1993

Effect of yearly milk per cow on profitability of dairy herds

Edward P. Call

James R. Dunham

Follow this and additional works at: https://newprairiepress.org/kaesrr

Part of the Dairy Science Commons

Recommended Citation
Call, Edward P. and Dunham, James R. (1993) "Effect of yearly milk per cow on profitability of dairy herds," Kansas Agricultural Experiment Station Research Reports: Vol. 0: Iss. 2. https://doi.org/10.4148/2378-5977.2950

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 1993 Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.
Effect of yearly milk per cow on profitability of dairy herds

Abstract
An analysis of Kansas Holstein herds in 1992 indicated that the yearly milk production per cow had a significant effect on returns to labor and management. The lowest quartile herds (13,445 lb per cow average) had a negative return to management. Herds averaging 20,614 lb per cow yielded $479 return to management. Records become increasingly important in managing the dairy operation, especially those that are readily analyzed and predict the degree of economic change when management is modified.
Dairy Day, 1993, Kansas State University, Manhattan, KS, 1993;

Keywords
Dairy Day, 1993; Kansas Agricultural Experiment Station contribution; no. 94-149-S; Report of progress (Kansas Agricultural Experiment Station); 694; Dairy; Milk production; Profit; Dairy cattle

Creative Commons License
This work is licensed under a Creative Commons Attribution 4.0 License.

This research report is available in Kansas Agricultural Experiment Station Research Reports: https://newprairiepress.org/kaesrr/vol0/iss2/25
EFFECT OF YEARLY MILK PER COW ON PROFITABILITY OF DAIRY HERDS

E. P. Call and J. R. Dunham

Summary

An analysis of Kansas Holstein herds in 1992 indicated that the yearly milk production per cow had a significant effect on returns to labor and management. The lowest quartile herds (13,445 lb per cow average) had a negative return to management. Herds averaging 20,614 lb per cow yielded $479 return to management. Records become increasingly important in managing the dairy operation, especially those that are readily analyzed and predict the degree of economic change when management is modified.

(Key Words: Milk Production, Profit, Dairy Cattle.)

Introduction

Compared with other agricultural projects, dairying is considered to be a highly skilled, labor-intensive business requiring medium capital investment with favorable long-term returns. However, dairy records show great variation among individual cows’ production as well as among dairy herds. Numerous studies have shown that level of management has greater impact on profitability than degree of capitalization. One method of evaluating level of management is to measure average yearly milk production response.

Procedures

Kansas Holstein herds (n = 565) participating in the dairy herd improvement program (DHI) were ranked by yearly milk production per cow (rolling herd average) and categorized by quartile. The data were analyzed using the KSU Dairy Computer Programs (DyS91-1): Cost and Returns (COST-RET) and Dairy Herd Analyzer (DHA). The data set included the calendar year - 1992.

Results and Discussion

Table 1 notes the effect of yearly milk per cow on feed costs and return above feed cost. With any production trait, increased yield must be accompanied by greater feed input especially during early lactation when appetite is near maximum. Comparing the four groups, feed costs increase 35% or $273 per cow. The efficiency of converting feed into milk at higher levels of yearly milk is evident by the 10% decline of feed cost per cwt milk from the high to low production groups. The 53% increase in production results in 79% improvement in income-over-feed cost when the bottom and top groups are compared.

Table 1. Effects of Yearly Milk Production per Cow on Income-Over-Feed Cost in Kansas Holstein Herds Ranked by Production Quartile

| Yearly milk (lb) | Feed cost | Income/feed cost | Feed Cost/cwt milk |
|------------------|-----------|------------------|--------------------|
| 13,445           | 788       | 846              | $5.81              |
| 16,470           | 943       | 1,082            | 5.65               |
| 18,213           | 988       | 1,282            | 5.42               |
| 20,614           | 1,061     | 1,512            | 5.23               |
The impact of feed required for maintenance is often overlooked. Like all animals, cows use feed first and foremost for body function and sustenance. Maintenance requirements are based on body weight and are similar for cows of comparable size. As illustrated by maintenance feed cost in Table 2, little difference in body weight was reported among the four groups. The value per unit of feed for maintenance was held constant across groups.

Table 2. Feed Cost Partitioned between Maintenance and Milk Production in Kansas Holstein Herds Ranked by Production Quartile

| Yearly milk | Feed cost | Feed Cost Milk Maintenance |
|-------------|-----------|-----------------------------|
| 13,445 lb   | $ 788     | $ 437 $ 351                 |
| 16,470      | 943       | 583 360                     |
| 18,213      | 988       | 627 361                     |
| 20,614      | 1,061     | 697 364                     |

When the top and bottom groups are compared, feed cost increased by 35% but the portion of total feed intake used for milk production improved by 59% in the 20,614 lb group. Further evidence of improved efficiency is shown by the percent of total feed used for maintenance in the low and high groups: 45% vs 34%.

Dairying requires a high labor input per cow unit (50-60 hr/cow/yr). Although studies have shown some increase in labor as production increases, the cost of investment is not necessarily related to cow productivity. Table 3 considers the effect of investment and feed costs for cows and heifers as generated by the KSU COST-RET program on return to labor and management. Although some return to labor occurs at all levels, the greatest impact of yearly milk per cow is on return to management only after the labor bill has been acknowledged.

Table 3. Effects of Yearly Milk Production per Cow on Return to Labor and Management in Kansas Holstein Herds Ranked by Quartile Production

| Yearly milk | All costs | Return to management + labor only |
|-------------|-----------|----------------------------------|
| 13,445 lb   | $ 1,968   | $198 $(-76)                     |
| 16,470      | 2,106     | +467 +159                       |
| 18,213      | 2,195     | +612 +285                       |
| 20,614      | 2,298     | +833 +479                       |

Figure 1 indicates the lactation curves for the four groups of herds ranked by average yearly milk per cow. The effect of summit milk yield (SMY) and lactation profile on yearly milk production is readily apparent. Each pound increase in SMY generates another 300 lb increase in yearly milk. Once cows come off their peak (SMY), production declines at a rather constant rate (0.1 lb/day).

Table 4. Changes in Income-over-Feed Cost per Cow during 1992 with Constant Milk and Feed Prices Compared with 1991

| Management Area | Change: 1992 v 1991 |
|-----------------|---------------------|
| Reproduction   | - 8$                |
| Nutrition       | +22$                |
| Milk Quality    | 0$                  |
| Genetics        | + 2$                |
|                 | +16$                |

Table 4 provides an insight on the changes that occurred among Kansas Holstein herds in 1992 compared with the previous year. The four management areas are evaluated by keeping milk price and feed costs constant, which provides an accurate measure of changes in cash flow on an individual cow basis. Dairy produc-
ers can use this method of evaluating management levels in their herds by comparing their respective data with reachable goals. As management intensifies, the value of records and the ability to interpret data and implement changes becomes more critical.

Figure 1. Summit Milk Yield (■), Lactation Profiles (0), and Income-over-feed Cost for Kansas Holstein Herds at Various levels of Rolling Herd Averages (Milk per Cow per Year)