October 1997

Dairy Lines

Volume 3, Number 9

DAIRY EXTENSION SERVICE NEWS

http://www.oznet.ksu.edu/dp_ansi/dairylin.htm

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Upcoming Events
Kansas & Oklahoma

Dairy Profitability Workshops
November 20
Chickasha, OK
Grady Co. Fairgrounds
10 a.m.–2 p.m.

Sulphur, OK
TBA

Arnett, OK
TBA

Pryor, OK
TBA

Monitoring Peak Milk Production and Persistency

by Dan Waldner

Valuable information can be obtained from peak milk and persistency data. Uncovering limitations to peak milk production and persistency of lactation can create significant economic gains. Peak milk production is a major factor in determining lactation production. Each additional pound of peak milk can result in 200 to 250 pounds more milk for an entire lactation and once peak milk production is achieved, milk sold per cow will be influenced by the persistency of the lactation curve. The following highlights some of the key factors limiting peak performance and persistency and some of the areas management should focus their attention.

Peak Milk Yields

Table 1 shows the most recent average peak milk production of Holstein cows in Oklahoma. Peak milk production will generally take place 50 to 70 days after calving with higher producing animals peaking later than lower producing animals. Cows peaking later than 90 days may not be producing to their potential. Delayed adaptation to the diet for lactating cows can lengthen the days to peak milk. As a rule, third-plus lactation animals peak higher than first and second lactation animals. Peak production of first lactation cows usually averages about 80 of second lactation and 75 percent of mature cows. Second lactation cows will average about 90 percent of mature cow peak performance. Look at the peak production of the first three lactation groups in comparison to one another and determine if your herd is peaking at an acceptable level. A larger than expected deviation in peak yield between cows of different ages may indicate management conditions vary among the groups. Evaluating the lactation curves of these groups of animals is also useful in analyzing peak milk production of the herd. Two scenarios commonly observed include poor performance of first lactation animals relative to mature cows or excellent performance of second lactation cows that is equal to the mature cow group.

Insufficient peak yields in first lactation cows can indicate several problems. A number of these problems can be problems for the whole herd such as, poor hoof health, high SCC during early lactation, metabolic disorders, and poor transition cow management. However, poor performance of only the first lactation animals usually indicates poor nutritional management of this group. For example, poor heifer development will result in the failure of first lactation animals to reach optimal body size at

continued on next page

Heart of America Dairy Herd Improvement Summary (September)

	Quartiles				Your Herd
	1	2	3	4	
Ayrshire					
Rolling Herd Average	16,657	14,357	12,567	8,840	
Peak Milk Yield 1st	61.5	53.5	54.0	38.5	
Peak Milk Yield 2nd	79.5	67.0	63.5	50.0	
Peak Milk Yield 3rd	84.5	73.5	67.0	56.5	
Peak Milk Yield Avg.	76.0	65.0	62.0	48.5	
Income/Feed Cost	1,033	911.5	791.5	150	
SCC Average	261.5	415.5	321	637.5	
Days to 1st Service	74.0	95	100	130.5	
Days Open	123	145.5	146.5	148.5	
Projected Calving Interval	13.25	14.0	14.05	14.10	
Brown Swiss					
Rolling Herd Average	19,490	15,158	14,302	13,260	
Peak Milk Yield 1st	67.0	55.5	54.5	50.1	
Peak Milk Yield 2nd	86.3	71.1	63.5	62.2	
Peak Milk Yield 3rd	94.6	77.5	70.0	69.5	
Peak Milk Yield Avg.	82.3	69.1	63.5	61.2	
Income/Feed Cost	1,394	1,303	1,107	798	
SCC Average	340	255	444	225	
Days to 1st Service	78.5	70.8	76.6	85	
Days Open	138	175	138	163	
Projected Calving Interval	13.7	15.0	13.7	14.5	
Holstein					
Rolling Herd Average	22,246	19,362	17,262	14,029	
Peak Milk Yield 1st	77.8	69.2	63.7	54.3	
Peak Milk Yield 2nd	97.3	86.8	78.4	66.9	
Peak Milk Yield 3rd	104.4	93.6	85.2	72.1	
Peak Milk Yield Avg.	92.2	82.9	76	65.3	
Income/Feed Cost	1,726	1,491	1,258	950	
SCC Average	334	366	402	497	
Days to 1st Service	88	90	83	76	
Days Open	151	154	161	179	
Projected Calving Interval	14.2	14.2	14.5	15.1	
Jersey					
Rolling Herd Average	15,155	13,162	11,385	9,320	
Peak Milk Yield 1st	54.2	46.4	44.3	38.5	
Peak Milk Yield 2nd	64.2	61.1	52.1	46.1	
Peak Milk Yield 3rd	70.8	59.8	56.4	47.7	
Peak Milk Yield Avg.	63.2	55.0	51.3	44.8	
Income/Feed Cost	1,441	1,051	870	418	
SCC Average	328	243	301	417	
Days to 1st Service	85	84	97	62	
Days Open	125	145	136	143	
Projected Calving Interval	13.3	14.0	13.7	13.9	

Kansas Dairy Association and
K-State Research and Extension's
Labor Management Workshop

December 9, 1997
Hutchinson, KS

December 10, 1997
Hillsboro, KS

December 11, 1997
Ottawa, KS

Locations to be announced at a later date

continued from page 1

calving. Small heifers that experience significant growth and development during the first lactation have repartitioned nutrients away from milk production to muscle and skeletal growth. This shift in nutrient utilization results in low peak milk yields.

