

South Dakota State University

Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

Bulletins

South Dakota State University Agricultural
Experiment Station

9-1-1969

Seasonal Marketing of Manufacturing Milk: Associated Factors in Eastern South Dakota

R. L. Beck

L. G. Traub

Follow this and additional works at: http://openprairie.sdstate.edu/agexperimentsta_bulletins

Recommended Citation

Beck, R. L. and Traub, L. G., "Seasonal Marketing of Manufacturing Milk: Associated Factors in Eastern South Dakota" (1969).
Bulletins. Paper 564.
http://openprairie.sdstate.edu/agexperimentsta_bulletins/564

This Bulletin is brought to you for free and open access by the South Dakota State University Agricultural Experiment Station at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Bulletins by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Seasonal Marketing of Manufacturing Milk

Associated Factors in Eastern South Dakota

Agricultural Experiment Station
South Dakota State University
Brookings

CONTENTS

Introduction	3
Objectives	4
Procedure	4
Comparisons Between Seasonal and Nonseasonal Producers	5
Producer-Processor Relations	5
Quantum of Information	6
Farm Operations	7
Management	8
General Agricultural Factors	9
Seasonal Pricing	10
Operational Adjustments	11
Barriers to Seasonal Adjustments	12
Summary, Conclusions and Implications	13
Selected References	15

Seasonal Marketing of Manufacturing Milk

By

ROBERT L. BECK, associate professor, and
LARRY G. TRAUB, graduate assistant,
Department of Economics

INTRODUCTION

Seasonal variations in deliveries of milk lead to serious marketing problems. A fairly uniform pattern of marketing milk from month to month is desirable from the standpoint of both the producer and processor. From a farm management viewpoint, uniform production tends to result in a higher annual production and greater income per cow. Directly affecting the processor, and indirectly the producer, is the impact of seasonal variations on marketing costs. Seasonality results in increased processing costs because both labor and equipment cannot be utilized to capacity. Costs of storing the finished products are also increased because production is out of line with market needs. In addition, variations in marketing affect assembly costs. It is costly to haul small loads of milk in the short-age season.

While seasonality is not unique to South Dakota's dairy industry, it is of such magnitude to warrant attention. Through seasonal pricing programs, some progress has been made in encouraging a more uni-

form supply of grade A milk. Unfortunately, however, little has been accomplished in the manufacturing milk segment. Not only must this segment cope with variations in the supply of manufacturing milk, but it also becomes the residual market for surplus milk from the fluid sector. Thus, the seasonality of the total industry is carried mainly by the manufacturing milk segment.

In South Dakota, there is pronounced seasonal variability of marketing manufacturing milk.¹ In 1968, total milk production varied from a high of 163 million pounds in June to a low of 107 million pounds in November—a decrease of 34%.

¹Data showing seasonal variability of marketing manufacturing milk are not readily available. However, the use of total production to illustrate seasonal variation in marketing seems logical. In 1968, more than four-fifths (83%) of the total milk produced in South Dakota was sold in the form of whole milk. Only 15% of that sold to plants and dealers was eligible for fluid use. Thus, 85% of the milk sold as whole milk excluding surplus grade A, was utilized in manufactured dairy products. (United States Department of Agriculture, *Milk Production*, Statistical Reporting Service, Washington, D. C., January, 1969).

Since the effect of this extreme variation on both the producer and processor warranted study, research was conducted with the following stated objectives:

1. Determine the degree of increased plant efficiency which could be expected by eliminating the wide seasonal variation in marketing manufacturing milk.
2. Estimate the possible effect of increased plant efficiency on producer milk prices.
3. Identify and evaluate the factors associated with seasonal marketing of manufacturing milk.

4. Determine producer response to alternative programs designed to bring about more uniform marketing of manufacturing milk throughout the year.

An analysis of the effect of seasonal milk supplies on processing firm efficiency (objectives 1 and 2) was completed in 1965.² This publication presents an analysis of factors associated with seasonal variation in the marketing of manufacturing milk (objectives 3 and 4). The principal aim of this study was to identify these factors and determine adjustments necessary to reduce seasonal fluctuations.

OBJECTIVES

The objectives of this study were:

1. To identify factors associated with the seasonal pattern of marketing manufacturing milk.
2. To determine the feasibility of a price incentive program for increasing market re-

ceipts during seasonally low months.

