-life of chlorhexidine in milk from treated quarters is about 11.5 days. This means that 11 days after infusion, the concentration in the milk will have dropped to about half its original concentration. It is not precisely known at what level the residual might be detected as an inhibitory substance by testing at the milk cooperative. However, two potential situations might result in a detectable residue. First, the treated quarter could be mistakenly milked into the bulk tank milk. Or, enough residue might appear in the untreated quarters to become detectable. The research also points out that the treated quarters were milked in order to determine the chlorhexidine concentration. On the dairy, the quarter would not be milked. Therefore, the concentration might remain higher in the un-milked quarter and present a greater risk if it were milked accidentally.

In summary, on the basis of their study, these researchers recommend that chlorhexidine not be used to stop milking of infected quarters in dairy cows. At the very least, when chlorhexidine is used for this purpose, the cow and the quarter should be clearly marked to prevent milking. Veterinarians recommending this extra-label treatment are responsible for recommending residue avoidance information to the dairyman. Dairyman should seek the advice of their herd veterinarian prior to treatment.

<sup>1</sup>Middleton JR, Herbert VR, Fox LK et al. Elimination kinetics of chlorhexidine in milk following intramammary infusion to stop lactation in mastitic mammary gland quarters of cows. JAVMA 222(12); 1746-1749, 2003.

## What Do We Know About Stray Voltage?<sup>1</sup>

Adapted from an article by:  
Douglas I. Reinemann, Ph.D.  
Professor of Biological Systems Engineering  
University of Wisconsin, Madison, Wisconsin

You may have read some recent articles containing confusing or conflicting opinions on the effects of “stray voltage” or other forms of electrical exposures on cows. Some people are very concerned about the possible effects of electricity on their cows and themselves. Dr. Reinemann from the University of Wisconsin, has investigated these concerns. The article below presents a brief summary of research on this topic. The short answer is that animals will be affected if voltage and current exposure levels get high enough; however there is a threshold level below which no harm will occur.

Studies done at the University of Wisconsin are only a small part of the long history of research on this topic. Studies on cows began over 40 years ago while studies on humans date back more than 100 years. These studies by hundreds of independent research groups in many countries have given us a very good understanding of the way that electricity affects living organisms and the levels of electrical exposure that can be problematic to cows. A summary of research on farm animals can be found on the web sites [www.mrec.org](http://www.mrec.org) and [www.uwex.edu/uwmril](http://www.uwex.edu/uwmril).

Here are some of the notable findings:

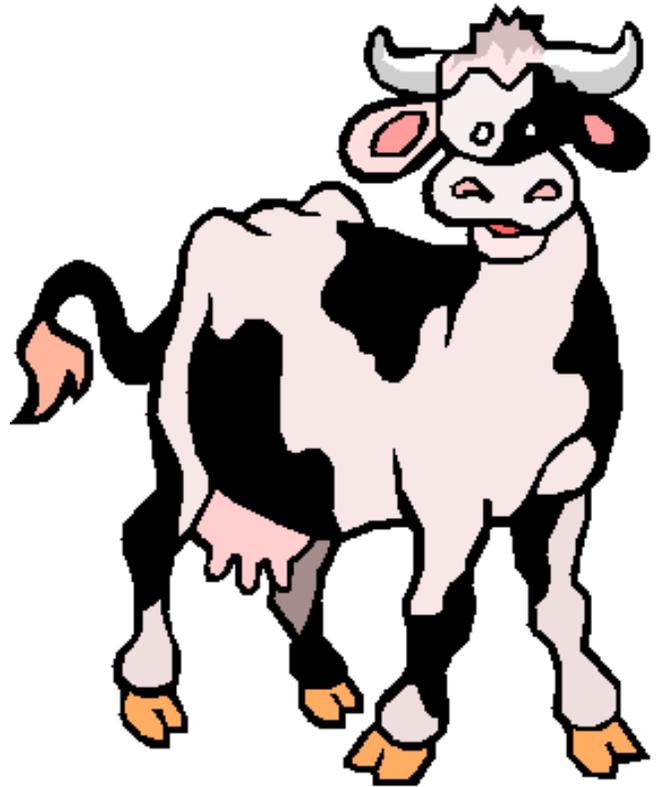
- The first study of the effects of stray voltage on cows was published in New Zealand in 1962. It was concluded that **3 volts** (60 Hz rms) would be a likely minimum level for response.
- A review conducted by 15 scientists and published by the USDA in 1991 concluded that exposure levels should be kept below **2 -4 volts** (60 Hz rms) to prevent adverse responses.
- Research in the past 10 years has shown that high frequency events require much higher voltage and current exposure levels to elicit the same response as 60 Hz voltage and current.

- The state of Minnesota commissioned a 4 year, \$4 million study by a team of 8 national experts who concluded “*We have not found credible scientific evidence to verify the specific claim that currents in the earth or associated electrical parameters such as voltages, magnetic fields and electric fields, are causes of poor health and milk production in dairy herds.*”
- The Attorney General of the State of Michigan conducted a lengthy investigation of concerns about ground currents, created by utility grounding. An administrative law judge ruled that the complaint be dismissed because there was no evidence that a “stray voltage” problem resulted from the practice of grounding electrical distribution systems.

Wisconsin has established **1 volt** of stray voltage in areas where there is cow contact (or 2 milliamps of 60 Hz current flowing through a cow) as its regulatory standard. The research clearly supports this as a safe exposure limit. This standard is meant to apply to 60 Hz voltages and currents carried by ground and neutral wires. The voltage and current exposure produced by “ground currents” are typically 100 to 1000 times lower than this level.

Wisconsin has had the most aggressive program of any state in the nation to deal with the stray voltage concerns of the public. Stray voltage is not a mystery. We know how to measure it and we know how to reduce it. If you have a concern about electrical exposures on your farm request a measurement of cow exposure levels from your utility company. Make sure your farm wiring and the utility wiring meets electrical safety codes and exposure guidelines. Always remember to keep yourself and your animals safe. Never compromise the safety of your farm’s electrical system in an attempt to reduce electrical exposure levels.

<sup>1</sup>*Udder Topics, National Mastitis Council, Vol. 26, No. 3, June 2003*



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