If first lactation animals reach target weight at calving, but still do not peak at proper levels, nutritional management of the heifers during the transition period and in the milking herd could be suspect. In the absence of metabolic and transition cow problems the feeding management system of the milking herd should be carefully examined. In many cases, limited feedbunk space is the culprit allowing older, larger, more dominant cows to force the smaller, more timid heifers away from the feeding area. Increasing bunk space or the use of a first-calf heifer group will allow these animals the opportunity to reach their peak yield potential.

There are many factors or events that can lead to poor peak milk yields in older cows, compared to second lactation animals. Mature cows are more susceptible to metabolic disorders during the onset of lactation. Cows suffering metabolic disorders during the periparturient period have lower dry matter intakes as much as 30 days postpartum. Lower feed intakes result in lower peak milk yields due to nutrient deficiencies and imbalances and are likely related to body condition score (BCS) at calving and the subsequent change in BCS. Mammary gland health in the previous lactation and short dry periods can also result in diminished performance in the subsequent lactation.

Persistency of Lactation

Milk production declines naturally over time following peak milk production. An abnormally rapid decline in milk production results in a significant loss in potential milk production. In general, heifers will drop about 0.2 percent milk per day and older cows will drop about 0.3 percent per day.

Factors that influence the persistency of lactation include age, body condition, nutritional management, animal health (i.e. mastitis) and cow comfort. Severe negative energy balance can result in severe decline in body condition. Poor energy balance can be due to under-feeding energy, severe weight loss early post-partum resulting in low BCS, and loss of body condition during the late gestation pre-partum transition period.

Additionally, mastitis that results in tissue damage of the mammary gland can cause decreased persistency. A somatic cell score (SCS) of 3.0 may cause 1.5 pounds per day loss in milk production. An additional 1.5 pounds per day is lost for each 1.0 increase in SCS.

Heat stress is also of major concern. Periods of heat stress can result in significant declines in dry matter intake and milk production. Evaluating records such as SCC, BCS, and seasonal patterns trends can help to explain problems of poor persistency of milk production.

The Bottom Line

Several tools are available for evaluation of peak milk yield and persistency. The DHI Herd Summary Report (DHI-202) shows average peak milk levels by lactation group as well as a test period persistency index. Persistency information can also be obtained from the DHI Monthly Report (DHI-200 and -220). Additionally, PCD ART users have the capability of creating specialized reports as well as lactation curves for selected groups of animals.

The current economic situation requires careful examination of every phase of the dairy operation in order to uncover weaknesses and hidden sources of profit. Monitoring peak milk yield and persistency data and making appropriate management changes when required can go a long way in improving production and your bottom line.

Table 1. Average Peak Milk Production of Holstein Cows by Level of Production[1]

	Lactation No.			
Herd Avg. (lbs.)	1	2	3+	All
Less than 14,000	49	60	62	58
14,000–15,999	56	69	75	68
16,000–17,999	60	75	83	74
18,000–19,999	68	86	92	82
20,000–21,999	72	90	98	85
22,000–23,999	80	97	104	93
Over 24,000	87	107	113	103

[1] DRPC Raleigh data for Oklahoma

Hay Prices*—Kansas

	Location	Quality	Price ($/ton)
Alfalfa	Southwestern Kansas	Premium	100–110
Alfalfa	Southwestern Kansas	Good	90–105
Alfalfa	South Central Kansas	Premium	120–130
Alfalfa	South Central Kansas	Good	90–100
Alfalfa	Southeastern Kansas	Premium	100–110
Alfalfa	Southeastern Kansas	Good	90–100
Alfalfa	Northwestern Kansas	Premium	100–110
Alfalfa	Northwestern Kansas	Good	85–90
Alfalfa	North Central Kansas	Premium	100–120
Alfalfa	North Central Kansas	Good	90–100

Source: USDA Weekly Hay Report, *Week ending October 3, 1997*

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

Hay Prices—Oklahoma

	Location	Quality	Price ($/ton)
Alfalfa	Central / Western, OK	Premium	100–130
Alfalfa	Central / Western, OK	Good	75–100
Alfalfa	Panhandle, OK	Premium	100–120
Alfalfa	Panhandle, OK	Good	75–100