3. To identify adjustments necessary for and obstacles preventing increased production during seasonally low months.

PROCEDURE

A list of producers who were patrons of either of two randomly selected cooperative butter-powder plants in eastern South Dakota on June 1, 1966, was assembled from plant records. The study period selected was the calendar year 1965. To be included in the sample, a producer must have marketed milk during the entire period. Approximately 1,100 producers satisfied these requirements. From plant records, a seasonality ratio was then computed for each producer.³ A seasonal pro-

ducer was defined as one whose seasonality ratio was less than 0.35. A nonseasonal producer was defined as one whose seasonality ratio was 0.65 or greater. A total of 162 pro-

²Law Nicholas Brod, "The Effects of Seasonality of Manufacturing Milk Production on Dairy Manufacturing Firms' Efficiency," M.S. Thesis, Economics Department, South Dakota State University, Brookings, South Dakota, June 1965.

³Seasonality ratio is the percentage relationship of the three adjacent months of low milk production to the three adjacent months of high production.

ducers were thus classified as non-seasonal and 337 as seasonal. A stratified random sample of 25 nonseasonal producers and 50 seasonal producers was drawn for analysis.

Personal interviews were conducted with these 75 producers to identify general farm characteristics, dairy operations, marketing practices, and factors associated with seasonal marketing. The chi-square test of independence was used to test for significant differences between the seasonal and nonseasonal producers. In this report, emphasis is given to those variables on which the two groups differed significantly.

Comparisons Between Seasonal and Nonseasonal Producers

The two types of producers were compared according to groups of related factors. While individual factors were analyzed statistically, more meaningful conclusions became apparent when the interrelationships of factors within each category were considered. The five following categories, as well as the basis for each grouping, formed the general framework for the analysis.

(1) Producer - Processor Relations.

These factors were analyzed to identify producers' attitudes toward processors' practices and policies regarding the seasonality problem. Factors included were producers': (a) attitudes toward cooperatives, (b) satisfaction with the pay period, milk pick-up, and milkfat testing, and (c) awareness of processors' problems generated by seasonality of production.

(2) Quantum of Information.

The producer's decision making

ability is often related to the amount of relevant information available. The amount of information which producers receive relative to the seasonality problem is reflected in the following factors: (a) subscriptions to farm magazines, (b) time spent per day with the various types of mass media, and (c) extent of formal education.

(3) Farm Operations.

Some of the causes of seasonality problems originate in the producers' farm operation practices. Such relevant factors include: (a) quality of the dairy herd, (b) breeding practices, (c) amount of concentrates fed, and (d) herd size.

(4) Management.

Decision making factors involved in farm management include: (a) sources consulted on problems in producing and marketing manufacturing milk, (b) volume of milk produced, (c) attitudes toward changing to grade A production, (d) utilization of bulk tanks, (e) receptivity toward dairy testing associations, (f) extent of dairy management experience, and (g) expected longevity in milk production.

(5) General Agricultural Factors.

General agricultural factors supply information valuable to an understanding of the differences between types of producers. These factors are: (a) sources of farm income, (b) farm size, (c) tenure, (d) farm management experience, and (e) age of producers.

Producer-Processor Relations

The extent to which producers react to decisions made by the proces-

sor were reflected in an analysis of the producer-processor relationship factors. When a producer becomes dissatisfied with a processor, one reaction may be to patronize another plant. It was found, however, that there was no significant difference between the two groups in the frequency with which they shifted from one plant to another during the previous five years (table 1).⁴ Both groups showed little tendency for shifting between plants.

Specific areas in which dissatisfaction may arise are the frequency of milk payments, frequency of milk pick-up, and milkfat tests. In all three cases, both the seasonal and nonseasonal producers stated that they were satisfied.

Communication between producers and processors, as a means of

gaining a better understanding of processors' problems, can be partially achieved through patron or membership meetings. There was no significant difference between the groups in regard to the number of such meetings attended last year with only a small percentage of both types of producers attending. However, both groups were aware of the identity and nature of problems faced by the processor resulting from seasonality of marketing. In particular, producers recognized the problem of full employment of labor as a major one faced by the processor.

Quantum of Information

Processors' opportunities to communicate with producers was assumed to be indicated by the latter's contact with mass media and by their formal education.

