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Dairy Lines

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KANSAS DAIRY EXTENSION NEWS

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Upcoming Events

Area DHIA Meetings
10:00 a.m.–3:00 p.m.

Feb. 1
Hays, Holiday Inn

Feb. 2
Hutchinson,
Amish Community Building

Feb. 5
Wichita, 4–H Building

Feb. 6
Seneca, Valentino's

Feb. 7
Salina, 4–H Building

Feb. 8
Ottawa, Extension Office

Effect of Milk Production Level on Reproductive Performance

by John F. Smith & Jeff Stevenson

Kansas dairy herds participating in the DHIA program were grouped into three production groups and reproductive performance was evaluated [14,580 lbs. (low), 19,167 lbs. (medium), and 23,426 lbs. (high)]. Measures of milk production and reproductive performance of the three groups are presented in Table 1, page 3. As the rolling herd average increased, days dry, age at first calving, and calving interval decreased. Average number of services per conception and days in milk increased as milk production increased. Days open were greatest in the low production group. When we look at the information, it is apparent that herd managers of higher producing herds are more diligent in submitting cows for AI-breeding earlier in lactation. Thirty-five percent of the cows in the low group had not yet been inseminated by 120 days in milk, compared to 17 percent in the high-producing group.

Most studies monitoring genetic trends for reproductive traits report negative relationships between milk yield and some reproductive traits. In contrast, the superior management in most high-producing herds seems to maintain good reproductive performance. Some of the methods that high producing herds use to maximize reproductive performance are listed to the right.

Techniques for Successful Reproductive Management

- Use an estrus-synchronization program for replacement heifers to begin inseminations by 13 months of age. This practice ensures that replacements calve by 24 months of age.
- Establish an elective waiting period consistent with herd goals. Generally, for each 1-day decrease in days to first service in cows, a 0.8-day decrease in days open or calving interval occurs.
- Use some estrus-synchronization protocol for programming first services in cows. These protocols ensure timely first inseminations by a given target day in milk.
- Manage repeat services by effective and diligent heat detection, which reduces intervals between repeated services by eliminating more missed heats.
- Use prostaglandins effectively to induce estrus for efficient rebreeding of cows identified open at pregnancy diagnosis.
- Establish and adhere to a herd-specific preventive herd health program including disease prevention by vaccination, cleanliness, and routine veterinary consultation and care.
- Make routine observations of suspect cows for various health disorders while watching cows for estrus.

Managing Heat Stress

by John F. Smith

As summer nears, look for ways to reduce heat stress on the dairy. The following will explain how to reduce heat stress in the holding pen and exit lanes. Crowding dairy cattle into a holding pen is similar to putting a large number of

continued on page 3<

Heart of America Dairy Herd Improvement Summary (December)

	Quartiles 1	2	3	4	Your Herd
Guernsey					
Rolling Herd Average	15,582	13,510	12,462	10,379	
Summit Milk Yield 1st	54.9	50.0	45.7	41.5	
Summit Milk Yield 2nd	62.7	60.1	54.2	48.1	
Summit Milk Yield 3rd	65.8	60.3	58.6	48.9	
Summit Milk Yield Avg.	60.8	56.5	52.6	46.2	
Income/Feed Cost	1,207	1,035	766	664	
SCC 1st LACT	118	179	193	410	
SCC 2nd LACT	149	339	259	360	
SCC 3rd+ LACT	245	394	373	656	
SCC Average	169	295	274	491	
Days to 1st Service	81	88	101	95	
Days Open	133	134	161	152	
Projected Calving Interval	419	420	446	437	
Milking Shorthorn					
Rolling Herd Average	15,824	14,181	12,826	9,556	
Summit Milk Yield 1st	54.3	48.3	46.5	44.2	
Summit Milk Yield 2nd	66.7	59.3	52.5	54.8	
Summit Milk Yield 3rd	74.6	69.3	62.5	50.9	
Summit Milk Yield Avg.	63.3	59.6	53.9	47.9	
Income/Feed Cost	1,220	1,089	926	397	
SCC 1st LACT	91	138	143	72	
SCC 2nd LACT	160	229	556	195	
SCC 3rd+ LACT	454	360	371	139	
SCC Average	246	255	301	106	
Days to 1st Service	89	90	86	61	
Days Open	136	113	110	91	
Projected Calving Interval	418	392	392	373	
Holstein					
Rolling Herd Average	21,232	18,534	16,591	13,617	
Summit Milk Yield 1st	67.3	61.3	56.4	48.0	
Summit Milk Yield 2nd	85.4	77.2	69.0	58.3	
Summit Milk Yield 3rd	89.7	81.4	73.9	62.2	
Summit Milk Yield Avg.	79.3	72.8	65.9	56.7	
Income/Feed Cost	1,461	1,219	1.067	854	
SCC 1st LACT	179	197	217	258	
SCC 2nd LACT	220	229	265	322	
SCC 3rd+ LACT	350	358	418	485	
SCC Average	250	268	312	376	
Days to 1st Service	88	90	92	93	
Days Open	140	136	133	135	
Projected Calving Interval	420	416	413	413	
Jersey					
Rolling Herd Average	15,245	13,040	11,724	9,913	
Summit Milk Yield 1st	49.6	44.4	40.3	34.1	
Summit Milk Yield 2nd	60.2	51.2	48.9	42.3	
Summit Milk Yield 3rd	64.4	55.6	42.9	44.7	
Summit Milk Yield Avg.	58.0	51.1	48.0	41.5	
Income/Feed Cost	1,337	1,065	837	754	
SCC 1st LACT	101	272	220	197	
SCC 2nd LACT	217	295	257	285	
SCC 3rd+ LACT	399	430	430	414	
SCC Average	283	350	326	321	
Days to 1st Service	84	85	91	90	
Days Open	119	116	121	122	
Projected Calving Interval	394	395	400	401	

