

REPRODUCTIVE STATUS OF KANSAS DAIRY HERDS

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Introduction

There has been no appreciable change in the reproduction status of Kansas dairy herds over the last 25 yr. For example, the average calving interval was 398 days in 1965 and 405 days in 1988. Analysis of other measures show similar results. Although the long-stated management goal for a dairy herd has been a calf-a-year or 365-day calving interval, few herds realize this efficiency. On the positive side, the stability of reproductive performance is noteworthy, since genetic antagonism exists between production and reproduction. From 1965 to 1988, average yearly milk production in production-tested herds (DHI) has increased 41%.

Measures of Reproductive Efficiency

Several measurements may be considered when evaluating reproductive performance, namely,

1. Calving interval (Days open)
2. Services per conception
3. Days dry
4. Age at calving (Lactation 1)
5. Heat detection efficiency
6. Days open-cows not bred
7. Day to first service
8. Percent culled-reproduction
9. Conception rate

No one measure is all conclusive. For example, average calving interval may be ideal, but if a significant part of the herd has not been bred and averages more than 70 days open, serious economic consequences result.

The KSU Dairy Herd Analyzer (KSU-DHA) provides an economic evaluation of four areas of herd management, as noted in Table 1. Any comparative analysis requires assumptions and/or goals. In the KSU-DHA, the stated goals (and economic consequences) are defined as follows:

1. Calving interval: 365 days
365-395 d — \$1 loss per day
> 395 d — \$3 loss per day
2. Days dry 45-60 days
< 45 or > 60 d — \$3 loss per day

3. Services per conception: 1.7
\$2 per each .1 > 1.7
4. Age at first calving: 24 mo
\$30 per mo > 24 mo

The value of the KSU-DHA is not the specific economic loss at any point in time but the comparison over time to evaluate management changes. For example, if a preventive herd health program (PHHP) were initiated, then the KSU-DHA would be an excellent way to evaluate the program after a year. Reproduction is the most difficult management area to evaluate in the dairy business and the easiest to overlook. Open cows (not pregnant but should be) are not sick or debilitated. Reproductive losses are insidious.

Table 1. Economic Benefits to the Average Kansas Holstein Herd by Meeting Goals of the KSU Dairy Herd Analyzer

Management area	Economic benefit, \$	
	per cow	per herd
Reproduction	\$116	\$ 8,572
Nutrition	132	9,787
Milk quality	18	1,303
Genetics	<u>34</u>	<u>2,501</u>
Total	\$300	\$22,163

Production vs Reproduction

Genetic antagonism exists between production and reproduction. Simply stated, higher producing cows are more difficult to settle. This relationship between production and reproduction is confounded by a management tendency to delay breeding back the higher producers, which also tend to be more difficult to detect in heat. The physiological basis for lowered efficiency in higher producing cows is difficult to determine.

Table 2 examines some reproductive measurements in herds at various levels of yearly production. The negative effect of production on reproduction is not apparent from the data under farm conditions. Apparently, managers of higher producing herds "over manage" the antagonism by getting more cows bred earlier in lactation. This fact is especially evident when comparing cows open, not-yet-bred, and the percent of cows open more than 120 days in Table 2. Although conception to first breeding is higher at lower production levels, there is little difference in percent of cows pregnant among herds after two breedings.

Identifying Reproductive Problems

Every open cow is a potential problem, because only 90% will conceive and deliver a calf under the management goals set by most producers. The basic problem in most herds is one of infertility—not sterility. The most common mistake in most herds is the failure to get cows bred back soon after calving. As noted in Table 2, the average number of days to first breeding is 82. Since conception to service is 50% and about one-half of heat periods are missed, the calving interval is dictated to be 400+ days.

Studies confirm that the fundamental difference between herds with high and low reproductive efficiency is awareness—awareness that cows need to be serviced before they can possibly become

pregnant. Adequate records are necessary to identify those cows not bred—but should be. Such records also should identify those cows serviced that are open at pregnancy exam. These two conditions contribute the majority of reproductive losses in Kansas dairy herds. The proper use of synchronizing agents (prostaglandins) can contribute markedly in reducing reproductive losses.

Tools are Available

Adequate record systems are available to "keep on top" of reproductive problems in dairy herds and minimize losses. The basic Dairy Herd Improvement (DHI) provides both a cow and herd evaluation on a monthly basis. The Flexible Management Report (FMR) will provide even more detailed information. Herds enrolled in the Electronic Barn Sheet option (EBS) can further fine tune reproductive management. As with any record system—simple or complex—there is little value to be gained unless it is used.

Table 2. Reproduction Characteristics of 498 Kansas Holstein Herds Ranked by Yearly Production per Cow

Item	Rolling herd average, lb			
	13,587	15,988	17,938	20,227
Calving interval, days	401	409	407	406
Services per conception	1.8	2.0	2.1	2.1
Days dry	71	67	63	61
> 70 days, %	39	29	21	16
Age at first calving, mo	30	29	27	27
Estimated reproductive loss per cow, \$	133	151	116	106
Conception rate, %				
First service	53.7	49.0	45.4	46.4
First + second	77.6	74.6	72.7	72.9
Days to first breeding	83	83	80	80
Heats detected				
18-24 days, %	38	38	38	39
> 24 days, %	50	54	56	56
Cows not bred				
Days open	128	98	83	67
% open	34	27	27	22
> 120 days, %	33	26	20	12