Contact with dairy marketing information disseminated in farm magazines did not differ between the two types of producers (table 2). While a majority of the producers subscribed to two or more farm magazines, most did not subscribe to a magazine dealing primarily with dairying information. Those who did subscribe to a dairy magazine read only some of the articles.

The data revealed a significant difference between the two groups of producers in terms of the amount of time spent reading newspapers. Seasonal producers spent significantly more time reading newspapers than did the nonseasonal producers.

⁴The level of significance for evaluating all computed chi-square discussed in the text was $\alpha=10$, unless indicated otherwise. Levels of significance are noted in the tables.

Table 1. Chi-square values for producer-processor relationship factors, sampled producers, eastern South Dakota, 1966.

Variable	Computed X ² value
Change in processing plants during the last five years	.04
Satisfaction with the frequency of milk payments	.09
Satisfaction with the frequency of milk pick-up	1.56
Satisfaction with the milkfat tests	2.10
Number of patron meetings attended last year	1.04
Benefits from membership in a cooperative	2.41
Awareness of processors' problems	.55
Awareness that a decrease in milk production in the fall months is a problem to the processor	.15
Awareness of why a decrease in milk production in fall months is a problem to the processor	3.07

Note: No significant difference (at the 10% level) was found between the two groups for any of the above factors.

Most producers spent fewer than 30 minutes a day reading farm magazines. In contrast, most producers watched television or listened to radio 1 to 3 hours per day.

The proportion of newspaper reading time spent reading national news, agricultural markets, sports, comics, and most other sections was not significantly different between the two groups. The one exception, state and local news, was ranked significantly higher by the nonseasonal producers.

Analysis of time spent listening to or watching various types of radio or television programs revealed a significant difference between the two groups in the ranking of time spent on agricultural market re-

Table 2. Chi-square values for quantum of information factors, sampled producers, eastern South Dakota, 1966.

Variable	Computed X ² value
Number of subscriptions to:	
Farm magazines .....	.81
Dairy magazines .....	.64
Time spent:	
Reading newspapers	2.80*
Reading farm magazines .....	.13
Listening to radio or watching television .....	.22
Rank of newspaper reading time spent on:	
National news .....	.28
State and local news	5.63†
Agricultural markets .....	.25
Sports .....	.89
Comics .....	.08
Other selections .....	.56
Rank of radio and television listening or watching time spent on:	
National news	2.42
Agricultural markets	5.83*
State and local news	1.01
Sports .....	.18
Music	2.39
Other programs	1.80
Number of years of formal education	2.74*

*Significant at the 10% level.

†Significant at the 5% level.

ports. Time spent on this type of program was ranked significantly higher by the seasonal producer.

Formal education was included in this factor category because of the assumed relationship between education and the ease of assimilating information. Data show a significant difference in the two groups with respect to years of formal education. The educational level of the nonseasonal producer was higher than that of the seasonal producer.

Farm Operations

In general, a distinct similarity was found between the two groups in the absolute change in size of herd from 1960 to 1965 and the reasons given for the change (table 3).

Table 3. Chi-square values for farm operation factors, sampled producers, eastern South Dakota, 1966.

Variable	Computed X ² value
Change in dairy herd size from 1960 to 1965	4.60
Reason for dairy herd size to change from 1960 to 1965	6.84
Number of producers who changed herd size from 1960 to 1965 .....	.51
Reasons for not changing dairy herd size from 1960 to 1965	2.24
Method of breeding	3.52
Segregation to control time of breeding heifers	2.70*
Segregation to control time of breeding other dairy cows .....	.05
Segregation to control time of breeding both heifers and other dairy cows	2.47
Season when a majority of a dairy herd freshened	21.35†
Season when a majority of the dairy heifers freshened	13.7†
Variations of concentrates fed to the dairy herd	1.56
Reasons for variation of concentrates fed to the dairy herd	1.50
Number of dairy cows two years and older of low grade .....	.24
Number of dairy cows two years and older of high grade	2.65

*Significant at the 10% level.

†Significant at the 5% level.

The average number of cows per herd of both seasonal and nonseasonal producers increased during this period. The major reasons given for these increases were to increase net income and to increase utilization of the present facilities. The major reason given by some producers for not increasing herd was that the current dairy operation was approaching the capacity of the facilities.

