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Dairy Lines

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KANSAS DAIRY EXTENSION NEWS

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Upcoming Events

■ **August 16 & 17**
Kansas Junior Dairy Show
Salina, Kansas

■ **August 28 & 29**
Midwest Dairy Management Conference
Minneapolis, Minnesota

Why is Milk Production Depressed in the Summer?

by John F. Smith

During heat stress we typically see a decrease in dry matter intake and milk production. We also see an increase in sweating, respiration rate and water consumption to compensate for the effects of heat stress.

Dairy producers are very aware of the decreased milk production and dry matter intake, however, often it seems that the milk production drops more than you would expect. The reason milk production drops dramatically during heat stress is that the maintenance requirement of the lactating cow increases as temperature increases.

Lactating dairy cows under heat stress require additional energy to maintain a normal body temperature. The additional energy or maintenance requirement is used to increase such things as respiration rate and sweating to dissipate heat. In Table 1, the changes in maintenance requirements, dry matter intake, and water intake to maintain 60 pounds of milk production with increasing temperatures is presented. Notice as the environmental temperature increased from 68 to 104°F , the dry matter intake required for maintenance increased 4.1 pounds. This is an increase in the dry matter required for maintenance of 32 percent. It would be nice if we could just feed the cows more dry matter and maintain the same milk production level,

Continued on page 3

Table 1. Relative changes in maintenance requirements, dry matter (DMI) and water intake to maintain 60 pounds of milk production with increasing environmental temperature

Temperature	Maintenance requirements	DMI required 60 lbs of milk	DMI requirements for maintenance	Water intake
(°F)	(% of req. at 68°F)	(lb)	(lb)	(gal)
68	100	40.1	12.8	18.0
77	104	40.6	13.3	19.5
86	111	41.7	14.2	20.9
95	120	42.8	15.4	31.7
104	132	44.5	16.9	28.0

Sources: National Research Council. 1981. Effect of Environment on Nutrient Requirements of Domestic Animals. National Academy Press, Washington, D.C. Dr. Joe West, Extension Dairy Specialist, University of Georgia.

Heart of America Dairy Herd Improvement Summary (June)

	Quartiles				Your Herd
	1	2	3	4	
Ayrshire					
Rolling Herd Average	17,377	14,379	13,358	11,705	
Summit Milk Yield 1st	61.7	51.2	50.7	45.8	
Summit Milk Yield 2nd	73.2	64.1	61.4	54.2	
Summit Milk Yield 3rd	80.0	71.1	67.1	59.9	
Summit Milk Yield Avg.	71.6	62.7	59.0	55.0	
Income/Feed Cost	1,068	953	923	623	
SCC 1st LACT	163	104	265	314	
SCC 2nd LACT	268	186	302	264	
SCC 3rd+ LACT	386	285	536	433	
SCC Average	273	203	376	359	
Days to 1st Service	92	86	89	74	
Days Open	118	130	130	137	
Projected Calving Interval	400	412	412	419	
Brown Swiss					
Rolling Herd Average	19,271	16,187	14,339	12,029	
Summit Milk Yield 1st	60.8	51.7	50.0	43.2	
Summit Milk Yield 2nd	79.3	69.5	62.2	53.9	
Summit Milk Yield 3rd	83.6	76.4	69.6	56.3	
Summit Milk Yield Avg.	74.4	67.0	61.7	51.3	
Income/Feed Cost	1,462	1,318	1,017	828	
SCC 1st LACT	261	235	196	251	
SCC 2nd LACT	278	325	224	253	
SCC 3rd+ LACT	369	495	363	554	
SCC Average	310	378	280	400	
Days to 1st Service	90	86	85	99	
Days Open	141	138	145	138	
Projected Calving Interval	429	426	433	425	
Holstein					
Rolling Herd Average	21,687	18,820	16,876	14,022	
Summit Milk Yield 1st	70.8	63.3	58.3	50.3	
Summit Milk Yield 2nd	90.5	80.3	73.0	61.7	
Summit Milk Yield 3rd	95.7	85.0	78.0	66.4	
Summit Milk Yield Avg.	84.4	75.6	69.7	60.0	
Income/Feed Cost	1,639	1,371	1,188	932	
SCC 1st LACT	246	279	308	338	
SCC 2nd LACT	262	299	331	403	
SCC 3rd+ LACT	436	484	529	611	
SCC Average	317	361	404	477	
Days to 1st Service	92	94	98	99	
Days Open	142	142	143	142	
Projected Calving Interval	422	422	423	421	
Jersey					
Rolling Herd Average	15,698	13,328	11,988	10,109	
Summit Milk Yield 1st	51.3	46.2	40.9	36.1	
Summit Milk Yield 2nd	62.8	55.4	49.9	43.5	
Summit Milk Yield 3rd	67.5	60.1	53.3	46.8	
Summit Milk Yield Avg.	60.7	55.0	48.8	42.7	
Income/Feed Cost	1,469	1,019	930	732	
SCC 1st LACT	222	320	296	367	
SCC 2nd LACT	238	316	207	353	
SCC 3rd+ LACT	386	488	432	522	
SCC Average	297	394	341	426	
Days to 1st Service	85	89	89	91	
Days Open	122	122	125	131	
Projected Calving Interval	401	401	404	409	

Don't Forget the Heifers

by James R. Dunham

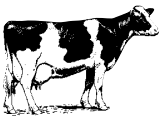
Feeding and management of replacement heifers during July and August can have a big impact on their performance this fall. All too often fall freshening heifers are a disappointment. They either do not milk as well as expected and/or too many freshen with high somatic cell counts (SCC).

