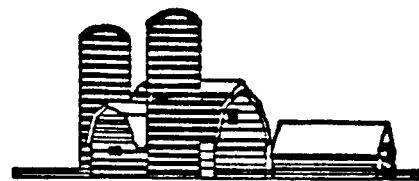




21st Century
Dairying



A dairy newsletter for Fresno and Madera Counties

MARCH 2004

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If you would like to get this newsletter electronically, please go to our website <http://cefresno.ucdavis.edu>. Click on Agriculture & Natural Resources. Under "Programs" click on Dairy, then click on 21st Century Dairying and type in your email address. If you would like to quit getting the mailed version, please contact our office at 559-456-7285.

Dairy Herdsman Shortcourse

The next Dairy Herdsman shortcourse sponsored by the University of California Cooperative Extension Service will be held May 4-6, 2004 in Chino, CA at the Chino Fairgrounds facility. To view the agenda and registration materials you will need to go back to Main Menu, click on "calendar" and choose the event "Dairy Herdsman Shortcourse", click on Agenda. Registration materials are included in the brochure.

Because attendance is limited to 40, please register early. A list of motels in proximity to the fairgrounds is available upon request. If you need further information please feel free to give Gerald Higginbotham a call at 559-456-7558 or Nyles Peterson, Dairy Advisor, San Bernadino Co. at 909-387-3318.

"On Farm" Livestock Euthanasia

A CD describing the reasons for livestock euthanasia and how to correctly and humanely euthanized livestock on the farm has been developed by the Veterinary Medicine Teaching and Research Center under the directions of Dr. Jim Cullor. The information can be viewed on the internet at the following location:

www.vmtrc.ucdavis.edu

Once on the website, click on the section "On Farm" Livestock Euthanasia in the lower left-hand corner of the homepage. On the introductory page, instructions are given for viewing the information in English or Spanish. This page also tells how to order a CD.

The CD with both English and Spanish versions can be order from the VMTRC. The cost is \$22.50 and can be paid by check made out to "UC Regents". Send the check to: VMTRC, Attn: Rhonda Roche, 18830 Road 112, Tulare, CA 93274.

For questions about the CD call the VMTRC at 559-688-1731.

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Effect of Clinical Mastitis on Production and Reproduction¹

John H. Kirk, DVM, MPVM

Extension Veterinarian
University of California Davis
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Mastitis has been reported to have a negative effect on both production and reproduction in dairy cattle. A recent farm trial on two large, high producing central California dairies confirms these previous findings. The study included 1001 Holstein dairy cows on two commercial dairies. On these two dairies, data was retrieved from the DairyComp 305 records to determine the date of their first case of clinical mastitis and AI breeding dates. Four groups of cows were studied from calving through the first 320 days of milking. The first group (C, controls, 501 cows) had no recorded cases of clinical mastitis during their lactation. The second group (MG1, 250 cows) had their first cases of clinical mastitis prior to the first AI breeding. The third group (MG2, 147 cows) had their first AI breeding and being diagnosed pregnant. The final group (MG3, 103 cows) had their first case of clinical mastitis after they were diagnosed pregnant. The distribution of cows by lactation and previous production was similar between the four groups.

In these two herds, the milkers check for abnormal milk or swelling of the udder at each milking. When the milkers detected clinical mastitis, they collected a sterile milk sample from the cow for culture to identify the causative bacteria. The common bacteria found in the milk samples from cows with clinical mastitis were environmental Streps (115, 23%), coliforms (75, 15%) and coagulase-negative Staphs (26, 5%). The most common finding was “no growth” (263, 52%). In most cases, the “no growths” are assumed to be coliforms. Most of the clinical cases occurred in the MG1 cows (250) followed by the MG2 cows (147) and MG3 cows (103). The distribution between the groups was similar in terms of culture results. Eight cows found with mycoplasma and 16 cows with Staph aureus were excluded from the study as they were immediately sent to market. The type of bacteria causing the mastitis did not affect the reproductive performance.

As is well known, clinical mastitis will result in increased somatic cell counts. In this study, this effect of increased somatic cell counts was seen for all three groups with clinical mastitis compared to the control group. The earlier the occurrence of clinical mastitis in the lactation, the quicker the increase in somatic cell counts were seen. Because of this trend, the MG3 cows with mastitis after pregnancy diagnosis had a similar pattern of somatic cells to the controls with clinical mastitis. More cows with clinical mastitis also left the herd compared to the controls without mastitis and they also left the herd earlier than the controls.

