



The development of a hypothetical federal milk marketing order for the Great Falls-Hi-Line Area and a comparison of this order with the Montana Milk Control Law in its present state of effectiveness
by John George Litschauer

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE in Agricultural Economics
Montana State University
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Abstract:

This study is an attempt to set up a hypothetical Federal milk marketing order for the Great Falls-Hi-Line Area and to compare the Federal order with the present Montana Milk Control Law.

The Montana milk industry is characterized by many producers, few distributors, and many consumers. Thus., the industry structure would tend to be oligopsonistic and oligopolistic in nature. As a result, the Montana Milk Control Law was developed to direct the "performance" of the state milk industry. However, there are still "performance" problems present under the state law. A Federal milk marketing order is one possible solution to these problems.

The data used to develop the hypothetical Federal order in this study was obtained from records in the Montana Milk Control Board Office in Helena, Montana from personal interviews, and from Federal orders already in existence. The hypothetical Federal order is similar in structure to other orders, however, it is set up to answer the economic problems present in the study area. The Great Falls-Hi-Line Area was selected for this study because: (1) Producers in this area have indicated an interest in obtaining a Federal order, and (2) this area gives a good cross section of milk industry problems in existence throughout, the state.

The comparison analysis between the two alternative types of milk policy, is made primarily with an efficiency norm. The differences between the two types of policy are pointed out, and a comparison is made on how well each would answer problems present in the study area. A theoretical comparison is also made on the price control portions of each policy.

The results of this comparison shows that the hypothetical Federal order would be more efficient than the present Montana Milk Control Law.

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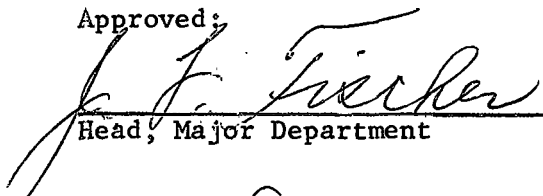
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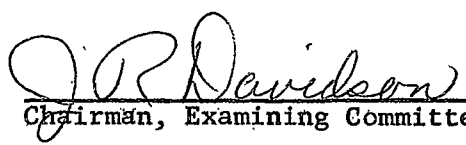
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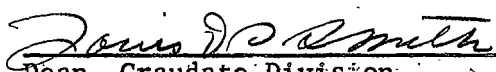
in

Agricultural Economics

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MONTANA STATE COLLEGE
Bozeman, Montana

August, 1963

ACKNOWLEDGMENTS

The author wishes to express his appreciation to the staff and fellow graduate students for their assistance. Special thanks are extended to Dr. Jack Davidson, Dr. E. H. Ward, and Mr. Maurice Taylor for their guidance and encouragement.

The Montana Milk Control Board personnel have been especially helpful and cooperative in obtaining data used herein.

Of course, any errors or omissions in this study are the responsibility of the author.

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ABSTRACT

This study is an attempt to set up a hypothetical Federal milk marketing order for the Great Falls-Hi-Line Area and to compare the Federal order with the present Montana Milk Control Law.

The Montana milk industry is characterized by many producers, few distributors, and many consumers. Thus, the industry structure would tend to be oligopsonistic and oligopolistic in nature. As a result, the Montana Milk Control Law was developed to direct the "performance" of the state milk industry. However, there are still "performance" problems present under the state law. A Federal milk marketing order is one possible solution to these problems.

The data used to develop the hypothetical Federal order in this study was obtained from records in the Montana Milk Control Board Office in Helena, Montana from personal interviews, and from Federal orders already in existence. The hypothetical Federal order is similar in structure to other orders, however, it is set up to answer the economic problems present in the study area. The Great Falls-Hi-Line Area was selected for this study because: (1) Producers in this area have indicated an interest in obtaining a Federal order, and (2) this area gives a good cross section of milk industry problems in existence throughout the state.

The comparison analysis between the two alternative types of milk policy is made primarily with an efficiency norm. The differences between the two types of policy are pointed out, and a comparison is made on how well each would answer problems present in the study area. A theoretical comparison is also made on the price control portions of each policy.

The results of this comparison shows that the hypothetical Federal order would be more efficient than the present Montana Milk Control Law.

CHAPTER I

INTRODUCTION

The Problem Area

Market Performance and the Montana Dairy Industry

The course and character of economic activity in the United States are determined primarily by the actions of the multitude of privately owned and managed business enterprises. A leading economist has suggested that the performance of these enterprises determines to a large extent how well the economy performs.^{1/}

Business enterprise performance has been illustrated as having three dimensions. These include:

1. "The performance of enterprises as buyers in the markets for the basic factor of production: Labor and natural resources.

2. "The 'internal' performance of enterprises in organizing productive facilities, managing their use and that of materials and labor, choosing effective technique and methods of production, managing finances, and so forth.

3. "The performance of business enterprises with relation to the markets for goods and services which they produce or use in determining outputs, prices, product designs, selling costs, and a number of related things--in a word, the complex of adjustments enterprises make, in view of conditions of demand and supply, to the commodity markets in which they are active."^{2/}

^{1/} Joe S. Bain, Industrial Organization, New York, New York, John Wiley and Sons, Inc., 1959.

^{2/} Ibid., p. 2.

Furthermore, the two main determinants of the market performance of industry are as follows:

1. "The organization or structure of a group or industry of competing enterprises is widely thought to have a strong conditioning or determining influence on the performance of the group.

2. "The market conduct of enterprises, embracing the practices, policies, and devices which they employ in arriving at adjustments to the markets in which they participate likewise influences performance."1/

This line of reasoning would apply in appraising the adequacy of the economic system in a particular area as well as for the nation. The success of the economy of Montana as a whole, according to this theory, is directly influenced by the performance of all business enterprises located within the state. In this thesis attention is focused on the milk industry in Montana and the present Montana Milk Control Law, which has as an explicit goal, promotion of industry performance.

Market Structure and Conduct of the Montana Dairy Industry

Montana is not basically a dairy state. Dairy farm income is small relative to some agricultural commodities, (less than 3 percent of all agricultural income in the state is derived from dairy products).2/ However, it is still an important segment of the state's agriculture. Actually, the 1961 total dairy product sales in the state were approximately 312 million pounds of milk (see Table I).

1/ Ibid., p. 3.

2/ Edward H. Ward, A Formula for Montana Milk, Montana Agricultural Experiment Station, Bulletin 569, Montana State College, Bozeman, Montana, p. 3.

TABLE I. TOTAL MILK SALES FOR MONTANA IN 1961.*

Item	Sales	
	Million lbs.	
Total Class I and II Sales		174.510
Class I Creamery Sales	53.141	
Manufactured Milk Processing Plant Sales ^{a/}	<u>84.329</u>	
Total Class III and IV Sales		<u>137.470</u>
Total Sales		<u>311.980</u>

* Source: The Montana Milk Control Office, Helena, Montana.

^{a/} The manufacturing milk processing sales were converted from the total products sold to the total pounds of milk sold in 1961 through the use of conversion formulas. These formulas are shown in Appendix A and were arrived at with the aid of personnel working in the Montana Milk Control Office in Helena, Montana.

Originally, fluid milk markets were almost entirely local. However, with the advent of new technology (i.e., refrigeration, better transportation, etc.), the milk markets in Montana developed their present structure. This structure is characterized by a comparatively large number of producers, few distributors (enterprises), and many consumers.

The trend has been for individual distributors to increase in size in order to take advantage of internal economies of scale offered by new plant technology. In addition, better transportation and better refrigeration methods have made it possible to extend the sales areas of the individual distributors (see Appendix D).

