COOPERATIVE EXTENSION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS 66506

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KANSAS DAIRY EXTENSION NEWS

VOLUME 16 (3) September-October, 1995

Winning County Herd - Miami Co.
1995 Junior Dairy Show, Salina, KS

(At the halters (l to r): Katie Pretz, Ben Pretz, Brandi Hendrickson, Kristen Hendrickson, Jon Pretz, Eric Pretz, Kristy Oldham, and Matt Pretz.)

1995 KSU DAIRY DAY

Milk Quality Awards
Due: October 16th

(Program and Entry Form Enclosed)

MANAGEMENT STRATEGIES ... THE NUTRITION PROGRAM

J. R. Dunham

Summary

Lower milk price combined with higher feed cost dictate that dairy farmers carefully manage their nutrition program in order to maintain profitable milk production.

Reducing feed cost by feeding less feed will results in lower milk production and less income-over-feed cost. However, some by-product feeds are less expensive than traditional grain mixes and can be fed to reduce feed cost and maintain income-over-feed cost.

Low quality hay is less expensive than high quality hay, but income-over-feed cost will be reduced when low quality hay is selected.

Introduction

When the economics of dairying get tight due to lower milk price and/or higher feed cost, dairy farmers need to carefully evaluate nutritional management decisions to avoid making a decision that might results in less income-over- feed cost.

Too many times the decision is made to feed less grain mix as feed ingredient prices increase. This will almost always result in lower milk production and reduced income- over-feed cost because cows produce more milk per lb of dry matter intake (DMI) as production is increased since the same amount of feed is required for maintenance for all cows with the same body weight.

Low quality hay usually costs less than high quality hay, but selecting a lower quality hay will reduce income-over-feed cost because production will be reduced due to lower DMI.

Dairy farmers in Kansas can reduce feed cost by replacing some of the traditional ingredients in the grain mix with some by-product feeds. The decision to use these feeds requires some management decisions.

This report will illustrate the basis for making nutritional management decisions when trying to maintain profitable milk production in a tight dairy economy.

Production Level vs Income- Over-Feed-Cost. Everything else being equal, there is a better opportunity for higher producing herds to be profitable than lower producing herds. Body size, not production level, determines the maintenance requirement. Therefore, the maintenance requirement is a smaller portion of the total nutrient requirement for high production than for lower levels.

Table 1 shows that the maintenance cost for all levels of milk production is $1.11 per cow per day, assuming that the cows are the same size and using the feed prices indicated. This cost has to be paid at any level of milk production.

Table 1 also illustrates that income-over-feed cost is increased 144 per cent when comparing the highest to lowest production, even though the daily feed cost is 83 per cent higher for the high production level.

Certainly, the decision to feed less in order to save on feed cost is not a good management decision.

Culling. When dairy profitability is marginal, culling is an important management decision. Since high producing cows produce milk more efficiently than lower producers, culling low 9producers and feeding the remaining cows for high production can result in more income-over-feed cost. By culling 17 per cent of the lowest producers and feeding the remaining cows for higher production, income-over-feed cost will be the same as before culling. Example: a herd with a 17,000 lb milk herd average would have the same income-over-feed cost after culling 17 per cent of the cows for production and feeding the remaining cows for 20100 lb milk average.

Dry Matter Intake. Because today's dairy cows have a tremendous ability to produce milk, maximum DMI should be the goal of every nutrition management program.

DMI intake is increased by feeding grain mixes, but the maximum amount of grain mix that can be fed is about 60 per cent of the total ration dry matter. Higher levels can cause digestive upsets.

Relative Feed Value (RFV) of forages, in most cases, is the most limiting factor for DMI. Table 2 illustrates the influence of RFV of alfalfa hay on DMI, milk production, and income-over-feed cost. Income-over-feed cost increased as the RFV of hay increased because DMI and production was higher. Lower prices were assigned to the lower RFV hay which resulted in lower daily feed costs, yet income-over-feed cost was higher with the higher RFV hay.

