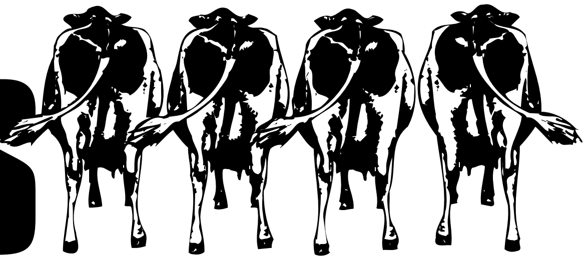
October 2000

# Dairy Lines



Volume 6, Number 10

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**Upcoming Events**

K-State Dairy Days
*See schedule at right.*

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DAIRY RESEARCH & EXTENSION NEWS
http://www.oznet.ksu.edu/dp_ansi/dairylin.htm

## Evaluation of the California Mastitis test for screening

***J.M. Sargent, K.E. Leslie, J.E. Shirley, M.E. Sheffel, G.H. Lim, and B.J. Pulkrabek. Kansas State Univeristy, Manhattan. University of Guelph, Ontario, Canada.***

Monitoring the prevalence of subclinical intramammary infection status at calving, and the specific pathogens involved, allows evaluation of the effectiveness of dry cow programs. However, culturing milk of all cows at the time of calving can be expensive and has not been widely adopted. The California mastitis test (CMT) has not been recommended for use in recently fresh cows. The objective of the present study was to examine the use of CMT for selecting quarters in fresh cows (n = 131) for bacterial examination. Quarter milk samples were collected for standard bacteriological culture on days 1 and 3 post-calving. A positive quarter was defined as one with a bacterial mastitis pathogen present at either day 1 or day 3 post-calving. California mastitis tests were performed at cow side on each quarter at the morning milking on days 1 through 10 post-calving. Quarters were scored as negative, 1, 2, or 3, as per manufacturer's recommendations. Intramammary infections were present in 36% of quarters. Quarters with intramammary infections had a higher mean CMT score throughout the first 10 days post-calving. The sensitivity of CMT for identifying positive quarters was highest when a positive CMT was defined as a score of 1 or greater. Using this criterion,

*continued on page 3*

## Kansas Dairy Days set in four locations

K-State Dairy Days 2000 will take place in November in four locations. Reserve your spot by contacting the county agent listed, and join us for one of these sessions:

**November 9**
3–8 p.m.
Garden City 4-H Building
Dean Whitehill, (316) 272-3670

**November 15**
10 a.m.–2:30 p.m.
Seneca, Valentino's
David Key, (785) 336-2184

**November 16**
10 a.m.–2:30 p.m.
Whiteside Amish Community Bldg.
Greg McCormack, (316) 662-2371

**November 17**
10 a.m.–2:30 p.m.
Emporia American Legion Post
Brian Creager, (316) 341-3220

Meals sponsored by the Kansas Dairy Association. Topics:

*Milk Quality from the Processor's Point of View*, Karen Schmidt;

*Mastitis Management–Effective Methods to Reduce Somatic Cell Count*s, Mike Brouk and John Smith;

*Important Silage Practices Often Over-looked*, Keith Bolsen, Mary Kay Siefers and Estela Uriarte; and

*Update of Nutritional Research at K-State*, John E. Shirley.