High Acidity is Not Always Bad

Karen Schmidt

In the December issue, an explanation of titratable acidity was given in the Milk Quality Column, with the following questions arising: what causes a high titratable acidity value; what does it mean; and, what can be done about it? Professor Sidney E. Barnard, in a 1985 Hoard's Dairyman article, discusses these answers.

Professor Barnard poses this situation—your raw milk has a titratable acidity value greater than the normal range (.13 to .17), why? And does this adequately describe your milk quality? The first thing to remember is many factors influence the titratable acidity value of raw milk. However, solids content, storage temperature, and milk age are the most common factors.

When storage temperature increases, bacteria in milk multiply faster. As the number of bacteria increases, the rate of lactic acid development increases. Thus, higher storage temperatures (though still below 45°F) cause higher (1) titratable acidity value, (2) bacteria counts, (3) lactic acid content, Consequently, off–flavors and off–odors develop—end result is decreased milk quality.

Milk age has a similar effect. As the age of the raw milk increases, the bacteria have greater opportunity to multiply. More bacteria convert more lactose to lactic acid, increasing titratable acidity values, with off–flavors and off–odors developing. This diminishes milk quality. Therefore, Professor Barnard suggests checking refrigeration records carefully when high titratable acidity values are found.

But what about this scenario—milk storage temperature and age are reasonable, no off–odors or flavors are present, but the titratable acidity values are still higher than .17? Consider the raw milk protein content. As stated in last month's article, the primary contributor of apparent titratable acidity in fresh milk is the protein content. As protein content (total solids generally follow the same trend) increases, titratable acidity increases, if all other factors remain equal. In this situation, the milk quality should not be affected adversely.

So how do you interpret high titratable acidity values? Professor Barnard advises never use titratable acidity values as the sole acceptance criterion for milk quality. Instead, consider a combination of factors, such as: microbial count, storage conditions (time and temperature), and flavor and odor characteristics to evaluate raw milk quality.

Source: Hoard's Dairyman. February, 25, 1985, pp. 222–223.

Table 1. **Reproductive Profiles of Low-, Medium-, and High-Producing Kansas Dairy Holstein Herds Enrolled in the Heart of America Dairy Herd Improvement Association**

Rolling herd average (milk, lbs)	**No. of herds**	**No. of cows per herd**	**Age at 1st calving** (months)	**Days in milk**	**Days open**	**Days dry**	**Calving interval** (days)	**Services per conception** (no.)
14,580	84	76	29	191	143	74	423	1.93
19,167	270	88	28	193	136	65	416	2.17
23,426	48	91	26	206	134	63	414	2.51

Rolling herd average (milk, lbs)	Conception Rate		% of cows not inseminated			Lost income per cow associated with reproduction ($/cow)
	First (%)	1 + 2 (%)	< 60 days (%)	60-120 days (%)	>120 days (%)	
14,580	51	78	41	24	35	203
19,167	45	72	51	24	25	158
23,426	39	66	51	27	17	139

Managing Heat Stress, *continued from page 1*

furnaces in a small house with the thermostat at 100°F. Combine this with the amount of time cows are in the holding pen, makes the holding pen a less than desirable place for dairy cows. Cows in the holding pen can be under severe heat stress when it seems very comfortable to you.