The trend has also been toward larger producers. However, despite this general growth in producers' size, they still remain much too small to bargain effectively as individuals over price conditions of sale, etc.^{1/}

The consumer phase of the milk market has remained much the same as in the past. Although the consumer demand for low fat milk products has probably increased relative to his demand for high fat milk products, he still has little price bargaining for these products. Thus, it is the author's contention that the distributor holds an advantage over the

^{1/} In the past, milk producers have tried to organize in order to gain a better price bargaining position for their product. However, the success of these producer organizations has tended to be less than spectacular. For one thing, a producer is required to make a high initial investment to become a Class I (fluid milk) producer. Operating efficiency and higher-than-ever sanitary requirements are the reasons for this high cost. There is often no alternative milk market should the distributor refuse to accept the producer's milk and no ready market for the sale of this equipment since the distributor can designate the producers he wishes to buy from. It is readily understandable, therefore, why the producer is careful not to antagonize his distributor. Such action may mean loss of Class I market and ultimately loss of his capital investment.

In addition to this, the movement of milk, both bulk and packaged, between cities within the state (see Figure 1) has increased. In fact, certain areas within the state are receiving milk from other states and vice versa (see Figure 2). Thus, the distributor has increased alternative sources of supply which tend to lower the producer's bargaining power.

MONTANA



Figure 1. Movement of Fluid Milk Within Montana in 1961.*

* Source: The Montana Milk Control Office, Helena, Montana.

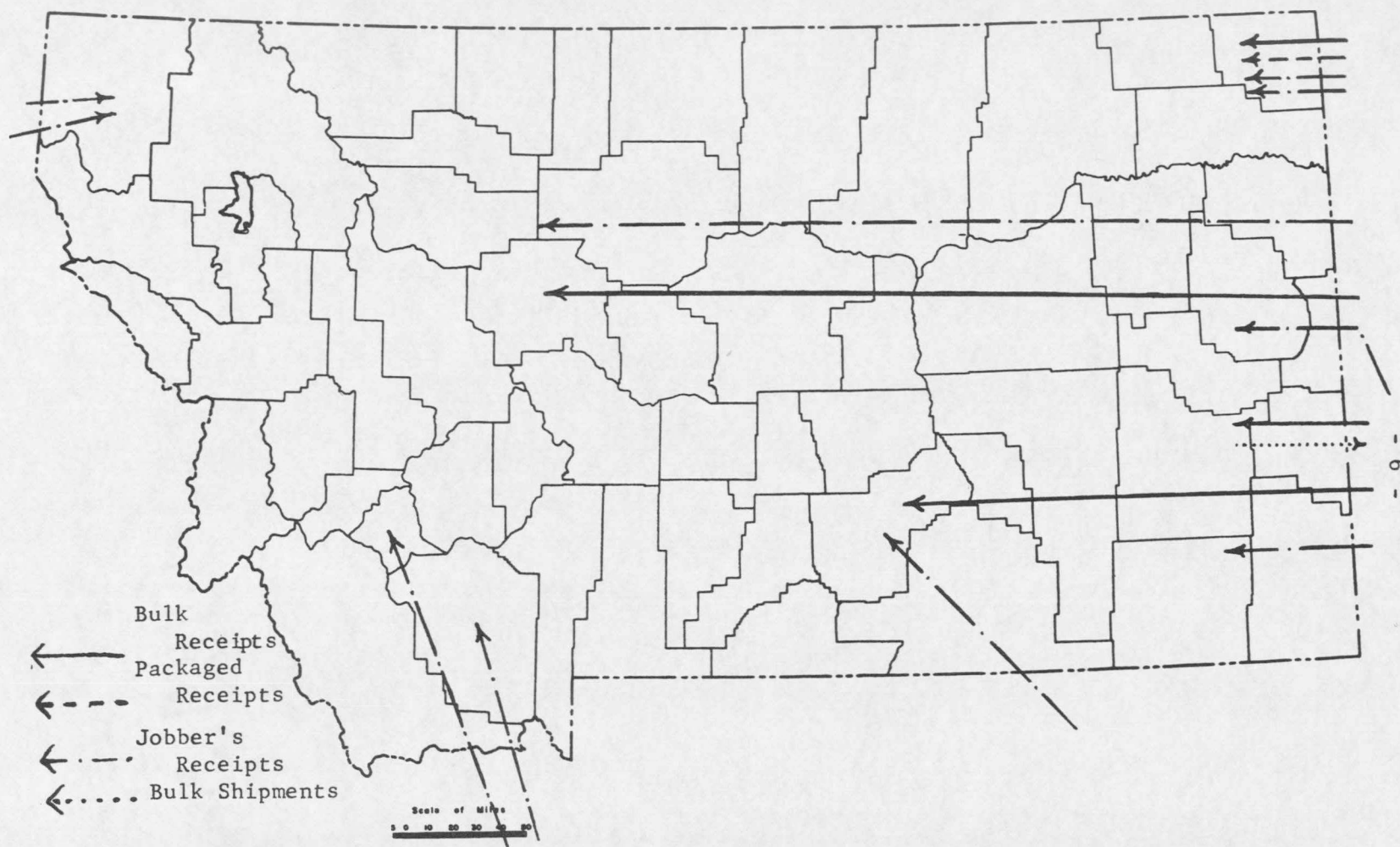


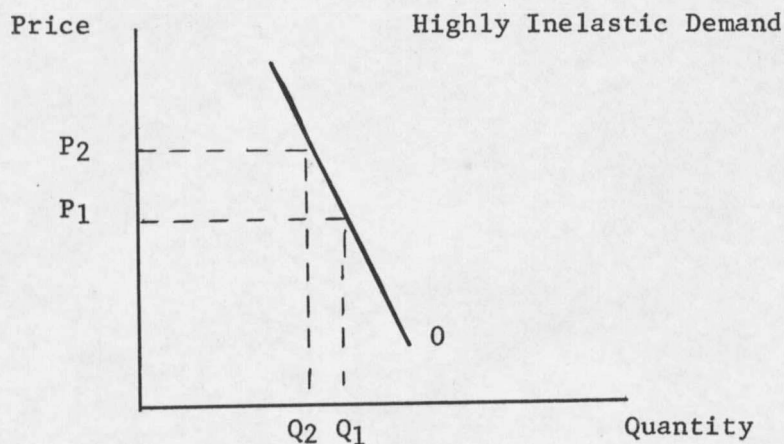
Figure 2. Milk Movement Between Montana and Other States (1961).*

* Source: The Montana Milk Control Office, Helena, Montana.

consumer, within certain limits.^{1/}

Because of the structure that does and has prevailed for years in this and other areas, there arises a perennial problem in the dairy industry centering around the conduct of distributors as they attempt to use their market power to enlarge and protect profits. The ensuing unrest and threat to the supply of milk has paved the way to institutional arrangements designed to improve performance of the dairy industry.

^{1/} It is a generally accepted assumption that the demand for fluid milk and milk products is highly inelastic. In the case of an inelastic demand curve, a large increase in the price charged for milk and milk products would result in a small decrease in the quantity purchased by the consumers. This is illustrated very basically in the accompanying diagram.



If the price were increased from P_1 to P_2 , the quantity sold would decrease from Q_1 to Q_2 . It is visually apparent that the firm would enjoy greater profits at P_2 (Profits = $P_2 \cdot Q_2$) than at P_1 . (Profits = $P_1 \cdot Q_1$).

