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K RELATIONSHIP BETWEEN PRODUCTION AND REPRODUCTION IN
S 5,480 HOLSTEIN HERDS ENROLLED
U IN THE MIDSTATES PROCESSING CENTER¹

E.P. Call and J.S. Stevenson

Summary

Reproductive parameters were evaluated in 5,480 Holstein herds involving 335,673 cows to determine the reported negative genetic effect of production on reproduction. While higher producing herds had a slight decline in days to first bred, this effect was offset by a similar increase in services per conception. The greatest effect was seen in the percent of cows open and the average days open. It was concluded that managers of higher producing herds are more aware of the need to get cows bred back after calving and implement the necessary practices to minimize the percent of cows not yet serviced and the average days open. The negative genetic relationship between production and reproduction may be overcome with sound management practices.

Introduction

Research in the U.S. and other countries suggests that there is a small but real negative relationship between production and reproduction. This genetic antagonism results in higher producing cows being bred later, taking longer to conceive, and requiring more services per conception. Since performance is a result of genetic and environmental factors, it is important to determine if managerial input can overcome the inverse genetic effect.

Procedures

An analysis was conducted of the 5,480 DHIA Holstein herds, involving 335,673 cows, which were processed by Midstates Processing Center, Iowa State University in April, 1983. The herds were stratified by rolling herd average (RHA) as shown in Table 1. RHA is a measure of average yearly (365 day) milk production per cow and includes days dry. Several reproductive parameters were evaluated, including days to first breed, minimum freshening interval, services per conception, and cows not yet bred following last calving. Data were reported by dairy producers as an adjunct to the production testing program. Only DHIA herds reporting reproductive information were included in the analysis.

¹We gratefully acknowledge the cooperation of Dr. Tom Aitchison, Iowa State University, Ames, in supplying the data for this study.

Results and Discussion

In general, herds with higher RHA are more efficient as measured by income-over-feed costs. Cows at higher levels of production consume more feed but are more efficient in converting feed into milk, since maintenance costs are the same for similar body weight cows regardless of level of production. As indicated in Table 1, there were no appreciable effects of production on minimum freshening interval. There was a slight but positive decline in interval to first service, which was offset by an increase in services per conception ranging from 1.7 to 1.9 as RHA increased. Since minimum freshening interval only involves cows actually bred, cows not yet bred after calving have no effect on freshening interval.

The latter parameter, cows open, reflects the primary difference between low and high-producing herds. While the study suggests that the overall effects of production on reproduction are minimal and that management can overcome reported negative genetic effects, managers of higher producing herds are more aware of cows not yet bred and take the necessary management practices to minimize the percent of cows not yet bred at a much earlier time after last calving.

Table 1. Herd reproduction summary of 5,480 Holstein herds processed through Dairy Records Processing Center, Iowa State University.

Number of herds	Herd average-milk (lb/yr)	Minimum ^a freshening interval (days)	Interval to first service (days)	Open cows ^b		Services per conception
				(%)	(Avg. days)	
71	8,034	413	99	43	156	1.7
383	10,187	400	88	40	147	1.7
1250	12,120	398	86	35	119	1.7
1911	14,014	400	87	32	100	1.8
1343	15,853	401	87	29	89	1.8
442	17,694	401	86	29	81	1.8
80	19,876	398	84	27	79	1.9

^a Assumes last reported service was successful.

^b Cows not yet reported bred since calving.