## Heart of America Dairy Herd Improvement Summary (August)

| | Quartiles 1 | 2 | 3 | 4 | Your Herd |
|---|---|---|---|---|---|
| **Ayrshire** | | | | | |
| Rolling Herd Average | 19,824 | 15,815 | 14,732 | 13,260 | |
| Summit Milk Yield 1st | 63.0 | 29.0 | 53.0 | 47.0 | |
| Summit Milk Yield 2nd | 87.0 | 64.5 | 68.0 | 53.5 | |
| Summit Milk Yield 3rd | 90.0 | 36.0 | 73.0 | 64.0 | |
| Summit Milk Yield Avg. | 79.0 | 68.0 | 64.0 | 58.0 | |
| Income/Feed Cost | 1,710 | 1,299 | 736 | 1,052 | |
| SCC Average | 231 | 68 | 146 | 268 | |
| Days to 1st Service | 80 | 70 | 72 | 54 | |
| Days Open | 122 | 182 | 124 | 123 | |
| Projected Calving Interval | 13.2 | 15.2 | 13.3 | 13.2 | |
| **Brown Swiss** | | | | | |
| Rolling Herd Average | 19,764 | 16,625 | 15,085 | 13,692 | |
| Summit Milk Yield 1st | 62.1 | 55.2 | 50.8 | 44.1 | |
| Summit Milk Yield 2nd | 77.1 | 65.4 | 67.1 | 59.2 | |
| Summit Milk Yield 3rd | 85.8 | 73.8 | 69.0 | 63.8 | |
| Summit Milk Yield Avg. | 74.1 | 64.8 | 63.0 | 58.2 | |
| Income/Feed Cost | 1,572 | 1,279 | 1,149 | 906.5 | |
| SCC Average | 411 | 368 | 261 | 277 | |
| Days to 1st Service | 72 | 133 | 91 | 78 | |
| Days Open | 199 | 167 | 158 | 212 | |
| Projected Calving Interval | 15.7 | 14.7 | 14.4 | 16.1 | |
| **Guernsey** | | | | | |
| Rolling Herd Average | 15,603 | 14,127 | 13,203 | 12,015 | |
| Summit Milk Yield 1st | 50.5 | 46.5 | 48.5 | 41.5 | |
| Summit Milk Yield 2nd | 67.5 | 58.5 | 58.5 | 50.0 | |
| Summit Milk Yield 3rd | 69.5 | 58.5 | 63.0 | 54.0 | |
| Summit Milk Yield Avg. | 61.0 | 55.5 | 56.5 | 47.5 | |
| Income/Feed Cost | 1,014 | 1,350 | 1,006 | 879.5 | |
| SCC Average | 618 | 286 | 372 | 351 | |
| Days to 1st Service | 39 | 88 | 112 | 69 | |
| Days Open | 204 | 158 | 185 | 212 | |
| Projected Calving Interval | 15.9 | 14.4 | 15.3 | 16.2 | |
| **Holstein** | | | | | |
| Rolling Herd Average | 23,333 | 20,210 | 17,914 | 1,4640 | |
| Summit Milk Yield 1st | 73.8 | 66.5 | 60.7 | 51.7 | |
| Summit Milk Yield 2nd | 94.3 | 83.7 | 74.8 | 64.1 | |
| Summit Milk Yield 3rd | 100 | 89.5 | 80.6 | 69.0 | |
| Summit Milk Yield Avg. | 87.7 | 79.2 | 72.5 | 62.6 | |
| Income/Feed Cost | 1,821 | 1,509 | 1,265 | 984 | |
| SCC Average | 347 | 373 | 386 | 499 | |
| Days to 1st Service | 92 | 92 | 89 | 95 | |
| Days Open | 162 | 171 | 178 | 199 | |
| Projected Calving Interval | 14.5 | 14.8 | 15.0 | 15.7 | |
| **Jersey** | | | | | |
| Rolling Herd Average | 17,114 | 15,068 | 13,547 | 11,423 | |
| Summit Milk Yield 1st | 55.4 | 50.1 | 45.6 | 42.8 | |
| Summit Milk Yield 2nd | 58.4 | 64.2 | 60.0 | 49.5 | |
| Summit Milk Yield 3rd | 73.6 | 66.3 | 58.8 | 52.1 | |
| Summit Milk Yield Avg. | 64.8 | 59.3 | 54.8 | 48.8 | |
| Income/Feed Cost | 1,641 | 1,457 | 1,226 | 781 | |
| SCC Average | 277 | 344 | 360 | 438 | |
| Days to 1st Service | 95 | 102 | 96 | 81 | |
| Days Open | 139 | 139 | 130 | 137 | |
| Projected Calving Interval | 13.8 | 13.8 | 13.5 | 13.7 | |
| **Milking Shorthorn** | | | | | |
| Rolling Herd Average | 14,998 | 14,952 | 13,710 | 10,846 | |
| Summit Milk Yield 1st | 52.0 | 48.0 | 50.0 | 21.5 | |
| Summit Milk Yield 2nd | 72.0 | 61.0 | 59.0 | 49.0 | |
| Summit Milk Yield 3rd | 76.0 | 69.0 | 69.0 | 56.0 | |
| Summit Milk Yield Avg. | 66.0 | 61.0 | 60.0 | 54.0 | |
| Income/Feed Cost | 1,470 | 1,159 | 1,088 | 701 | |
| SCC Average | 358 | 289 | 217 | 274 | |
| Days to 1st Service | 78 | 104 | 87 | 55 | |
| Days Open | 110 | 163 | 111 | 113 | |