The cows in the control group (C, 80.3 lbs/day) and those with clinical cases after pregnancy diagnosis (MG3, 81.8 lbs/day) had similar milk yields. By comparison, the groups that had clinical mastitis earlier in lactation had reduced milk yields (MG1, 75.5 lbs/day; MG2, 77.2 lbs/day). It appears that the earlier in lactation the first case of clinical mastitis occurs, the greater the negative effect on production. Overall, the milk components were not significantly affected by clinical mastitis.

Days to first service were similar for all four groups of cows. However, cows that had a case of clinical mastitis prior to their first breeding had an extended interval from calving to first AI. The conception rates were similar between the controls and MG3 cows. The cows that had mastitis prior to pregnancy diagnosis had decreased conception rates compared to the controls. The greatest effect was seen in the MG2 cows that had the first clinical case of mastitis between AI and pregnancy diagnosis. The result at 320 DIM was that more cows were pregnancy in the controls and MG3 groups compared to the MG1 and MG2 groups. There was an increase in abortions in all the groups with clinical mastitis compared to the controls, but the increase was similar in all three groups.

The overall conclusion is that clinical mastitis reduces cow performance in terms of production and reproduction. The negative effect is greatest on those cows having mastitis early in lactation. Mastitis also increases culling rate and marketed cows leave the herd earlier than cows without mastitis. Control of mastitis early in lactation is based on total dry cow antibiotic treatment and continuous efforts to provide clean dry bedding for dry cows and cows in the calving areas.

¹Santos JEP, Cerri RLA, Ballou MA, Higginbotham GE and Kirk JH. Effect of timing of first clinical mastitis occurrence on lactational and reproductive performance of Holstein dairy cows. *Animal Reproduction Sci* 80: 31-45, 2004.

Effects of Milking Heifers Prior to Calving on Udder Health and Production¹

John H. Kirk, DVM, MPVM

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Heifers calving for the first time are more likely to develop udder edema and this often leads to mastitis. Previous studies have shown that milking heifers during the last two weeks of pregnancy before they calve may reduce subclinical mastitis and new intramammary infections during early lactation. Early milking also tends to get the heifers acclimated to the milking procedure and reduces stress at calving. In a recent California trial, 280 pregnant heifers were randomly assigned to one of two treatment groups. Half of the group was milked three times a day beginning 15 days prior to their anticipated calving date. The other group began milking three times a day as they calved. Both groups were followed for 135 days after they calved. After calving, all heifers were housed in the same free stall barn. During the entire study period, all heifers received the same total mixed ration. They received BST beginning 60-67 days after calving. Milk yields and reproductive parameters were collected from official, monthly DHIA tests.

On the first or second day when the pre-partum milking began, aseptic, 4-quarter composite milk samples from each heifer were taken for culture. After calving, a milk sample was collected for culture from all heifers in both groups. A final sample was collected 28 days after calving. The extent of udder edema was estimated by measuring the floor surface area of the udder within 60 hours after calving. This was done by pressing sheets of paper against the teat end just prior to and after milking. The area surrounded by the four teat dots was calculated and compared for the two estimations. The extent of edema was also assessed by digital impression done weekly from 3 week before until 3 weeks after calving. All cows were examined rectally on day 23 after calving to assess uterine health.

The average days from assignment to one of the two groups until calving was the same for both groups (pre-partum milking, 15.1 days; controls, 14.9 days). The unit on-time during the pre-partum milking varied from 2.7 minutes at the beginning to 4.8 minutes shortly before calving. Milking the heifers before calving resulted in decreased udder edema as measured by the increased reduction in udder area (control, 33.5%; milked, 43.0%) as well as the percent reductions (control, 16.9%; milked, 23.9%). Heifers milked prior to calving also had less udder edema as assessed by the digital impression during both the pre- and post-calving examinations.

Interestingly, 81% of the milk samples taken approximately 15 days before calving were positive for bacteria. At the first milk culture shortly after calving, there was less mastitis in the pre-partum milked heifers (50%) compared to the control heifers (66.4%). By day 28 of lactation, the milk samples taken from the pre-partum heifers had 49.2% bacterial growth compared to 58.6% for the control heifers. The predominated bacterial isolates were coagulase-negative Staphylococci. Likewise, the somatic cell counts of the heifers milked prior to calving was significantly lower (197 cells/ml) than the controls (445 cells/ml). The heifers that were milked prior to calving had a lower incidence of mastitis, cases occurred later in lactation, and had fewer cases of mastitis per cow compared to the controls that were milked beginning at calving.