Dry cow feeding is also an important consideration in nutritional management of a dairy herd. Dry cows should be fed enough nutrients to obtain a body condition score of 3.5 to 4.0 by calving time. Adjusting the rumen microbes to the lactating cows' ration two to three weeks before calving will also improve productivity.

Other factors affecting DMI include: total mixed ration (TMR),number of time fed daily, and moisture content of the ration. TMRs tend to increase DMI because few digestive upsets are apparent when cows consume grain mixed with forage. Feeding more than once per day will increase DMI because the feed remains fresher and more palatable.

During hot weather, adjusting the moisture content of a TMR can increase DMI because cows can consume the ration at a faster rate. Many dairy farmers are adding water to the TMR to adjust the moisture content to 45 to 50 per cent.

By-Products. Selecting by-products can be an important nutritional management decision. These feeds can lower feed costs and/or provide critical nutrients. Most are readily available and competitively priced in Kansas. Tallow usually costs more than its break even price. However, tallow is selected for many rations to increase energy density.

Table 3 lists some by-product feeds. Table 4 shows the break even price of by-product feeds when compared to current prices of traditional feeds.

Conclusions

When milk price is pressed and feed cost increases, the management strategy for the nutrition program still should one to maximize production.

See tables on page -4-.

THE 1995 ANNUAL KSU DAIRY DAY

Friday, October 27, 1995 - Pottorf Hall - Cico Park, Manhattan

(From KSU Sports Complex, 1 mi W on Kimball, .4 mi S on Wreath, .2 mi W on Robinson)

8:00 am — *REGISTRATION - **Visit Exhibits***
John Shirley, KSU, Program Chairman

10:15 am — *WELCOME TO KSU DAIRY DAY*
Jack Riley, Head, AS&I, KSU

10:30 am — *MANAGEMENT STRATEGIES ... THE NUTRITION PROGRAM*
J.R. (Dick) Dunham, KSU

10:45 am — *MANAGEMENT STRATEGIES ... REPRODUCTION*
J.S. (Jeff) Stevenson, KSU

11:00 am — *MANAGEMENT STRATEGIES ... SOMATIC CELL COUNT*
J.F. (John) Smith, KSU

11:15 am — *KEY NOTE SPEAKER - 1995 FARM BILL (Speaker to be announced)*

12:00 pm — *LUNCH, COURTESY OF MONSANTO **(TICKET AT REGISTRATION)***

*****Visit Exhibits*****

1:15 pm — *QUALITY MILK AWARDS*
J.R. (Dick) Dunham, KSU

1:30 pm — *PANEL: rbST RESEARCH AND FIELD EXPERIENCE*
J.F. (John) Smith, Moderator

2:15 pm — *QUESTION/ANSWERS (Panel)*
(Please fill out question (?) cards during the day!!!)

2:30 pm — *ADJOURN - **Visit Exhibits***

3:00 PM — *TOUR - **Dairy Teaching and Research Center***

"A special THANKS to the Exhibitors who support Dairy Day"

1995 KANSAS QUALITY MILK AWARDS
(Deadline - October 16)

1995 Kansas Quality Milk Awards Program

Sponsored by:

Cooperative Extension Service, KSU
Kansas Mastitis Council, Inc.
West Agro, Inc.

The Kansas Mastitis Council, in cooperation with West Agro, Inc., is sponsoring an awards program to recognize Kansas producers.

Requirements

Contestants must fill out the entry form, showing the SCC, Bacteria (SPC) and Antibiotic tests for the period of August 1, 1994 through July 31, 1995. Four tests are required during any 6-month period.

Awards

The competition will be divided into three divisions according to herd size: Large - 81 or more cows; Medium - 50-80 cows; Small - 49 or fewer cows.

- Lowest yearly average SCC and bacteria count in all divisions will receive a plaque.
- Second lowest yearly average SCC and bacteria count in all divisions will receive a plaque.
- Third lowest yearly average SCC and bacteria count in all divisions will receive a plaque.
- **CERTIFICATES OF MERIT** will be presented to all entrants with an average SCC under 300,000 and bacteria counts averaging 10,000 or less.