## *Hay Prices*—Kansas*

| | *Location* | *Quality* | *Price ($/ton)* |
|---|---|---|---|
| Alfalfa | Southwestern Kansas | Supreme | 100-110 |
| Alfalfa | Southwestern Kansas | Premium | 90-100 |
| Alfalfa | Southwestern Kansas | Good | —— |
| Alfalfa | South Central Kansas | Supreme | 90-110 |
| Alfalfa | South Central Kansas | Premium | 80-100 |
| Alfalfa | South Central Kansas | Good | —— |
| Alfalfa | Southeastern Kansas | Supreme | —— |
| Alfalfa | Southeastern Kansas | Premium | 75-100 |
| Alfalfa | Southeastern Kansas | Good | 60–75 |
| Alfalfa | Northwestern Kansas | Supreme | 90–105 |
| Alfalfa | Northwestern Kansas | Premium | 80–90 |
| Alfalfa | Northwestern Kansas | Good | 60–75 |
| Alfalfa | North Central Kansas | Supreme | 50-55cents/pt |
| Alfalfa | North Central Kansas | Premium | 80–100 |
| Alfalfa | North Central Kansas | Good | —— |

Supreme = over 180 RFV (less than 27 ADF)
Premium = 150–180 RFV (27–30 ADF)
Good = 125–150 RFV (30–32 ADF)

***Source:*** USDA Kansas Hay Market Report, *September 22, 2000*

## *Hay Prices—Oklahoma*

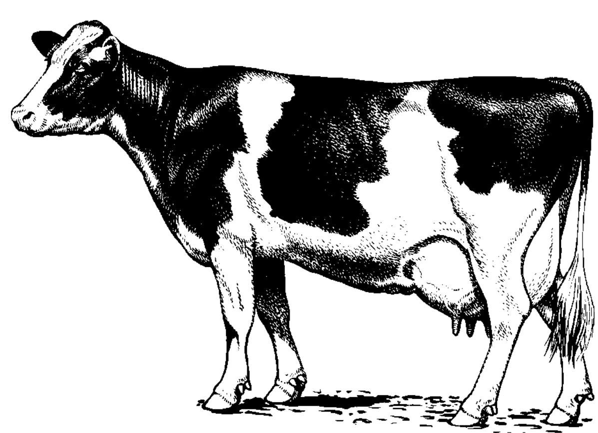
| | *Location* | *Quality* | *Price ($/ton)* |
|---|---|---|---|
| Alfalfa | Central/Western, OK | Premium | 80–110 |
| Alfalfa | Central/Western, OK | Good | 70–90 |
| Alfalfa | Panhandle, OK | Premium | 85-95 |
| Alfalfa | Panhandle, OK | Good | 70-85 |

***Source:*** Oklahoma Department of Agriculture, USDA Market News Service, *September 28, 2000*

## *Feed Stuffs Prices*

| | *Location* | *Price ($/ton)* |
|---|---|---|
| Blood Meal | Texas Panhandle | 350-360 |
| Canola Meal | | 134-137 |
| Corn Gluten Feed | Kansas City | 50-52 |
| Corn Gluten Meal | Kansas City | 235-240 |
| Corn Hominy | Kansas City | 55-56 |
| Cotton Seed Meal | Kansas City | 170-173 |
| Whole Cotton Seed | Memphis | 115 |
| Distillers Grains | Central Illinois | 72–75 |
| Pork—Meat and Bone Meal | Texas Panhandle | 175-185 |
| SBM 48% | Kansas City | 170-181 |
| Sunflower Meal | | 80 |
| Wheat Middlings | Kansas City | 49-53 |

***Source:*** USDA Feedstuff Market Review, *September 20, 2000*



*continued from page 1*

a maximum sensitivity of 56.5% was found when CMT testing was performed on the third day post-calving (Specificity = 56.1%). However, the sensitivity and specificity of CMT on day 3 post-calving for identifying major pathogens were 73.5% and 54.2%, respectively. The sensitivities of the CMT test on day 3 post-calving for identifying quarters infected with *E. coli, Klebsiella, Staph. aureus*, and environmental *Streptococci* were 50, 80, 60, and 84%, respectively. Thus, CMT used on the third day post-calving can be a useful aid for selecting quarters for milk

# Effects of rbST on performance of Jersey cows in a thermal-stress environment

***Z. Keister, K. Moss, R. Edling, R. Collier, and R. Ax. University of Arizona, Tucson, Mountain Shadow Dairy, Monsanto Animal Agriculture***