If the consumer demand is inelastic and if there are many buyers but few sellers, the seller has an advantage over the consumer. This appears to be the case in the Montana dairy industry. (An oligopoly is a market situation where there are few enough sellers of a particular product so that the activities of one is important to the others).

Research Problem

At present, Montana has a state milk control law to improve the performance of the state dairy industry. However, there are still problems not completely corrected under the present law. The purpose of this study is to consider an alternative approach to this problem in a particular area within the state. This will be accomplished by first outlining the conditions of the dairy industry in Montana under the present milk control law. A Federal milk marketing order will then be set up for the marketing area under consideration using the milk marketing data available. The possible dairy industry problem solutions obtained through this hypothetical Federal milk order will be compared with the solutions offered by the Montana Milk Control Law and with achievements of the Milk Control Board operating under this law.

Specifically, the objectives of this study are: (1) To outline problems present in the Montana dairy industry under the present usage of the Montana Milk Control Law, (2) To set up a hypothetical Federal milk marketing order for the particular area under consideration (the Great Falls-Hi-Line Area),^{1/} (3) To compare solutions offered by certain sections of this hypothetical order with those solutions offered by the Montana Milk Control Law as it now functions and as it could function, and (4) To offer suggestions on the different ways in which this hypothetical Federal milk marketing order may be used in solving problems now present in the Montana milk industry.

^{1/} The lack of adequate milk marketing information is a major limitation of this phase of the study. Better available information would allow some sections of the hypothetical Federal order to be more adequate. However, these sections are still more than adequate for general comparison purposes.

Hypothesis

The main purpose of the Montana Milk Control Law is to coordinate the performance of the state milk industry. However, the law, as it is presently being used, does not offer completely adequate solutions to some of these milk industry performance problems. Thus, certain portions of the law are either inadequate or are ineffectively used. There are two solutions to this inadequacy and ineffectiveness: Revision of the present state order or a Federal milk marketing order. Either of these solutions would improve the performance of the milk industry both statewide and in a particular area.

Sequence of Analysis

In Chapter II, the present Montana Milk Control Law will be outlined. This will include its history, the more important provisions in its present form, and some of the more important Montana dairy industry problems.

In Chapter III, a hypothetical Federal milk marketing order will be set up for the Great Falls-Hi-Line Area. The background of each section of the Federal order will be explained, and this explanation will be related to the conditions in the proposed marketing area. The summary of the chapter will be an abbreviated form of the entire hypothetical Federal order.

Chapter IV will compare the hypothetical Federal order solutions to the problems present in the dairy industry in the Great Falls-Hi-Line Area with the solutions offered by the Montana Milk Control Law both in its present state of effectiveness and its potential state of effectiveness.

Chapter V presents the summary and conclusions of the study and looks at areas of possible future research.

CHAPTER II

THE MONTANA DAIRY INDUSTRY PICTURE UNDER THE PRESENT STATE MILK CONTROL LAW

Events Leading to the Institution of Milk Control Legislation 1/

The present milk policies in use in Montana and other parts of the country are an outgrowth early attempts to improve dairy farmers bargaining position. Initially, the first real movement for agricultural policy of this type on the national level began with the severely depressed condition of agriculture which followed World War I. From May, 1920 to the Federal legislation of May, 1929, there was a continuous movement to get the government (the Federal Government primarily) to assume the responsibility of aiding farm commodity markets. These efforts finally culminated in the Agricultural Marketing Act of 1929. This act sought to strengthen cooperative associations so that the producers of farm products might enjoy a stronger bargaining position in the sale of these products. However, the structure of the agricultural industries (including the dairy industry) was not particularly conducive to the successful organization of producers. The Agricultural Marketing Act of 1929 was not strong enough to offset the producers' unfavorable position. As a result, producer organizations, under the 1929 Act, did not accomplish their objectives.

The Agricultural Act of May, 1933 was the next Federal Government program attempting to increase the prices paid to the agricultural producer for his products. This act sought to accomplish this goal by reducing the agricultural production of the farmer.

1/ The Farm Foundation, Turning the Searchlight on Farm Policy--A Forthright Analysis of Experience, Lessons, Criteria, and Recommendations, 1952, Part I.

Its "stated" objective was to establish the same ratio between a farmer's purchases and a farmer's sales using August, 1909 through July, 1914 for the base ratio period. This 1933 Act was declared unconstitutional by the Supreme Court in 1936. The Court, in making this decision, declared that the Act controlled agricultural production in several states, and this was an unconstitutional extension of Federal powers.

This Supreme Court ruling was followed by a shift to the Soil Conservation and Domestic Act of 1936. Under this Act, farmers received cash payments for employing certain soil conservation techniques. However, when the 1936 Supreme Court decision was made, it left certain sections of the Agricultural Adjustment Act of 1933 pertaining to fruits and vegetables and dairy products untouched. The Marketing Agreement Act of 1937 was passed by Congress to clear up any doubts of the legality of these sections in the 1933 Act. It was through this 1937 Act that the present Federal milk marketing orders were established. Many states were quick to follow the Federal Government's lead, and these states, including Montana, initiated state milk orders.

History of the Montana Milk Control Law 1/

Establishment of the Montana Milk Control Board

The Montana State Legislature first established a Milk Control Board in 1939. The purpose of this Board was "to promote the more orderly

1/ The purpose of this thesis is not to give a complete historical background of the Montana Milk Control Law. Therefore, this coverage is very brief. For a more complete coverage, the Milk Control Law may be consulted as well as Dr. Edward H. Ward's Ph.D. thesis (see following footnote).

marketing of fluid milk, and to establish prices in such a manner as to assure consumers of a stable supply of pure and wholesome milk."^{1/} The Milk Control Board was given the power to establish minimum prices for fluid milk at both the consumer and producer level in a "natural market area." However, this was only possible if the producers and distributors handling a majority of the fluid milk in this "natural market area" elected to come under the authority of the Milk Control Board. This initial Milk Control Board consisted of five members as follows:

1. The executive officer of the Montana Livestock Sanitary Board, as chairman, and
2. Four members appointed by the Governor with the following qualifications:
 - a. a consumer,
 - b. a producer,
 - c. a producer-distributor, and
 - d. a distributor.

The 1939 Milk Control Law also decreed that the Board had to hold a public hearing in the area concerned before minimum could be established for fluid milk in that area.

The 1959 Revision of the Montana Milk Control Law

During the years following the setting up of the Montana Milk Control Board, it became apparent that the law was not adequate. For one thing, there was difficulty in defining a "natural market area." With improved

^{1/} Edward H. Ward, The Influence of Technological and Legal Changes and the Likely Influence of Concentrated Milk on the Operation of the Montana Milk Control Law, Doctor's Thesis, Department of Agricultural Economics, University of Wisconsin, Madison, Wisconsin, 1954, p. 11.

technology in refrigeration and with better transportation facilities, it became possible to ship milk great distances within the state and between states themselves. Also, the records required for the establishment of fluid milk prices were not available in many instances because the Board lacked either the power or the resources necessary to collect this information.

