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Dairy Lines

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Upcoming Events

July 26-27
Sooner State Dairy Show
Stillwater Fairgrounds

August 16
Kansas Dairy Quiz Bowl
Salina, KS

August 17
Kansas Junior Dairy Show
Salina, KS

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

Monitoring Peak Milk Production

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Peak milk production data provides valuable information. It is a major factor in determining lactation production, and uncovering limitations can create significant economic gains. Each additional pound of peak milk can result in 200 to 250 pounds more milk for an entire lactation. This article highlights factors that limit peak performance and areas that require management attention.

Days in Milk at Peak

Peak milk production generally takes place 50 to 90 days after calving, with higher-producing animals peaking later than lower-producing animals, and first-lactation cows later than second- and greater-lactation cows. Cows peaking earlier than 50 days or later than 90 days may not be producing to potential. Close attention should be given to the transition and dry cow programs to determine if there is a high occurrence of metabolic disorders, mastitis or diet imbalances.

Peak Milk Yield

As a rule, third-plus lactation animals peak higher than first- and second-lactation animals. Peak production of first-lactation cows is usually a function of mature-cow production averaging about 80 and 75 percent of second- and later-lactation cows, respectively. 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 that 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.

Problem Areas

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 somatic cell count 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 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 use 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.

see PEAK, page 2

PEAK, from page 1

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 also can result in diminished performance in the subsequent lactation.

The Bottom Line

Peak milk production is an indication of how well cows are responding to feeding and management during the dry, close-up and transition periods of the lactation cycle. For first lactation cows, it provides insight into the heifer development program and how well heifers are managed and transitioned to the milking herd. Further, transition cow management has become a critical challenge for today's dairies. Monitoring peak milk yield data and making appropriate management changes can go a long way toward improving production and your bottom line.

If you would like help evaluating your herd's production records, contact your state dairy extension specialist.

Completeness of Milking: Are you Undermilking your Herd?

What is undermilking?

Undermilking, or incomplete milking, means that an unacceptable amount of milk is left in the udder after the milking unit is removed. Milk left in the alveoli is called residual milk. Milk left in the ducts or udder cisterns is referred to as available milk or strippings.

Residual milk cannot be removed, even by machine or hand stripping, without an intramuscular injection of oxytocin. Typically, residual milk may be 2 to 6.5 pounds or about 10 to 20 percent of total milk in the udder. Higher amounts of residual milk may result from incomplete milk ejection associated with poor milking routines, frightened or nervous cows, sore teats or uncomfortable milking equipment.

Incomplete removal of the available milk or strippings occurs when, teatcups are removed before the last of the available milk drains into the udder cisterns, or the milk pathway between the udder cistern and teat sinus, in one or more of the four quarters, becomes blocked near the end of milking. Such blockages occur when clusters do not hang evenly on the udder and/or when one or more of the four teats moves too deeply into its teatcup. This is referred to as teatcup crawling.

The most common causes of incomplete milking due to such flow restrictions near the end of milking include poor type or condition of the liner; clusters that do not hang evenly on the udder because the connecting hoses are too long, too short, twisted, or poorly aligned in relation to the cow; clusters that are too light in relation to the bore of liner used and/or the system vacuum; high milking vacuum levels; and partial closure of the short milk tube where the tube joins the claw.

Effects of incomplete milking on milk yield

Experiments dating back to 1936 indicated that lactational yields were reduced by about 3 percent when 1 pound of milk was left in an udder after milking.

In the 1996 NMC Annual Meeting Proceedings, Grame and Reid suggested that if milking clusters are correctly designed, well maintained, correctly applied and adjusted, then the mean strippings yield is typically less than 0.5 pounds per cow. A problem exists if an average of more than 1 pound of strippings milk is left in a cow's udder when teatcups are removed. The average volume remaining in cows at the end of milking can be estimated by measuring the handstrippings of at least 10 cows.

Recent research at the University of Wisconsin indicates that strip yields are not normally distributed, so it seems more appropriate to express strip yields as a frequency distribution for individual quarters rather than as an average value per cow.

Consequently, completeness of milking should be estimated by hand-stripping at least 20 cows or 80 quarters. As a guide, assume that a problem of incomplete milking exists if more than 20% of quarters contain strip yields of about one-half cup (approximately 100 milliliters) or more. Consistent differences between strip yields from rear versus front quarters, or between quarters on the right versus the left side of udders, usually indicate a problem of poor cluster positioning or uneven weight balance between the four teatcups.

Uneven weight distribution between the four quarters of an udder is one of the most common causes of incomplete milking, uneven milkout and liner slips. Ideally, the milking unit should hang squarely on the udder so that about 25 percent of the total cluster weight is applied to each udder quarter throughout milking.

Source: Udder Topics, April 2002.