Since a high percentage of milk is produced in the early months of a cow's lactation period, season of freshening can have a decided influence on seasonal production. Segregation is one method of controlling the time of freshening. It was found that seasonal producers were far less concerned with segregation of heifers than were the nonseasonal producers. However, both groups showed a lack of interest in controlling the breeding time of the dairy cow after the first calf.

A significant difference between the two groups was also found in the season when a majority of the dairy herd as well as a majority of the heifers freshened. As expected, the nonseasonal producers tended to freshen their herds throughout the year, whereas the seasonal producers showed a tendency to concentrate the freshening of their herds during the winter and early spring months.

Management

Among the available sources of information on problems of production and marketing milk are plant fieldmen, milk haulers, neighbors, vocational agricultural instructors, and others.⁵ There was no significant difference between the two

Table 4. Chi-square values for management factors, sampled producers, eastern South Dakota, 1966.

Variable	Computed X ² value
Sources of information on problems of production and marketing manufacturing milk	
Milk hauler .....	.01
Plant fieldman	1.44
Neighbor .....	.23
Vocational agricultural instructor .....	.17
Others .....	.21
Years planned to continue in dairying	1.15
Reasons for discontinuing dairying as an enterprise versus continuing dairying as an enterprise	3.06
Intentions of shifting to grade A milk production .....	.55
Obstacles preventing a shift to grade A milk production	8.08
Price differential needed to induce a shift to grade A production	1.08
Familiarity with grade A seasonal pricing programs .....	.42
Total years of dairy management experience	1.07
Years of manufacturing milk management experience	3.29
Volume of production	12.31†
Price increase needed to install bulk tank	1.70
Reasons for not having bulk tank installed	1.80
Reasons for having bulk tank installed	4.30
How the bulk tank was financed	6.19
Participating in owner sample	2.10
Reason for not participating in owner sample	5.38
Reason for not being a member of DHIA	3.56

†Significant at the 5% level.

types of producers in the use of these sources (table 4).

Part of the decline in the number of manufacturing milk producers during recent years has been due to the discontinuance of the dairy enterprise or a shift to grade A markets. A majority of both types of producers planned to continue dairying

⁵Other sources included friends, veterinarians, farm magazines, family, and board members of the processing plant.

indefinitely. The reason given most frequently by those planning to discontinue the dairy enterprise was retirement.

Neither the nonseasonal nor seasonal producer indicated any intention of shifting to grade A production. A lack of desire was the most important obstacle preventing this shift. Both types of producers indicated that a price differential of at least \$1.75 per hundredweight would be necessary for considering a shift to grade A production. No difference in familiarity with grade A seasonal pricing programs was found.

There was no difference between seasonal and nonseasonal producers in the number of years of experience in managing a manufacturing milk enterprise or the total years of dairy management experience. A majority of the producers had from 10 to 29 years of dairy management experience with from 5 to 9 years of that in managing a manufacturing milk operation.

A significant difference in size was found between the two groups. In terms of volume of production, the average size of the nonseasonal producer (218,000 pounds) far exceeded the average size of the seasonal producer (106,000 pounds).

Farm bulk tanks were used extensively by both groups. The major reason given for installing a bulk tank was the ease in cooling and storing milk. In addition, processors have offered premiums on milk stored in bulk tanks. As a result, 83% of the producers used bulk tanks. A majority of the producers financed their bulk tank through a

contractual arrangement with the processor.

Only a limited number of producers in either group participated in any production testing program. Of those who did not participate in either the owner-sample or DHIA testing program, most expressed no definite reason for failing to do so.

General Agricultural Factors

The major differences found between the seasonal and nonseasonal producer in the category of general agricultural factors centered around sources of income, land acreage, tenure, and farm background (table 5).

Characteristically, the dairy en-

Table 5. Chi-square values for general agricultural factors, sampled producers, eastern South Dakota, 1966.

Variable	Computed X ² value
Rank of income in terms of percentage of gross farm income from:	
Dairying	11.82†
Beef cattle	1.80
Swine	3.18*
Cash grains .....	.48
Chickens .....	.27
Other farm enterprises .....	.44
Rank of labor used in terms of percentage of total farm labor by enterprise:	
Dairy .....	.93
Beef cattle	1.37
Swine	2.38
Cash grains .....	.73
Chickens .....	.44
Others .....	.13
Acres of land:	
Owned .....	.04
Rented	4.09
Total	3.30*
Land tenure	3.78*
Years as a land owner	1.08
Years as a land renter	4.17
Years of farm experience	9.75†
Years of farm management experience	4.93*
Age of producer	2.05

*Significant at the 10% level.