To combat some of these inadequacies, the Montana Milk Control Law was revised in 1959. Some of the changes made in the 1959 law are listed as follows:^{1/}

1. The five members of the Milk Control Board are all appointed by the Governor, with the consent of the Senate, and are all consumers.
2. The Board is given the power to designate an executive-secretary who has charge of the administration of the Board's orders, rules, and regulations. The executive-secretary also serves as financial officer of the Board, and he is authorized to accept money paid to the Board, such as license fees of fines.
3. The Milk Control Board is given the following general powers:
 - a. The power to supervise, regulate and control the fluid milk industry in Montana, including the production, transportation, processing, storage, distribution and sale of milk in the state through the price control of milk designated for fluid use.
 - b. The power to investigate all matters pertaining to the production, transportation, processing, storage, distribution and sale of milk in the state. (This includes the power to subpoena milk dealers, their records, books and accounts if it is deemed necessary to carry out the intent of the Montana Milk Control Law.)
 - c. The power to request the sheriff of a county in the state to execute any summons issued by the Board.

^{1/} This information was derived from a compilation of the various parts of the Milk Control Law, put out for information only, by the Montana Milk Control Board. This was not an official copy of the Montana Milk Control Law.

- d. The power to designate an agent of the Board to call and give notice of price hearings of the Board, administer oath to witnesses, etc.
 - e. The power to act as mediator or arbitrator to settle any issue pertaining to fluid milk between producers, distributors, producer-distributors, and customers.
4. The Board is given the power to establish natural marketing areas in the state and to set and enforce minimum producer, wholesale, and retail prices in these areas. The Montana Milk Control Law also states that there shall be not less than five of these natural marketing areas in the state. (The Board is also given the power to alter the boundaries of the natural marketing areas, if, after a hearing, it finds this alteration of these boundaries in the public interest.)
5. In establishing the minimum prices for a natural marketing area in the state, the Board must conduct a public hearing and admit evidence under oath which is related to matters of the inquiry. (This evidence may be offered by the consuming public as well as by persons engaged in the milk industry.) In setting these minimum prices, the Board must take into consideration the balance between production and consumption of milk, the costs of production and distribution, and prices in adjacent areas and states. Of special interest in this part of the Montana Milk Control Law are the following:
- a. "The milk produced in one natural marketing area and sold in another natural marketing area shall be paid for by a distributor or dealer in accordance with the pricing order of the area where produced, at the price therein specified of the class or use in which it is ultimately used or sold.
 - b. "All milk purchased within a natural marketing area by a distributor shall be purchased on a uniform basis of either butterfat or hundredweight."1/

1/ Ibid., p. 5.

6. The Board, or any person designated by the Board, may audit the records of any milk distributor or producer-distributor within the state. The Board is also given the power to require reports from these places of business at a regular time period.
7. This act does not apply to foreign or interstate commerce.
8. The Board also is given the power to conduct joint hearings with the authorities of other states and of the United States, including the Secretary of Agriculture of the United States, and to issue joint or concurrent orders.

As a result of the changes in the Montana Milk Control Law instituted in 1959, the Montana Milk Control Board gained more power, at least theoretically.

The Present Montana Milk Picture Resulting From the 1959 Revision

In accordance with the 1959 revision of the Montana Milk Control Law, the Montana Milk Control Board has instituted certain changes in its control policy to aid in directing the performance of the Montana industry. At the present time, the Board has divided the state into 12 pricing zones as shown in Figure 3. The Board has also set the minimum producer, whole-sale, and retail prices for milk used for fluid purposes in these zones. Tables II and III give these prices. The revised Montana Milk Control Law has also provided more adequate records for the Board to work with in establishing these pricing zones and fluid milk prices. However, even with these improvements, there are still shortcomings in the ability of the Board to direct certain phases of the performance of the Montana milk industry.

Problems the Milk Control Board Is Unable to Resolve

At present, there are still problems that the Montana Milk Control Board is unable to solve. In some cases the Board does not have the

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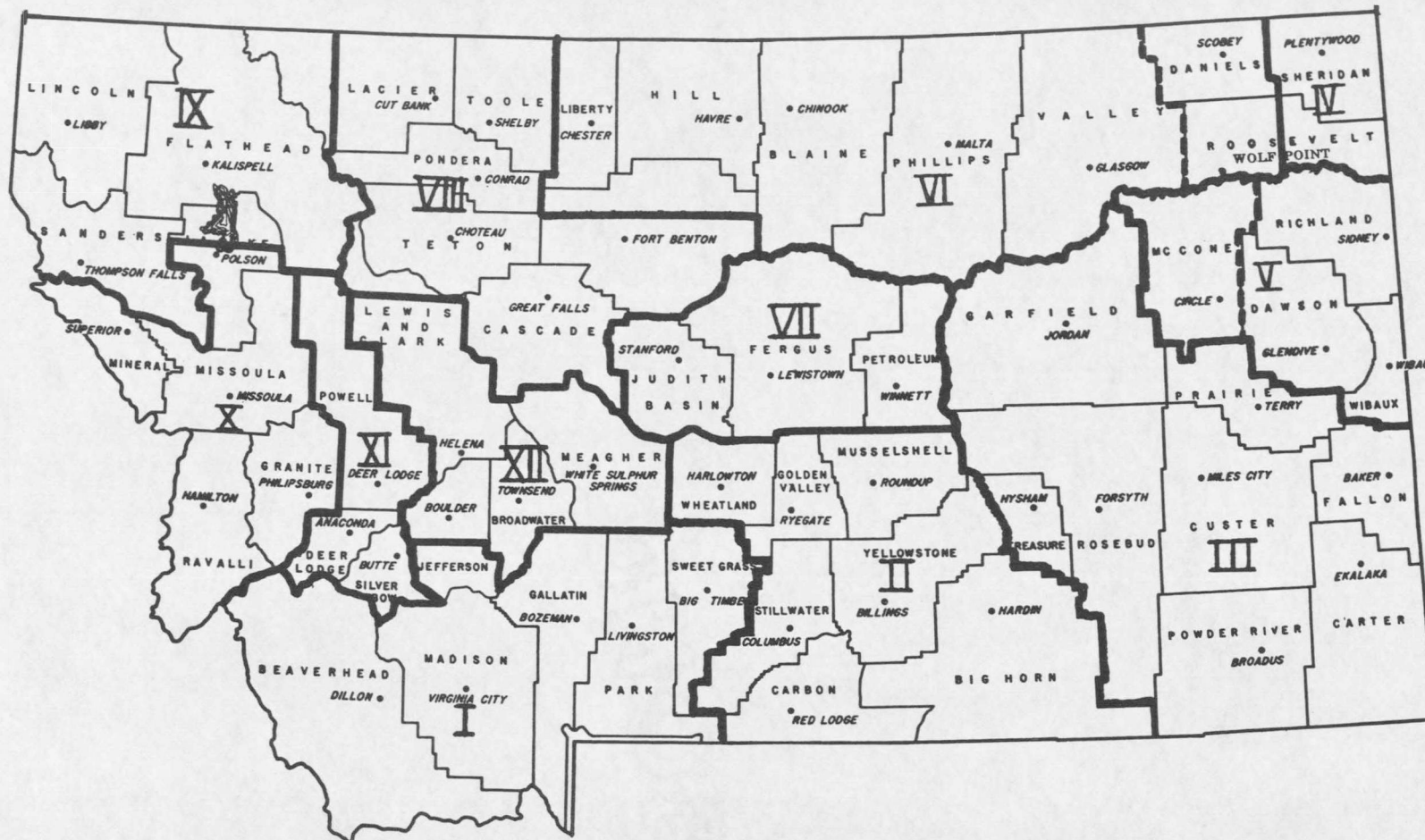


Figure 3. Pricing Zones Under the 1959 Revision of the Montana Milk Control Law.*