First, to reduce heat stress, minimize the amount of time cows spend in the holding pen. Cows should spend a maximum of 45 minutes in the holding pen per milking when milked three times per day, and not more than 60 minutes when milked two times per day. Shade should be provided over the holding area and side walls opened, if possible, to provide ventilation.

Fans and sprayers can be added in the holding pen to cool cows. Research data collected in Arizona indicated that body temperature was lowered by 3.5°F and milk production increased 1.7 pounds per cow per day when cooling was provided in the holding pen. When installing a cooling system, it is important that fans are installed first to increase air flow before sprinklers are added. Air flow per cow should be a minimum of 1000 cfm / per cow.

Exit lane cooling can be used to cool cows as they leave the parlor. Cooling in the exit lane is provided by installing three to four nozzles over the exit lane with a delivery of 8 gallons per minute at 35 to 40 P.S.I. (Ordinary shower sprayers work excellent). The nozzles are turned on and off with an electric eye, wands, or leaf gates.

It may seem early to be worrying about heat stress. However, the winter is an excellent time to make modifications that will increase cow comfort this summer.

Hay Prices*

	Location	***Quality***	***Price ($/ton)***
Alfalfa	Southwestern Kansas	Premium	90-110
Alfalfa	Southwestern Kansas	Good	85-100
Alfalfa	South Central Kansas	Premium	90-105
Alfalfa	South Central Kansas	Good	80-90
Alfalfa	Southeastern Kansas	Premium	90-100
Alfalfa	Southeastern Kansas	Good	80-90
Alfalfa	Northwestern Kansas	Premium	90-100
Alfalfa	Northwestern Kansas	Good	80-90
Alfalfa	North Central Kansas	Premium	90-105
Alfalfa	North Central Kansas	Good	80-90

Source: USDA Weekly Hay Report, *Week ending January 5, 1996*

*Premium Hay RFV = 170-200; Good Hay RFV = 150-170

Feed Stuffs Prices

	Location	***Price ($/ton)***
Soybean Meal 48%	Kansas City	236.40-237.40
Cotton Seed Meal	Kansas City	219-225
Whole Cottonseed	Memphis	160-165
Meat and Bone Meal	Central United States	240-250
Blood Meal	Central United States	455
Corn Hominy	Kansas City	136-138
Corn Gluten Feed	Kansas City	114-125
Corn Gluten Meal 60%	Kansas City	335-340
Distillers Dried Grain	Central Illinois	136-146
Brewers Dried Grain	St. Louis	134-138
Wheat Middlings	Kansas City	121-125

Source: USDA Weekly Feed Stuffs Report, *Week endingJanuary 5, 1996*

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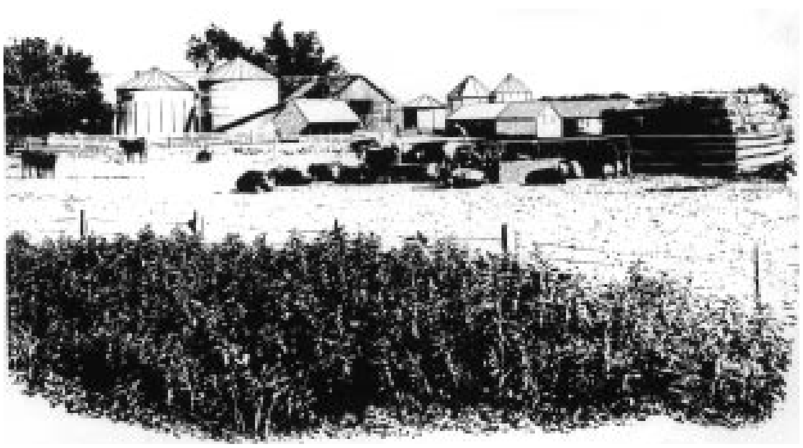

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