†Significant at the 5% level.

terprise made up only part of a diversified farming operation. While a major portion of the total farm income for both groups was derived from the dairy enterprise, dairying was relatively more important to the nonseasonal producer, indicating a greater degree of specialization. The nonseasonal producer derived 53% of total farm income from dairying, whereas the seasonal producer derived 38%. A significant difference was also found in the relative importance of the swine enterprise. For the seasonal producer, it accounted for 20% of total farm income but only 13% for the nonseasonal producer. No significant difference was found between the two groups in terms of the percentage of total farm income derived from the various other farm enterprises.

A significant difference was found between seasonal and nonseasonal producers with respect to farm size and tenure. In general, the nonseasonal producer controlled a larger acreage (406 acres) than did the seasonal producer (382 acres). Likewise, a larger proportion of tenants was found in the nonseasonal group.

Finally, the two groups differed in the number of years of farm experience as well as the extent of farm management experience. The average nonseasonal producer had spent 38 years on a farm while the average seasonal producer had 45 years of farm background, with 19 and 23 of those years, respectively, spent in operating a farm.

While no significant difference was found in age of producer, a majority of both types of producers was between the ages of 36 and 50.

SEASONAL PRICING

The principle of seasonal pricing was studied to evaluate incentives needed to induce producers to increase production during the seasonally low months. It is often suggested that producers will supply the additional quantity of milk during the low production months if the marginal return is at least equal to marginal cost.

In this study, seasonal supply price was defined as a price offered during a specific season to induce producers to increase the quantity of milk supplied during that season. Seasonal incentive supply was used to mean a schedule of percentage increases in quantity offered for sale with various percentage increases in seasonal price above the "normal" price. (At the time of the study, there did exist some seasonal variation in price. However, this was accounted for by using a base price of \$3.81 per hundredweight as the "normal" price during the previous low production period.) Each producer was asked to indicate the seasonal supply price necessary to bring about an increase in production of 5%, 10%, 20%, 25% and 50% during months of normally low production. Results are shown in figure 1. These responses indicate that a 10% increase in price is necessary to bring about a 5% increase in milk production during the low months. However, as the seasonal supply price increased, producers indicated a greater degree of responsiveness. In general, a substantial increase in price (about 20%) would be necessary in order to significantly increase the flow of milk to market during the seasonally low months of production.

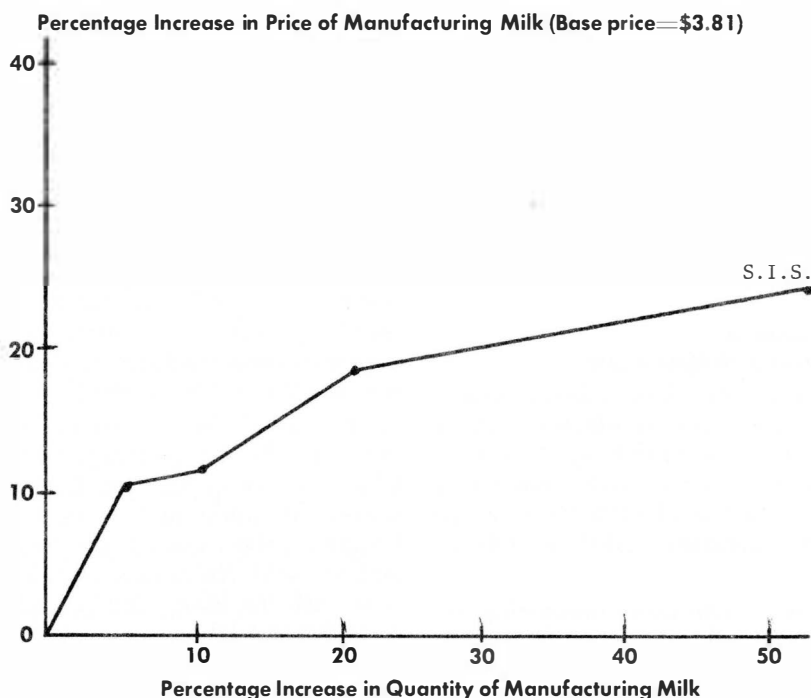


Figure 1—Producers' seasonal incentive supply, sampled producers, eastern South Dakota, 1966.