* Source: The Montana Milk Control Office, Helena, Montana

TABLE II. WHOLESALE AND RETAIL PRICES ESTABLISHED BY PRICING ZONE UNDER THE MONTANA MILK CONTROL LAW (1961).*

Pricing Zone	Producer	Prices Set	
		Wholesale <u>b/</u>	Retail <u>b/</u>
I	<u>a/</u>	.207	.24
II	<u>a/</u>	.21	.24
III	<u>a/</u>	.21	.24
IV	<u>a/</u>	.205	.23
V, (Zone "A")	<u>a/</u>	.22	.25
V, (Zone "B")	<u>a/</u>	.21	.24
VI, (Zone "A")	<u>a/</u>	.22	.25
VI, (Zone "B")	<u>a/</u>	.21	.24
VII	<u>a/</u>	.205	.23
VIII	<u>a/</u>	.23	.26
IX	<u>a/</u>	.215	.25
X	<u>a/</u>	.215	.25
XI	<u>a/</u>	.215	.25
XII	<u>a/</u>	.215	.25

* Source: Montana Milk Control Board Office, Helena, Montana.

a/ Producer prices set by the Montana Milk Control Board are shown in Table III.

b/ This is the price for one quart containers of homogenized milk, testing not less than 3.25 percent or more than 4 percent butterfat as set by the Montana Milk Control Board.

TABLE III. MONTANA MILK CONTROL BOARD PRODUCER PRICES BY PRICING ZONES
(EFFECTIVE AS OF JUNE 26, 1962).*

Pricing Zone	Class I & II price		
	per cwt. <u>a/</u>	Midpoint <u>b/</u>	Differential <u>c/</u>
	<u>Dollars</u>	<u>Percent</u>	<u>Dollars</u>
I	5.11	3.5	.07
II	5.394	3.5	.11
III	5.50	3.5	.07
IV	5.32	3.6	.07
V	5.39	3.6	.07
VI, Zone A (Wolf Point)	5.74	3.7	.07
VI, Zone B (Havre)	5.35	3.7	.07
VII	5.35	3.7	.07
VIII	5.64	3.5	.105
IX	5.11	3.5	.07
XI	5.11	3.5	.07
XII	5.11	3.5	.07
X	1.45 per pound butterfat Class I		
	1.00 per pound butterfat Class II		

* Source: The Montana Milk Control Office, Helena, Montana.

a/ In all areas except Area X, milk used in Class I and II products is priced at a hundredweight price. In area X, it is priced per pound butterfat, with no value for skim.

b/ The midpoint is the average test of all producer receipts in that area.

c/ The differential is the amount the price raises or lowers depending on the test. For each one-tenth of 1 percent butterfat, the price changes the amount of the differential.

authority necessary. In others, its authority has been challenged and it is unable to obtain industry compliance even though the law appears specific in a given area.

The Montana Milk Control Board, under the present law, has the authority to set prices, and thus control, only that milk which is sold as fluid milk. Thus, it may direct only those milk plants whose location is shown in Figures 4 and 5. Even here, its authority extends over only that milk which is actually sold in fluid form (i.e., whole milk, skim milk, chocolate milk, etc.). It cannot control the price on surplus milk sold to the distributor by the producer. In addition to this, the Board has no authority in setting prices or auditing the records of the manufacturing milk processing plants located within the state (see Figure 6).

Another area in which the Board lacks authority is that involving milk movement into the state. As shown in Figure 2, this movement is definitely present. It may set the retail and wholesale price of this milk if it is sold directly to the consumer in fluid form. However, it cannot audit the records of these out-of-state plants. Thus, it is very difficult to gather an accurate picture on bulk milk brought into the state for sale to Montana milk plants.

The Board also lacks jurisdiction over problems involving bargaining between the producer and the distributor, other than setting producer prices for milk sold for fluid purposes. Thus, the producer has gained little in the way of bargaining power.

In some cases, the authority of the Board has been challenged. As shown in Figure 1, the movement of bulk milk today is nearly statewide. A problem arises in the payment for this milk to the producers. For instance, when Class III milk is shipped to a different marketing area, and there it is sold as Class I milk, who is to pay for its usage as Class I? In the present milk control law, it is stated that milk produced in one natural marketing area and sold in another natural marketing area shall be paid for by a distributor in accordance with the pricing order

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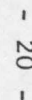


Figure 4. Location and Number of Fluid Milk Processing Plants by Counties (1961).* ^{a/}

* Source: The Montana Milk Control Office, Helena, Montana

a/ Appendix B gives a more complete breakdown on these plants.

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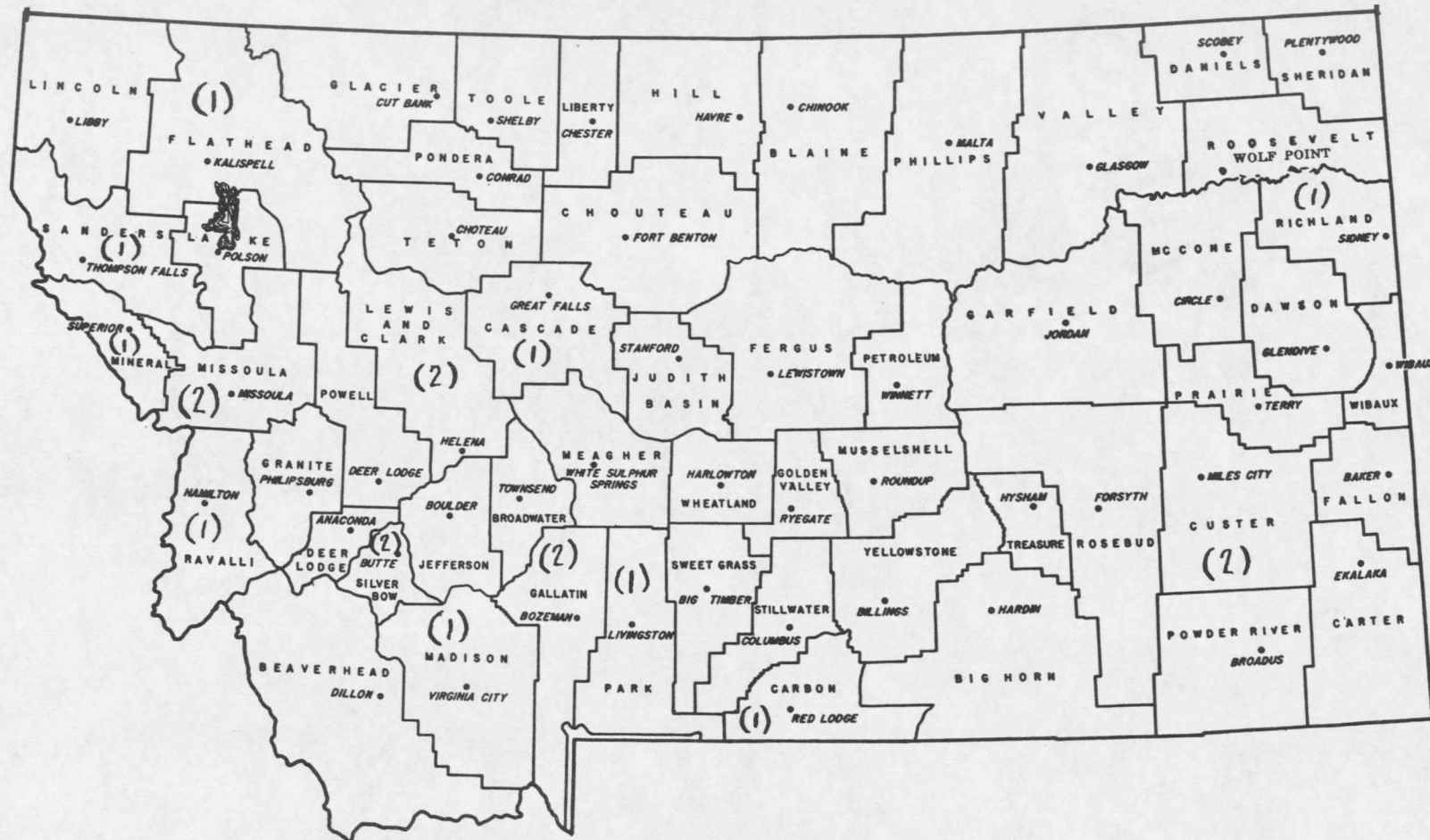


Figure 5. Location and Number of Producer-Distributor Plants by Size by Counties (1961).* ^{a/}

* Source: The Montana Milk Control Office, Helena, Montana.

a/ Appendix B gives a more complete breakdown on these plants.