Entry Form

1995 Kansas Quality Milk Awards

Month	Year	SCC	Bacteria	Antibiotics	Total Cows*
August	1994				
September	1994				
October	1994				
November	1994				
December	1994				
January	1995				
February	1995				
March	1995				
April	1995				
May	1995				
June	1995				
July	1995				

*Include dry cows in total.

Name_____
Address_____
_____
Phone ( ) _____

Send results on this form to:

Dr. J. R. Dunham
Call Hall, KSU
Manhattan, KS 66506-1600
Entry Deadline: October 16, 1995

MANAGEMENT STRATEGIES .. REPRODUCTION

J. F. Smith and J. S. Stevenson

Introduction

Dairy producers often lose significant income because of poor reproductive performance in their herds. The costs associated with substandard reproductive performance can be significant and often go undetected. In this report, 402 Kansas Holstein dairy herds participating in Heart of America DHIA were divided into three production groups based on 365-day rolling herd averages. The reproductive performance of the three production groups was evaluated using the Kansas State University Dairy Herd Analyzer.

Effect of Milk Production Level on Reproductive Performance

The rolling herd averages of three production groups evaluated were 14,580 (low), 19,167 (medium), and 23,426 (high) pounds. Rolling herd averages of the individual herds ranged from 12,000 to 30,000 lb. As the rolling herd average increased, days dry, age at first calving, and calving interval decreased. Average number of services per conception and days in milk increased as milk production increased. Days open were greatest in the low production group. When we look at the information, it is also apparent that higher producing herds tend to breed cows earlier in lactation. Thirty-five percent of the cows in the low group had not yet been inseminated by 120 days in milk compared to 17% in the high producing group.

Most studies monitoring genetic trends for reproductive traits report negative relationships between milk yield and some reproductive traits. In contrast, it appears that management in most high-producing herds is superior to maintain good reproductive performance.

Economics of Reproductive Performance

The Dairy Herd Analyzer calculates the amount of reproductive loss per cow based on the average performance of the herd. The reproductive loss per cow is calculated using the following criteria: 1) $1 per day when the calving interval is between 365 and 395 days and $3 per day when the calving interval is over 395 days; 2) $3 per day when average days dry are under 45 days or over 60 days; 3) $2 per .1 service per conception over 1.7; and 4)$30 dollars per month for each month of age of first calving over 24 months. When calving interval, age at first calving, or days dry are extended, reproductive loss is associated with additional feed cost, lost milk production, and loss in future replacements. The cost associated with services per conception over 1.7 cover additional semen and labor costs.

When these criteria were used to evaluate the low, medium, and high production groups the reproductive lost per cow was $203, $158, and $139, respectively. These costs that are assessed by the Dairy Herd Analyzer for reproductive failure are not "true" costs because they do not represent out-of-pocket expenses but actual losses in potential income. These losses in income can have a significant effect on the profitability of a dairy operation.

Successful Techniques Used in Successful Reproductive Management

- Use an estrus-synchronization program for replacement heifers to begin inseminations by 13 months of age. This practice ensures that replacements calve by 24 months of age.
- Establish an elective waiting period consistent with herd goals. Generally, for each 1-day decrease in days to first service in cows, a 0.8-day decrease in days open or calving interval occurs.
- Use some estrus-synchronization protocol for programming first services in cows. These protocols ensure timely first inseminations by a given target day in milk.
- Manage repeat services by effective and diligent heat detection reduces intervals between repeated services by eliminating more missed heats.
- Effective use of prostaglandins to induce estrus for efficient rebreeding of cows identified open at pregnancy diagnosis.
- Establish and adhere to a herd-specific preventive herd health program including disease prevention by vaccination, cleanliness, and routine veterinary consultation and care.
- Make routine observations of suspect cows for various health disorders while watching cows for estrus.