Operational Adjustments

Increasing the supply of milk in periods of low production requires some adjustments in operations. In an attempt to determine the nature and extent of these adjustments, each producer was asked to indicate those changes in operations necessary for increased production in seasonally low months (table 6).

One operational adjustment which more than half of the producers indicated would be necessary was a change in the season of freshening.

Improvements in the quality of the dairy herd either through replacement with higher producing cows or through improved breeding

practices ranked high among producers as a necessary change in operations.

Almost half of the producers listed increasing herd size as one method of adjusting seasonal produc-

Table 6. Operational adjustments necessary for increased seasonal production, sampled producers, eastern South Dakota, 1966.

Adjustments	Number of responses
Change in the season of freshening	42
Increase dairy herd size	37
Improve the quality of the dairy herd through replacement with higher producing cows	36
Improve feed ration	27
Improve the quality of the dairy herd through improved breeding practices	13

tion. Improving the feed ration during the season of low production was mentioned by more than a third of the respondents. Because of the flexibility in feeding practices, variations in feeding rates may provide a partial solution to the problem. Other dairy operations, however, do not possess the same degree of flexibility.

Barriers to Seasonal Adjustments

To get some idea of the extent and magnitude of the obstacles faced by producers in modifying their marketing patterns, each respondent was asked to identify three of the major obstacles (listed in table 7)

Table 7. Obstacles preventing increased milk production in seasonally low months, sampled producers, eastern South Dakota, 1966.

Obstacles	Number of responses
Shortage of fall pasture and hay	60
Breeding rotation not properly regulated	32
Insufficient number of cows	27
Shortage or high cost of labor ..	23
High cost of feed	16
Lack of operating capital	12
Already producing heavily in fall months	10
Inadequate price per hundredweight	8
Other obstacles*	13

*Other obstacles are: facilities already used to capacity, hot weather, vacation, flies, lack of interest, other enterprises, and unable to feed the dairy herd better.

preventing an increase in production during the months of normally low production. In each case, a followup question was asked to determine the nature of these obstacles.

Shortage of fall pasture and hay was the most frequently mentioned barrier. Weather was listed as the major reason for the shortage. A number of producers listed the breeding rotation as a barrier and indicated some hesitancy in changing the rotation for the herd.

The factors, insufficient number of cows and shortage or high cost of labor, were frequently listed as obstacles. If additional cows are bought for the seasonal time period and are sold afterwards, and likewise with the hiring and releasing of additional labor, these changes can be effective in increasing milk production during the seasonal time period. But, if the additional cows and labor are retained, total milk supply will probably increase with little or no effect on the seasonal pattern of marketing.

Inadequate price per hundredweight and high cost of feed were listed as obstacles by some respondents, indicating the possible effectiveness of price incentives. A limited number of producers cited the lack of operating capital as a barrier to seasonal adjustment.

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary

Seasonal variations in the marketing of manufacturing milk in eastern South Dakota directly affect both the producer and processor. For the processor, seasonality of marketing results in idle plant capacity, adds to storage costs and prevents efficient organization and use of labor. For the producer, this seasonal variation is often reflected in a variable monthly income from the dairy enterprise.

To determine the factors associated with the seasonal pattern of marketing manufacturing milk, as well as the necessary adjustments for leveling out the flow of milk to market, data from 75 producers (50 seasonal and 25 nonseasonal) were analyzed.

Data (monthly market receipts) for determining the degree of seasonality for each of the sampled producers were taken from plant records. Additional data were collected through personal interviews with the producers and used to analyze the following: (1) producer-processor relations, (2) sources of information, (3) farm operations, (4) management, and (5) general agricultural factors.

A total of 84 variables were statistically analyzed by the chi-square test of independence. Of these 84 variables, a significant difference was found between the seasonal and nonseasonal producers for 14.

A majority of the producers were satisfied with the processors' decisions relating to them. There was a satisfactory communication flow be-

tween producers and the processors, but this flow did not take place at meetings. Both types of producers were aware of seasonality as a problem to the processor.

