



The effect of dam milk production on daughter maternal ability in Hereford cattle
by William Andrew Reed

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in
Animal Science

Montana State University

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Abstract:

The selection of replacement beef heifers based on their weaning weight performance has been inaccurate due to a demonstrated negative correlation between preweaning gain and maternal performance as measured by amount of calf produced at weaning. Milk production has been shown to be an important component of maternal performance. It was the objective of this thesis to investigate the role of milk production in the negative correlation between dam and daughter maternal ability.

The data set contained 880 cow/calf records from Hereford cows and calves located at the Northern Agricultural Research Center near Havre, Montana from the years 1970 to 1987 and included milk production measurements and calf weaning weights. Milk production was measured during two periods. The first averaged 39 d and the other averaged 131 d postpartum. Milk productions and weaning weights were tested for the effects of year, age of cow, sex of calf and age of calf and adjusted for those effects found to be significant. Production was then averaged over years for each cow. Correlations between weaning weight and milk production variables were calculated. They were found to be positive. Data were organized into 67 dam-daughter-granddaughter sets and the maternal lines grouped by relative milk production or weaning weight production of generation 1 cows into high, moderately high, moderately low and low groups. The groups were then compared between generations and between groups and trends noted. The data were reorganized into 171 dam-daughter sets and correlations and regressions were calculated.

Analyses of the three generation data subset revealed a trend of dams with above average milk production producing daughters with below average milk production and dams with below average milk production produced daughters with above average milk production. Regressions of daughter traits on dam traits performed on the two generation data subset were generally not significantly different from zero.

Combined results from all analyses, however, indicated that dam milk production had a negative effect on daughter milk production and daughter weaning weight produced. The data also suggested that the dam's second milk production period had more influence on the daughter's subsequent maternal ability than did the first milk production period.

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APPROVAL

of a thesis submitted by

William Andrew Reed

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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Signature William C. Reed

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