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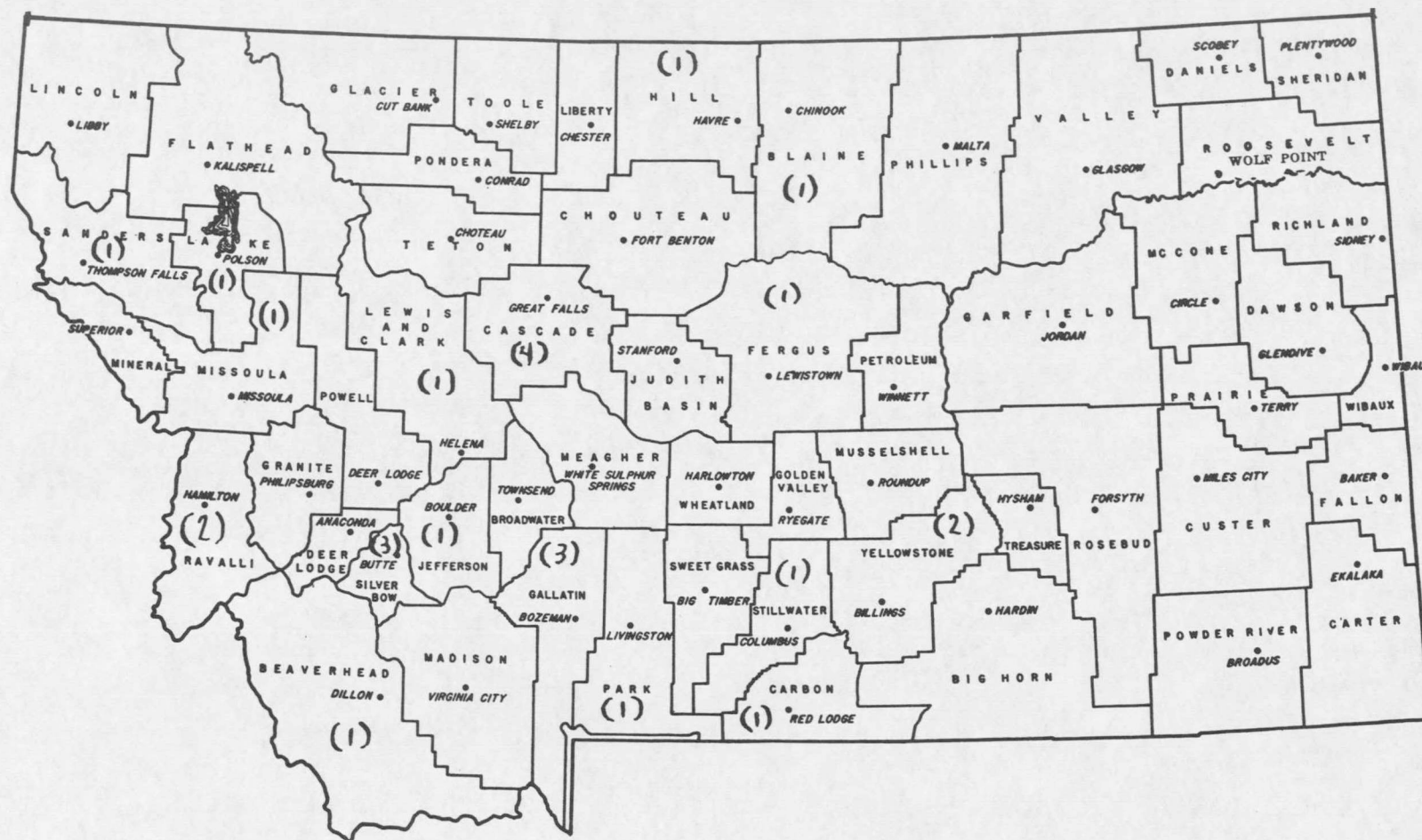


Figure 6. Location of Manufacturing Milk Processing Plants by Counties (1961).* ^{a/}

* Source: The Montana Milk Control Office, Helena, Montana.

a/ The approximate size of these plants was derived with conversion formulas from total products manufactured in 1961 (see Appendix A). Appendix B gives a more complete breakdown on these plants.

where produced at the price specified for the class in which it is ultimately being sold. However, the law does not state which distributor should pay the difference between the Class III and Class I price. At the time of this writing, this question is being debated in the courts.^{1/}

The authority of the Board has also been challenged in other ways. In some cases the distributors have been unwilling or slow to concede that the Board has the powers specified by the law. Price setting in some areas and the supplying of records and accounts are two examples of this. At present, the Board already establishes price through public hearings. These in themselves are time consuming, and further delays in instituting a price change decision are brought about through these authority challenges. As a result, although the 1959 Law appears to strike directly to the heart of some of the basic problems in the Montana milk industry, in some cases it might be considered a "Paper Tiger."

Possible Solutions to These Problems

It is important to remember that there is more than one possible solution to the performance problems now present in the Montana milk industry. Although this thesis is primarily concerned with answering the problems of a particular area with a hypothetical Federal milk marketing order, at least part of these problems might be answered through a revision of the present state order or issuing a joint and concurrent order with other states.

^{1/}. Appendix C includes a summary of this case.

CHAPTER III.

PRINCIPAL PROVISIONS OF A HYPOTHETICAL FEDERAL MILK MARKETING ORDER FOR THE GREAT FALLS-HI-LINE AREA^{1/}

"Federal milk marketing orders are legal authority for regulating a large and diverse dairy industry, imposing financial legal obligations, and meeting local market needs. While Federal orders are complex, their basic features are simple and clear."^{2/}

Each Federal order is set up to answer the problems involved in production, consumption, and marketing conditions in a particular milk market area. Therefore, each order is different. However, all Federal orders have certain basic features such as marketing area definition, use classification, classified pricing, pooling returns among producers, and administrative provisions. Of course, these features must be related to the economic conditions present in the marketing area selected.

Marketing Area Selection

In setting up a Federal milk marketing order, definition of the market area is an important first step. This is because the particular Federal order is directly related to the economic conditions of an area, and therefore the area determines the provisions of the order. The marketing area should include all of the area where the same milk distributors compete for sales of milk.

^{1/} Figure 7 gives the boundaries of the Great Falls-Hi-Line Area for which the hypothetical order is being developed.

^{2/} Dr. R. W. Bartlett, Federal Orders for Marketing Milk, Department of Agricultural Economics, University of Illinois, Urbana, Illinois, p. 10.

