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EFFECTS OF VARIOUS FEEDING, BREEDING & MANAGEMENT PRACTICES ON MILK PRODUCTION

J.R. Dunham

The March 1984 DHI summary of Kansas Holstein herds shows some interesting correlations of various feeding, breeding, and management factors to production (Table 1). The Rolling Herd Average (RHA) is an excellent evaluation of the efficiency of dairy herds since RHA and income-over-feed-cost are closely related. Although income-over-feed-cost is not profit, it provides the income for paying the other costs of producing milk. The goal of every dairy producer should be to increase the RHA in order to improve profitability. The following observations can be made from Table 1:

Feeding

Higher producing herds are fed more grain and more dry matter than those with lower RHA's. The rations of higher producing herds are composed up of about 12% more grain than those of lower herds, but the higher RHA herds produce milk more efficiently, as shown by the milk/lb of grain or milk/lb of dry matter fed. Total feed cost increases with RHA but feed cost/cwt milk decreases, which results in more income-over-feed-cost for higher RHA herds.

Management

All of the management factors contributing to the RHA cannot be evaluated by the DHI report. However, high RHA herds have a higher percent of days in milk and fewer dry days than lower producing herds. More days in milk are accomplished with shorter dry periods, raising more replacements, and then culling first lactation heifers while they are still lactating.

Reproductive management does not seem to be much different in relation to RHA, except the number of days from calving to first service tends to be less in high RHA herds. Apparently, high production does not have a negative effect on reproduction. Most herds could shorten the calving interval by reducing the days between calving and first service.

An obvious management characteristic of high producing herds is the high summit milk yield. Apparently, feeding and management programs during the dry period and early lactation are such that fresh cows peak higher in their lactation curves than those in lower producing herds. A 60-day dry period is recommended. For high summit milk yields, starting about 2 wk before calving, dry cows should be fed the same forages as the lactating cows with about 15 lb of grain. Following calving, fresh cows should be on a high level of grain within a few days. The average age of cows in high RHA herds is lower than in low herds. Therefore, it cannot be concluded that high RHA herds have more mature cows. Also, the high RHA herds' first calf heifers are slightly younger.

Table 1. Correlation of rolling herd average with various feeding, breeding, and management factors.

Production Range	11,000 to 12,999 lb	13,000 to 14,999 lb	15,000 to 16,999 lb	17,000 to 19,999 lb
No. Herds	129	234	296	68
Cows/Herd	59	65	70	69
Rolling Herd Avg.				
Milk (lb)	12,043	14,022	15,992	17,877
% Fat	3.58	3.58	3.54	3.53
Fat (lb)	431	503	566	631
<u>Feeding</u>				
Grain (lb)	6,845	7,062	7,526	7,862
Forage D.M. (lb)	9,845	10,070	9,566	9,904
Total D.M. Fed (lb)	15,625	16,285	16,189	16,823
Milk/lb Grain	1.8	2.0	2.1	2.3
Milk/lb D.M.	0.76	0.85	0.98	1.05
Total Feed Cost (\$)	706	780	823	899
Income - Feed Cost (\$)	778	949	1160	1311
Feed Cost/Cwt Milk (\$)	5.86	5.56	5.15	5.03
<u>Management</u>				
% Days in Milk	83	85	86	88
Days Dry	69	66	65	60
Calving Interval (Days)	403	399	402	400
Services/Conception	1.8	1.9	1.8	1.8
Days to First Service	86	80	83	80
Avg. Age (yr.-mo.)	4-04	4-03	4-00	3-11
Age 1st Calving (yr.-mo.)	2-05	2-05	2-04	2-04
Summit Milk Yield (lb)	52.0	58.4	65.0	71.8
Lactation Profile (lb)				
<100 days	48.3	55.5	63.2	68.5
100-200 days	39.5	45.0	51.3	57.0
>200 days	31.0	35.7	39.8	44.4
<u>Breeding</u>				
Sires of Replacement (PD\$)	43	54	58	85
1st Lactation (PD\$)	11	22	18	51
2nd Lactation (PD\$)	-10	9	16	47
3rd Lactation (PD\$)	-19	2	2	33
4th Lactation (PD\$)	-33	-29	-24	-11
Service Sire Avg. (with PD)	83	89	95	112
Percentile Rank	65	70	75	88
Service Sires with PD (%)	48	60	68	86
Cows Identified by:				
Sire (%)	51	63	76	77
Dam (%)	76	83	92	93

Breeding

Sire selection is closely related to the RHA. All age groups are shown to be sired by higher PD\$ bulls as the RHA increases. In addition, the service sires currently being used have a higher PD\$ value and higher percentile rank in the high RHA herds. High RHA herds use a larger percent of proven bulls than lower RHA herds. The goal should be 80/80, which means 80% of the cows bred to at least 80+ percentile rank bulls. The other 20% of the cows should be bred to several young AI sires to help prove the next generation of bulls.

Sound breeding decisions cannot be made without identification. Table 1 shows that the percent of cows identified by sire and dam increases with the RHA.

Figure 1 depicts the stage of lactation profile of the groups of herds summarized in Table 1. It is obvious that the higher RHA herds maintain the production advantage through all stages of lactation. Thus, in order to obtain high total lactation yields, cows must start their lactations at a high level.

Figure 1. Comparison of RHA, summit milk yield, and stage of lactation profile.