Heart of America Dairy Herd Improvement Summary

	Quartiles				Your Herd
	1	2	3	4	
Ayrshire					
Rolling Herd Average	17,527	15,639	14,782	10,859	
Summit Milk Yield 1st	62.0	59.3	54.0	28.3	
Summit Milk Yield 2nd	69.0	46.0	62.0	35.0	
Summit Milk Yield 3rd	36.5	48.0	66.0	63.0	
Summit Milk Yield Avg.	68.0	64.6	61.0	55.6	
Income/Feed Cost	1,281	1,228	1,270	671	
SCC Average	303	153	527	284	
Days to 1st Service	40	62	104	89	
Days Open	124	127	154	156	
Projected Calving Interval	13.3	13.4	14.3	14.3	
Brown Swiss					
Rolling Herd Average	21,319	18,623	16,316	14,191	
Summit Milk Yield 1st	65.5	58.1	51.5	48.1	
Summit Milk Yield 2nd	83.2	78.7	67.0	64.0	
Summit Milk Yield 3rd	89.8	78.7	72.0	69.0	
Summit Milk Yield Avg.	79.2	73.0	62.8	62.0	
Income/Feed Cost	2,075	1,791	1,736	1,315	
SCC Average	353	372	419	372	
Days to 1st Service	94	69	86	67	
Days Open	181	167	148	225	
Projected Calving Interval	15.1	14.7	14.0	16.6	
Guernsey					
Rolling Herd Average	16,951	14,318	13,629	12,582	
Summit Milk Yield 1st	56.0	43.0	45.0	49.5	
Summit Milk Yield 2nd	72.0	55.0	57.0	59.0	
Summit Milk Yield 3rd	70.0	60.0	62.0	60.0	
Summit Milk Yield Avg.	65.0	54.5	56.0	56.0	
Income/Feed Cost	1,676	1,341	1,300	1,221	
SCC Average	448	152	254	431	
Days to 1st Service	84	118	85	94	
Days Open	179	213	198	180	
Projected Calving Interval	15.1	16.2	15.7	15.1	
Holstein					
Rolling Herd Average	23,196	20,163	17,931	14,687	
Summit Milk Yield 1st	73.8	66.6	61.0	52.1	
Summit Milk Yield 2nd	95.1	85.2	76.6	64.0	
Summit Milk Yield 3rd	101	90.7	82.3	69.9	
Summit Milk Yield Avg.	89.0	80.3	73.5	63.5	
Income/Feed Cost	2,200	1,775	1,579	1,155	
SCC Average	358	388	415	544	
Days to 1st Service	88	90	94	95	
Days Open	168	170	180	209	
Projected Calving Interval	14.7	14.8	15.1	16.1	
Jersey					
Rolling Herd Average	18,592	14,987	13,273	11,176	
Summit Milk Yield 1st	52.1	49.7	41.5	43.0	
Summit Milk Yield 2nd	63.6	62.6	55.7	55.3	
Summit Milk Yield 3rd	58.8	66.7	53.9	52.0	
Summit Milk Yield Avg.	50.0	59.2	54.6	51.0	
Income/Feed Cost	2,164	1,687	1,436	982	
SCC Average	371	329	385	488	
Days to 1st Service	75	79	73	109	
Days Open	134	131	164	191	
Projected Calving Interval	12.6	13.5	14.6	15.5	
Milking Shorthorn					
Rolling Herd Average	16,512	14,995	14,026	10,420	
Summit Milk Yield 1st	51.0	55.5	53.5	43.5	
Summit Milk Yield 2nd	56.0	65.5	69.0	55.0	
Summit Milk Yield 3rd	80.0	75.5	68.0	57.5	
Summit Milk Yield Avg.	66.0	69.0	65.5	52.0	
Income/Feed Cost	1,613	1,379	1,230	805	
SCC Average	272	416	320	381	
Days to 1st Service	116	87	92	45	
Days Open	90	150	136	149	
Projected Calving Interval	12.2	14.1	13.7	14.1	

Hay Prices*—Kansas

	Location	Quality	Price ($/ton)
Alfalfa	Southwestern Kansas	Supreme	100-120
Alfalfa	Southwestern Kansas	Premium	95-115
Alfalfa	Southwestern Kansas	Good	80-85
Alfalfa	South Central Kansas	Supreme	100-120
Alfalfa	South Central Kansas	Premium	90-100
Alfalfa	South Central Kansas	Good	—
Alfalfa	Southeastern Kansas	Supreme	—
Alfalfa	Southeastern Kansas	Premium	95
Alfalfa	Southeastern Kansas	Good	80-90
Alfalfa	Northwestern Kansas	Supreme	100-120
Alfalfa	Northwestern Kansas	Premium	90-110
Alfalfa	Northwestern Kansas	Good	—
Alfalfa	North Central Kansas	Supreme	100-120
Alfalfa	North Central Kansas	Premium	90-110
Alfalfa	North Central Kansas	Good	85-95

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 Dept. of Ag Market News Service Report, June 4, 2002

Hay Prices—Oklahoma

	Location	Quality	Price ($/ton)
Alfalfa	Central/Western, OK	Premium	90-120
Alfalfa	Central/Western, OK	Good	70-100
Alfalfa	Panhandle, OK	Premium	105-120
Alfalfa	Panhandle, OK	Good	80-90

Source: Oklahoma Department of Ag-USDA Market News Service, June 6, 2002

Feed Stuffs Prices

	Location	Price ($/ton)
Blood Meal	Central US	305-310
Corn Gluten Feed	Kansas City	60-62
Corn Gluten Meal	Kansas City	235-275
Corn Hominy	Kansas City	68-79
Cotton Seed Meal	Kansas City	157-160
Whole Cotton Seed	Memphis	108
Distillers Grains	Nebraska	95-100
Pork—Meat and Bone Meal	Texas Panhandle	154
SBM 48%	Kansas City	172-180
Wheat Middlings	Kansas City	45-47

Source: USDA Market News Service, June 5, 2002

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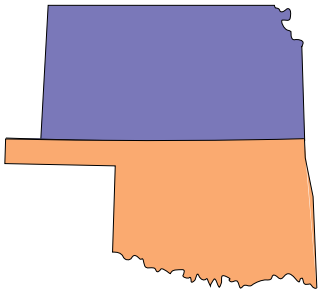

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