Procedure for Defining a Market Area

In a report to the Secretary of Agriculture, the Federal Milk Order Study Committee gives a suggested procedure for defining marketing areas. This procedure involves four steps. These steps are as follows:

1. "Identify the principle city whose milk supply and that of closely related distribution centers is to be priced by the order.

The principle city is a well defined, readily identifiable political unit which constitutes the hub or core of an extensive urban area. The boundaries of this metropolitan market which will be a major component of the marketing area defined by the order are to be determined in step number two.

2. "Determine the extent of the primary metropolitan market, including besides the hub city, its suburban areas and contiguous or adjacent urban centers that have strong economic and institutional ties to the principle city.

The metropolitan market thus determined (subject to further expansion in steps three and four) is likely to be somewhat more extensive than the marketing areas defined in accordance with earlier procedures in which the extent of route systems of competing handlers was the principal determinant.

3. "Trace the boundaries of the regular production area for the primary metropolitan market identified in step number two (as a necessary preliminary to step number four).

This production area will normally include all counties (excluding non-contiguous or remote areas) in which are located plants or dairy farms that have been associated with the primary metropolitan market.

- (a) by health department approvals;
- (b) by shipments of fluid milk, or
- (c) by other economic and institutional measures.

4. "Locate all the principal urban centers that lie within the production area as determined in step number three; extend the bounds of the primary metropolitan

market as determined in step number two, to embrace these urban centers and the intervening territory."^{1/}

Another important factor in defining a marketing area whose milk supply is to be priced by a Federal milk marketing order is the weighing of the cost of order administration in relation to the size of the area. Excessive administrative costs may justify the exclusion of outlying small volume distribution areas from regulation.

Topographical Boundaries and Route Sales Movements

In setting up any marketing area it is important that the boundary be located where there are relatively few route sales movements. A Federal market order is not designed to isolate a particular market from the surrounding markets. However, it is much easier to administer an order if there are not abnormally large route sales movements across the market area boundary. In many cases this lack of route sales movements is related to topographical features of the market area.

Producer Approval Required to Institute a Federal Order

Before inauguration of a Federal milk marketing order, it must be presented to the producers of the area for their approval. These producers must approve the order as it is set up rather than approving only those provisions which they prefer. If the order is of the market-wide pool type, two-thirds of the producers who supplied the market area during the designated representative period, or, the producers who supplied two-thirds of the milk sold in the market area during that period must approve it. In the case of an order that establishes an individual handler pool, the percentage of producers approving the order must be at

^{1/} United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, Washington, D. C., April, 1962, p. II-2-10, II-2-11.

least 75 percent. Thus, before any further work on a Federal milk marketing order can be started, it must be established that the producers which supply the area actually wish to inaugurate an order.

Description of the Market Area Selected for the Hypothetical Federal Milk Marketing Order and Reasons for Selection

The proposed marketing area to come under the Federal milk marketing order is shown in Figure 7. Table IV gives the counties to be included in the order. There are several reasons why the borders for this particular area, which was selected for this study, were set in their present locations..

TABLE IV. COUNTIES TO BE INCLUDED IN FEDERAL MARKETING ORDER

County	County Seat
1. Blaine	Chinook
2. Cascade	Great Falls
3. Chouteau	Fort Benton
4. Hill	Havre
5. Lewis and Clark (northern part)	--
6. Liberty	Chester
7. Phillips	Malta
8. Pondera	Conrad
9. Teton	Choteau
10. Toole	Shelby
11. Valley	Glasgow

One of the main reasons for setting up a hypothetical Federal milk marketing order for the Great Falls-Hi-Line Area is the continued presence of problems relating to the performance in this area. For one thing,

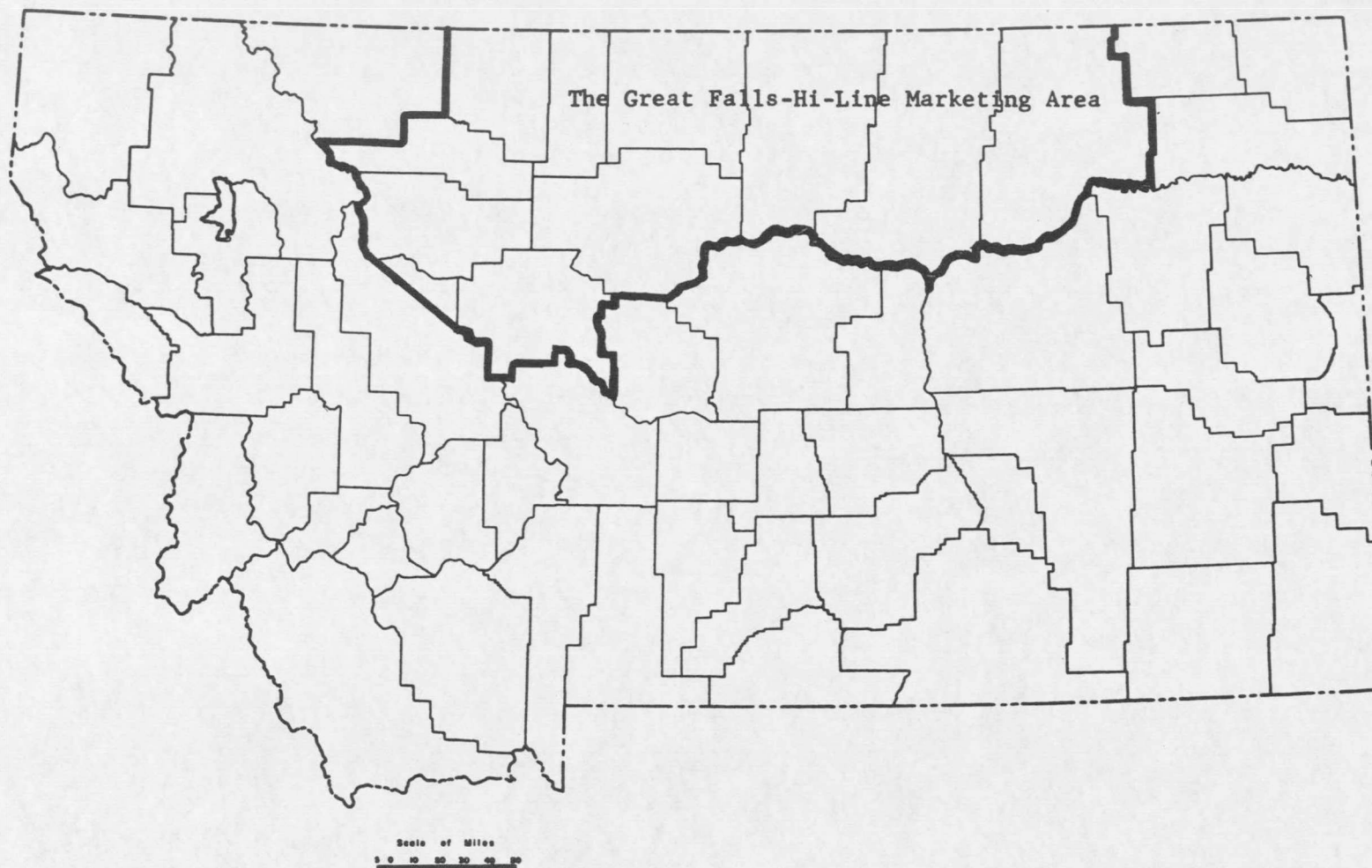


Figure 7. Proposed Marketing Area for a Hypothetical Federal Milk Marketing Order.^{a/}

^{a/} The name designated for this area is the Great Falls-Hi-Line Area.

there are problems which involve the producer and distributor.^{1/} Also, there are problems in this area involving the movement of bulk milk within the state.^{2/} Finally, milk moves into this area from other states. Although the quantity of this out-of-state milk is not great, it does offer an opportunity to compare a hypothetical Federal milk marketing order and the present Montana Milk Control Law with respect to this source of milk. Thus, some conclusions can be obtained pertaining to the feasibility of a state-wide Federal milk marketing order.