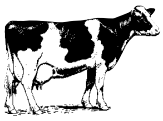
Many of the problems with fall freshening heifers are associated with heifers on pasture. If heifers are not supplemented with grain during the hot months, they will probably not be as large as expected and production will be depressed. The quality of grass in pastures during the hot months will not provide enough protein and energy to meet requirements for adequate growth. In fact, the nutrients provided on mature grass is about enough to meet maintenance requirements. Most heifers will require 7 to 8 pounds of a 16 percent protein grain mix in order to grow adequately.

A lot of dry cows are also pastured with the bred heifers. The same disappointment is often seen in the fresh cows since the pasture did not provide enough nutrients for adequate body condition as they approached freshening. Feeding dry cows and springing heifers the same grain mix usually works well.

SCC problems in fall freshening heifers may be caused by springing heifers standing in ponds or by flies. If the dry cows are with the heifers, expect the same problems when they freshen. Moving springers from pasture to a dry lot can solve this problem. Even in dry lot, heifers may become infected with mastitis if muddy conditions develop around the feed bunk.

Fly control is always important, but even more so as cows and heifers approach freshening. Flies can spread mastitis causing bacteria from one teat to another. Thus, too many heifers and cows are infected with mastitis when they freshen.





Milk Production, continued from page 1

however, dry matter intake will decrease as temperature increases.

Table 2 lists the expected dry matter intakes and milk yield at increasing temperatures. Expected milk yields decrease from 59.5 to 22.5 pounds as temperature increases from 68 to 104°F. The key is to adopt practices that will minimize the effects of heat stress. Some key factors to reduce heat stress are listed below.

- Make clean, cool water available in multiple locations.
- Provide shade in housing areas and over the holding pen.
- Reduce the distance cows have to walk.
- Increase moisture content of TMR to 45-50 percent.
- Concentrate energy in the ration to minimize the amount of dry matter intake needed.
- Feed high quality forages.
- Feeding early and late in the day and as many times as convenient will encourage dry matter intake.
- Properly ventilate freestall housing and the milking center.
- Consider installing cooling systems in holding, housing, and feeding areas.

Table 2. Relative changes in expected dry matter (DMI) and water intake and milk yield with increasing environmental temperature

	Expected intakes and milk yield		
Temperature	DMI	Milk yield	Water intake
(°F)	(lb)	(lb)	(gal)
68	40.1	59.5	18.0
77	39.0	55.1	19.5
86	37.3	50.7	20.9
95	36.8	39.7	31.7
104	22.5	26.5	28.0

Sources: National Research Council. 1981. Effect of Environment on Nutrient Requirements of Domestic Animals. National Academy Press, Washington, D.C. Dr. Joe West, Extension Dairy Specialist, University of Georgia.

*Hay Prices**

	Location	***Quality***	***Price ($/ton)***
Alfalfa	Southwestern Kansas	Premium	110–120
Alfalfa	Southwestern Kansas	Good	100–105
Alfalfa	South Central Kansas	Premium	100–110
Alfalfa	South Central Kansas	Good	90–100
Alfalfa	Southeastern Kansas	Premium	100–115
Alfalfa	Southeastern Kansas	Good	90–100
Alfalfa	Northwestern Kansas	Premium	90–105
Alfalfa	Northwestern Kansas	Good	80–90
Alfalfa	North Central Kansas	Premium	90–100
Alfalfa	North Central Kansas	Good	80–90

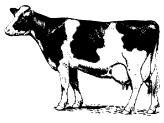
Source: USDA Weekly Hay Report, *Week ending July 5, 1996*

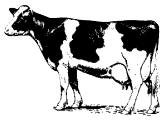
*Premium Hay RFV = 170-200
Good Hay RFV = 150-170

Feed Stuffs Prices

	Location	***Price ($/ton)***
SBM 48%	Kansas City	244.10–245.10
Cotton Seed Meal	Kansas City	216
Whole Cottonseed	Memphis	185
Meat and Bone Meal	Central United States	230–240
Blood Meal	Central United States	380
Corn Hominy	Kansas City	146–150
Corn Gluten Feed	Kansas City	125
Corn Gluten Meal 60%	Kansas City	315
Distillers Dried Grain	Central Illinois	142–147
Brewers Dried Grain	St. Louis	111–115
Wheat Middlings	Kansas City	111–115

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





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