The seasonal producers spent more time per day reading newspapers than did the nonseasonal producers. Nonseasonal producers spent more time reading state and local news than did the seasonal producers. Seasonal producers emphasized agricultural markets in their radio and television use. The formal education level of the nonseasonal producer was higher.

Change in herd size from 1960 to 1965 was approximately the same for both types of producers. Nonseasonal producers used segregation to control time of breeding of first-calf heifers while seasonal producers did not. The nonseasonal producers freshened their herds year around, whereas the seasonal producers tended to freshen their herds during the winter and early spring months. Herds of both types of producers were made up of relatively high grade cows.

Most producers planned to continue the dairy enterprise indefinitely. Neither type of producer expressed a desire to shift to grade A production. Both types of producers had about the same amount of dairy management experience. The nonseasonal producers were larger in terms of volume of production. A majority of the producers used bulk tanks. Very few producers participated in any type of production testing program.

Income from dairying ranked

higher among income sources for nonseasonal producers than for seasonal producers. Income from hogs ranked higher for seasonal producers. Nonseasonal producers operated slightly larger farm units (406 acres compared to 382 acres) than did the seasonal producers. The nonseasonal producer had fewer years of farm background and farm management experience.

Producers' stated response to a hypothetical seasonal price incentive program indicated that a 10% increase in price would be necessary to bring about a 5% initial increase in production during the low months. Producers indicated a somewhat greater degree of responsiveness to larger seasonal supply price increases.

The adjustment which most producers indicated they would have to make in order to increase production in low months was the season of freshening. The most formidable obstacle to increasing seasonal production was identified as the shortage of fall pasture and hay.

Conclusions and Implications

Problems originating in the seasonal pattern of marketing manufacturing milk in eastern South Dakota are of such scope and magnitude as to warrant attention by the industry. Milk utilized in manufactured dairy products accounts for a very high percentage (85-90%) of the whole milk marketed in the state. Thus, this study was an attempt to identify some factors associated with seasonal marketing and adjustments necessary to alleviate the problem.

From the results, the following

conclusions and implications appear relevant:

First, the producer is aware of the processors' problems associated with the seasonal marketing of milk. Channels of communication between the producer and processor are established, numerous and readily accessible to the processor in transmitting information to the producer. Thus, the processor should use those means which more nearly reach his target group—namely the seasonal producer.

Secondly, the processor should be cognizant of the obstacles to changing the patterns of production at the farm level. Some of these are major adjustments which will take time (breeding programs) and some are adjustments which are costly (shortage and cost of feed in fall months). The latter implies that the cost of producing milk during the fall and winter months is greater. Thus, any adjustment by the producer will most likely be in response to a price incentive during this period. Producers expressed a willingness to increase production during normally low months—for a price. However, to bring about the amount of increase necessary to level out market receipts, a substantial increase in price during the seasonally low months will be needed.

Thirdly, it was found that the dairy enterprise was relatively more important in the total farm operations of the nonseasonal producers. Volume of production, as well as income generated, was greater. However, since the ratio of seasonal to nonseasonal producers was about 2 to 1, a sizeable group of producers must be involved in working out a solution to the problem.

SELECTED REFERENCES

- Beal, George Max, and Henry H. Bakken. *Fluid Milk Marketing*, First Edition, Mimir Publishers, Incorporated, Madison, Wisconsin. 1956.
- Blakley, Leo V., Elton O. Brooks, and Kenneth B. Boggs. *Seasonal Pricing Plans for Class I Milk in Oklahoma*, Bulletin B-602 Agricultural Experiment Station, Oklahoma State University, Stillwater, Oklahoma. December, 1962.
- Brod, Law Nicholas. *The Effects of Seasonality of Manufacturing Milk Production on Dairy Manufacturing Firm's Efficiency*, M.S. Thesis, Economics Department, South Dakota State University, Brookings, S. D. June, 1965.
- Burns, D. J. and G. M. Beal. *Farm Practices Affecting Seasonal Milk Production in the Baltimore Milkshed*, Bulletin A-58, Agricultural Experiment Station, University of Maryland, College Park, Maryland. October, 1950.
- Clarke, James H. *Producers Opinions on Seasonal Milk Costs and Prices*, Bulletin 445, Agricultural Experiment Station, West Virginia University, Morgantown, West Virginia. September, 1960.
- United States Department of Agriculture, *Milk Production*, Statistical Reporting Service, Washington, D. C., January, 1969.