Source: Oklahoma Department of Ag, *September 30, 1997*

Feed Stuffs Prices

	Location	Price ($/ton)
SBM 48%	Kansas City	216–234
Cotton Seed Meal	Kansas City	203–209
Whole Cottonseed	Memphis	135–140
Meat and Bone Meal	Central United States	257–260
Blood Meal	Central United States	565
Corn Hominy	Kansas City	86–90
Corn Gluten Feed	Kansas City	87–90
Corn Gluten Meal 60%	Kansas City	350–360
Distillers Dried Grain	Central Illinois	120
Brewers Dried Grain	St. Louis	108
Wheat Middlings	Kansas City	74–76

Source: USDA Weekly Feed Stuffs Report, *Week ending October 3, 1997*

Using Prostaglandins to Reduce Days to First Breeding

by John Smith and Jeff Stevenson

This article will concentrate on using prostaglandins to decrease the days in milk to first breeding and to increase the number of opportunities you have to breed a cow.

Dairy producers may first want to consider using prostaglandins (PG's) to decrease the days in milk to first breeding. If a 50-day voluntary waiting period is used, it would be ideal if a large number of cows would come into heat at 50 to 55 days in milk. This can be accomplished by giving a PG injection at 35 days in milk followed by a second injection at 49 days in milk. Using prostaglandins to synchronize cows for the first breeding facilitate earlier detection of heat and reduces days to first breeding.

Groups of cows can be synchronized together so that heat detection efforts can be increased at 50 to 55 days in milk. Once a cow has been AI-bred, she should be removed from the PG program until she is determined to be open. Remember PG's will abort a pregnant cow.

Prostaglandins also can be used to increase the number of heats early in the breeding period. Cows that are not inseminated after the injection of PG's at 49 days in milk can be given a subsequent injection every 14 days until they are inseminated. Cows are removed from the program after insemination until they are determined to be open.

Using PG's to decrease the number of days to first breeding and to increase the number of heats per lactation will aid producers in reducing days in milk to first breeding, days open, and calving interval. A PG program, in conjunction with early and regular pregnancy checks, to detect open cows as soon as possible, will increase the reproductive efficiency of the herd.

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Permit #525
Manhattan, Kan. 66502

Dairy Lines is jointly published for dairy producers by the Department of Animal Sciences and Industry, K-State Research and Extension, and the Departmentof Animal Science, Oklahoma Cooperative Extension Service.

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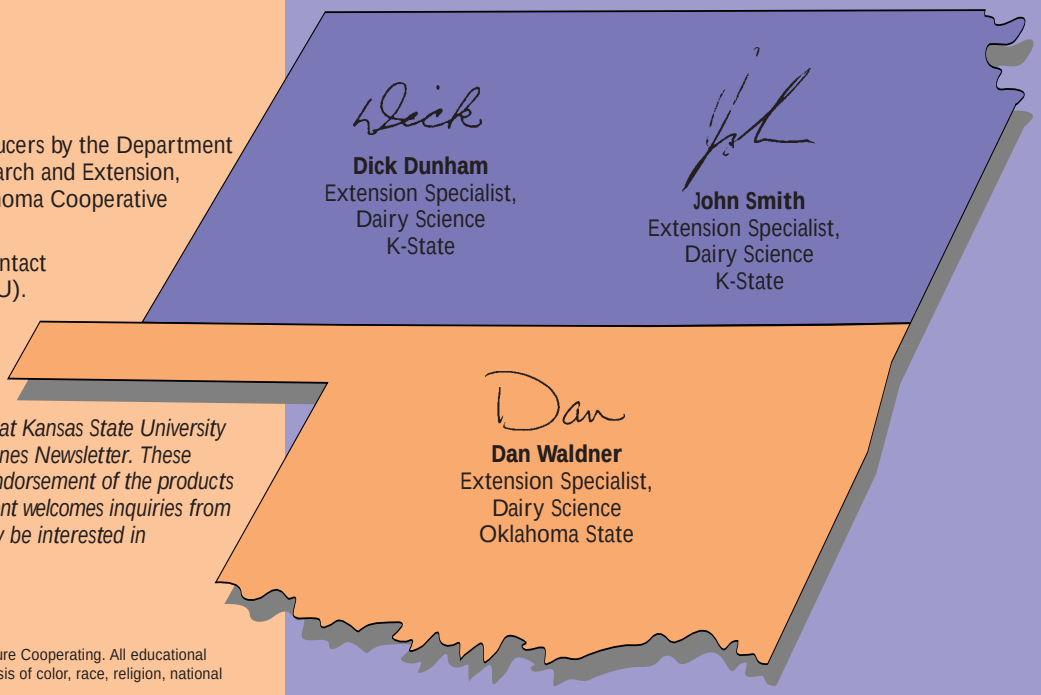

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