The objective of this trial was to measure effects of cooling and rbST on milk yield, reproductive performance and health of Jersey cattle during summer thermal stress (7-10-99 through 8-30-99). Cows were divided into two groups based upon days in milk, parity and genetic index. The control cows (n=143) were housed in a pen with no cooling other than shade. The second group (n=142) was housed in a pen with a spray and fan system, utilizing 10 fans, each set to deliver approximately 6350 cubic feet per min of air and 0.22 gallons per min. of water for evaporative cooling. One half of the animals in each group were randomly assigned to treatment with rbST, with all animals at least 63 days in milk at the start of the trial. Days in milk for cooled vs. non-cooled cows were similar (114.3 vs. 113.2) at the start of the trial. Both groups had the benefit of a holding pen cooling system for approximately 30 minutes each milking, 2 times per day. Daily milk weights were taken using the S.A.E Afikin milk recording system. Cooling in combination with rbST increased milk yield compared to no cooling and no rbST, (57.1 vs. 51.4 lbs./day). Cooling and rbST effects on milk yield were additive, furthermore, cooling was associated with reduced health problems in the cooled rbST animals when compared to animals with shade only, without rbST, respectively. Incidences of mastitis (5 vs. 16) and laminitis (2 vs. 7) were both significantly reduced. Reproductive performance was improved in cows given access to cooling (126 pregnant and 6 abortions) versus shade only (112 pregnant and 13 abortions). Additional income over cooling cost was $.55/cow/day. Results indicated that cooling and rbST should maximize profit opportunity through increased milk yield, improved reproductive efficiency and reduced health costs.

# Comparison of AI pregnancy rates by order of preparation of insemination straws

***G. Goodell, DUO Dairy Research Facility Loveland, CO.***

This trial was a retrospective study conducted on a 2500 cow dairy to evaluate the pregnancy rate by straw of an AI technician preparing more than one straw of semen at a time. All breedings reported were a result of a timed AI exposure to the cows through the utilization of a typical "Ovsync" program. Breeding results from one technician were analyzed for 180 cows. Regardless of the order in which the straws were used, all straws were prepared at the same time employing proper semen thawing and preparation technique. For each breeding session the first straw used was labeled straw one, the second straw was labeled straw two and so on. The number of inseminations recorded for straws 1, 2, 3 and 4 were 62, 58, 53 and 7, respectively. Pregnancy rates from the first to the fourth straw were 48.4%, 41.4%, 17.0% and 14.3%, respectively. Since there were only 7 cows inseminated with the fourth straw that data was grouped with the data from the third straw for statistical analysis. There was no statistical difference between the first and second straw, but there was a significant difference between the second and third straw. The conclusion of this study was that cows bred with the third or fourth straw yielded lower pregnancy rates than those bred with the first or second straw. Straw number is an indirect measure of time that semen is exposed to the environment and emphasizes that preparing more than 2 straws using the recommended methods for artificial insemination will result in lower pregnancy rates.

# Evaluation of pregnancy rates in lactating dairy cows using systematic breeding protocols for first and second service

***B.G. Dransfield, R.L. Nebel, J.H. Bame, and D.A. Henderson. Virginia Polytechnic Institute and State University, Blacksburg.***

Holstein cows (n= 619) from 19 commercial dairy herds were used to evaluate pregnancy rates obtained following two systematic breeding protocols. Cows were randomly assigned at each location to either timed AI (TAI) consisting of 25 mg of PGF (day –23) followed by 100 μg GnRH (day –9) then 25 mg of PGF (day –2) and 100 μg GnRH (day 0) with AI 6 to 18 hours later of Modified Targeted Breeding (MTB) that eliminated the second GnRH administration on day 0 and included periodic visual observation and AI following the detection of estrus or AI at 72 to 80 hours if estrus was not detected. Initial PGF administration occurred at approximately 45 days in milk. If a cow was determined not to be pregnant during bi-monthly uterine palpation the initial protocol was repeated eliminating the first PGF administration. There was no detectable difference in days to first AI for TAI (71.9 days) and MTB (73 days). First service pregnancy rates for TAI and MTB differed across herds with a mean of 25.9% for MTB and 30.8% for TAI. Pregnancy rates for MTB increased if cows were detected in estrus (50%) versus cows bred by appointment (15.5%). Second service pregnancy rates improved for both MTB (34.6%) and TAI (38.7%). Month of AI did influence pregnancy rates for both first and second service. Pregnancy rates were highest for MTB in herds that had excellent estrus detection. However, TAI had an overall higher pregnancy rate with the elimination of estrus detection.

*American Dairy Science Association Annual Meeting Abstracts*

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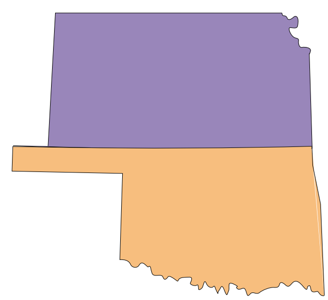

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