Conclusions

Despite the negative effects of milk production on some reproductive traits, calving interval between the high and the low producing groups only vary by 9 days (414 vs 423). First-service conception rates were 8 percentage points greater in the low producing group than in the high producing group. However, the percentage of cows not yet inseminated that are more than 120 days in milk is 18 percentage points greater in the low producing herds. When evaluating the Kansas dairy herds in the DHIA program, it appears that higher producing herds have lower first service conception rates and more services per conception. However, high-producing are doing a better job of servicing cows inseminated earlier in lactation and putting replacements into the milk string at a younger age. This may be because high-producing herds have reproductive records and heat detection programs that allow them to detect a higher percentage of the cows in heat before 120 days in milk.

Fine tuning the reproductive management program can also improve the profitability of a dairy operation. The reproductive losses in high producing herds are considerably less than those in low producing herds ($139 vs $203). There are no magic formulas in establishing a good reproductive program. Combing good records, diligent heat detection, and sound artificial insemination technique can increase the profitability of a dairy.

TABLE 1. COMPARISON OF ROLLING HERD AVERAGE TO INCOME-OVER-FEED COST.

Rolling Herd Average	Maintenance Cost/Day	Daily Feed Cost*	Income-Over-Feed Cost/Year
13,900	1.11	2.23	715.00
17,000	1.11	2.58	928.00
20,100	1.11	3.00	1,116.00
23,200	1.11	3.37	1,322.00
26,300	1.11	3.73	1,531.00

** Feed Prices/Ton: Alfalfa $110.00, Corn Silage $25.00, Cottonseeds $140.00, Soybean Meal $200.00, Corn $115.00, Vitamin-Minerals $270.00.*

TABLE 2. EFFECTS OF ALFALFA QUALITY ON DRY MATTER INTAKE.

Alfalfa RFV*	Alfalfa DMI (lb)	Estimated Milk (lb)	Feed Cost (cwt milk)	Income-Over-Feed Cost/Cow
160	32.6	68.0	5.73	3.58
149	31.0	64.6	5.78	3.37
138	29.5	61.4	5.84	3.17
129	28.2	58.6	5.90	2.99
107	27.0	56.1	5.96	2.83

** Alfalfa Prices: RFV 160 = $120.00, RFV 149 = $115.00, RFV 138 = $110.00, RFV 129 = $105.00, RFV 107 = $100.00.*

TABLE 3. BY-PRODUCT FEEDS AVAILABLE IN KANSAS.

By-Product	Purpose	Comments
Cottonseeds	Increase energy and fiber density	Limit to 6 lb
Distiller Grain	Increase UIP	May be an inexpensive source of protein
Hominy	Substitute for grain	Does not flow well
Meat-Bone Meal	Increase UIP. Good source of phosphorus	Limit to 2 lb
Tallow	Increase energy density	Limit to 1.25 lb
Soy Hulls	Increase fiber density	Limit to 5 lb
Wheat Mids	Substitute for grain and protein supplement	Limit to 12 lb

TABLE 4. ESTIMATED VALUE OF BY-PRODUCTS*.

By-Product	Estimated Value (cwt)	By-Product	Estimated Value (cwt)
Cottonseeds	8.08	Tallow	14.64
Distillers Grain	7.86	Soy Hulls	5.44
Hominy	6.84	Wheat Mids	6.28
Meat-Bone Meal	16.75		

** Prices of other feeds used in the comparison: Alfalfa Hay = $5.75, Corn = $5.75, Soybean Meal = $10.00.*

KSU KANSAS STATE UNIVERSITY

Cooperative Extension Service

Extension Animal Sciences and Industry
Call Hall
Manhattan, Kansas 66506-1600
913-532-5654

Dear Producer:

This issue of KDEN covers the program for the 1995 edition of K-State Dairy Day. This event provides the dairy industry the opportunity to review research programs at K-State and address current issues facing the dairy producer. If you haven't already, why not complete the entry blank for the Milk Quality Awards Program. *Deadline is Monday, October 16.*

Sincerely,

James R. Dunham — John F. Smith
Extension Specialist, Dairy Science