(continued on Page 4)

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The heifers that were milked prior to calving produced more milk during the first 135 days of lactation than the heifers that were milked beginning at calving. The pre-partum milked heifers produced more milk per day (3.7 lbs/day) than the control heifers. There were indications that this advantage in milk production continued throughout the lactation beyond the first 135 days.

There was no difference in the findings from the examination of the reproductive tracts at 23 days post partum. The health of the heifers milked prior to calving was similar to that of the heifers that were milked beginning at calving. Parameters that were studied were fever after calving, ketosis, LDA, lameness, culling and mortality. The results of all of these study parameters indicate that heifers milked pre-partum are no more likely to leave the herd for health reasons than other heifers.

The conclusions of the study are that pre-partum milking of dairy heifers beginning 15 days prior to the anticipated calving will reduce udder edema and the negative effects that accompany udder edema. In addition, pre-partum milking has a positive effect on somatic cell counts and clinical mastitis. It may also result in increased milk production without ill effects on general and uterine post partum health.

¹Santos JEP, Cerri RLA, Kirk JH, Juchem SO, Villasenor M. Effects of prepartum milking of primigravid cows on mammary gland health and lactation performance. *Livestock Production Sci* 86: 105-116, 2004.

43RD ANNUAL DAIRY CATTLE DAY

**University of California
Department of Animal Science**

**Tuesday, March 23, 2004
Stanislaus Agricultural Center
3800 Cornucopia Way, Harvest Hall
Modesto, CA**

Morning Session:

- 8:45 a.m. Registration
- 9:20 a.m. Welcome - G.B. Anderson, Chair, Department of Animal Science, UC Davis
- 9:30-9:50 Regulatory update on food safety and environmental issues. Michael Payne, Program Director, CA Dairy Quality Assurance Program, Department of Environmental Toxicology, UC Davis.
- 9:55-10:15 Triple cropping in California, Marsha Campbell Mathews, Farm Advisor, UC Cooperative Extension, Stanislaus County.
- 10:20-10:40 Lagoon oxygenation - is it beneficial? Frank Mitloehner, CE Specialist, UC Davis.
- 10:45-11:00 Graduate Student presentations
- 11:00-11:30 BREAK
- 11:35-11:45 Introducing: Alison Van Eenennaam, CE Specialist, UC Davis.
- 11:50-12:10 Experiences in reduced tillage in silage corn. Carol Frate, Farm Advisor, UC Cooperative Extension, Tulare County.

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12:15-12:35 Role of dairy foods in individualized diets of consumers. Joseph O'Donnell, Executive Director, California Dairy Research Foundation, CMAB, Davis.

12:40-1:00 Manipulating ovarian cycles to improve reproductive performance of dairy cows.
Jose Santos, UC Davis, VMTRC, Tulare

1:00-2:00 **LUNCH BREAK**

AFTERNOON SESSIONS

2:30 p.m. Demonstrations

- Hoof care - Steven Berry, CE Specialist, UC Davis
- Ultrasound for reproduction - Ronaldo Cerri & Jose Santos, VMTRC, Tulare
- Urine sampling & links to air quality - Sergio Burgos & Peter Robinson, UC Davis

3:30 p.m. **Adjourn**

REGISTRATION FEE: \$25.00 LUNCH \$5.00

Information: Ed DePeters, Department of Animal Science (ejdepeters@ucdavis.edu)
(530) 752-1263/1250, <http://animalscience.ucdavis.edu/events/dairycattleday>

Directions

From NORTH (takes less than five minutes from freeway to Agricultural Center):

- Take Highway 99 South, to Crows Landing Road exit
- Go right on Crows Landing Road
- Office is on the North East corner of Service and Crows Landing
- Watch for the Stanislaus Agricultural Center complex, to the left
- If you get to Service Road, you have gone too far
- Parking is off driveway, Cornucopia Way
- Park in Visitors Parking

From SOUTH (takes less than five minutes from freeway to Agricultural Center):

- Take Highway 99 North, to Mitchell Road exit
- At the first light, you will turn left onto Service Road
- Office is on the North East corner of Service and Crows Landing Roads
- there is an unmarked entrance to complex, on your right, from Service Road
- If you miss that, turn right onto Crows Landing Road
- Make the first right, at the Stanislaus Agricultural Center
- Parking is off the complex driveway, Cornucopia Way
- Park in Visitors parking

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21ST CENTURY DAIRYING

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