In addition, the borders of the proposed marketing area indicated in Figure 7 follow natural topographical features quite closely. The western boundary follows the continental divide to a great extent while the southern boundary follows the Missouri River Basin. The northern boundary of the proposed market area is the Canadian border. Thus, the only boundary which is not particularly distinct topographically, is the eastern boundary. Actually, this boundary could be located in a more easterly direction if necessary. However, it must be remembered that the administration costs must be taken into account in locating the boundaries of a market area. Therefore, the eastern boundary of the proposed market area has been located where it will be as far west as possible and still meet the requirements of few route sales movements and producer approval

^{1/} This fact has been verified by the author in discussions with producers in the area. One such disagreement involves the dissatisfaction of a particular producer with respect to the butterfat test of his milk. The butterfat test taken by the distributor and resulting butterfat differential paid to the producer was noticeably lower than previous months. However, the producer stated that, even though seasonal variation in butterfat tests does occur, it should not have affected his butterfat test because he was feeding in an enclosed pen using the same feed as he had in the previous high butterfat test months.

^{2/} The court case shown in Appendix C between the Montana Milk Control Board and Kessler Brothers of Bozeman, Montana involves this area.

requirements. The sales area of the major distributors located within the proposed market area is shown in Figure 8. From this it can be seen that the route sales movements are small on the proposed market area boundaries.

Finally, the author, in interviews with producer associations located within the proposed market area, has been assured that these producers wish a Federal milk marketing order. In fact, the boundaries of this proposed market area were determined with the aid of these producers and contains all producers who supply fluid milk to the producers located within the area.

Firms Affected by the Order

Because of the fact that Federal milk marketing orders do not attempt to control the wholesale and retail price of milk in the particular marketing areas they are set up for, the firms affected by an order are handlers (or distributors) and producers. However, there are different degrees of control under Federal Milk Orders.

Milk Handlers 1/

"A handler is a person, individual or corporate, who handles milk subject to the order."^{2/} This term applies to cooperative associations of producers, when these cooperatives handle the milk of their members, as well as proprietary handlers. However, with the increasing interchange of milk between milk markets, it has become important that different degrees of regulation of handlers be set up.

^{1/} In all of the following discussions, handler and distributor will be used interchangeably, and thus they have the same meaning.

^{2/} U. S. Department of Agriculture, Federal Milk Marketing Orders, Their Establishment, Terms and Operation, Washington, D. C. Agricultural Marketing Service, October, 1956, p. 20.

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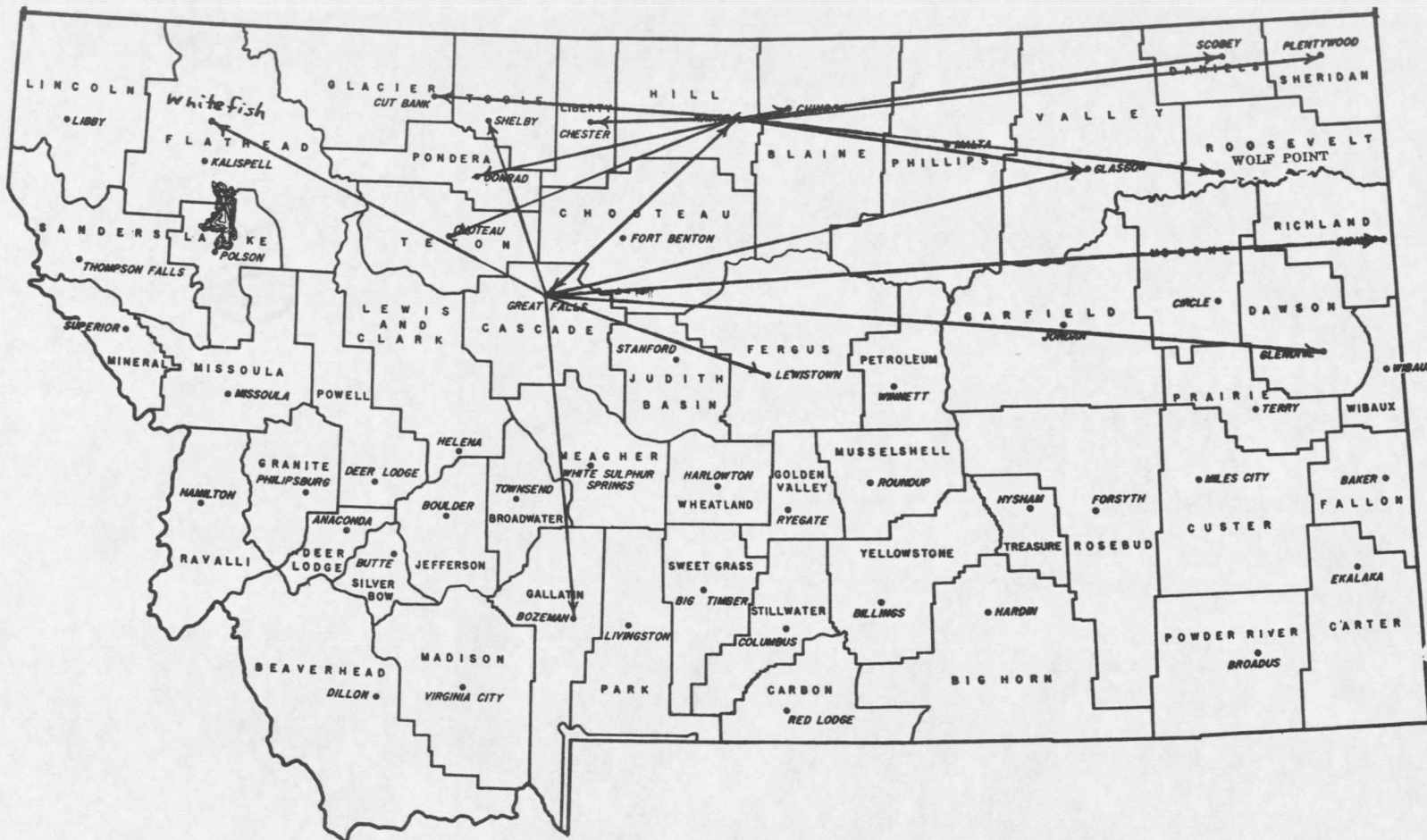


Figure 8. Sales Area of Major Distributors Located Within the Proposed Great Falls-Hi-Line Federal Milk Marketing Area.*

* Source: An unpublished survey of milk distributors who have sales of milk under their own brand name outside of the milk pricing zone in which they are located.

Fully regulated milk handlers are those whose principal sales areas is included within the market area. Ordinarily, handlers or distributors are fully regulated under a particular Federal order if their Class I milk route disposition within the marketing area is over a given percentage of their total receipts from producers.

Partially regulated handlers are those whose principal sales area is outside of the market area but who do have some sales within the market area. A partially regulated handler would be classified as having his principal sales area outside of the market area when his Class I milk route disposition within the marketing area is under the given percentage of his total receipts from producers. Partially regulated handlers are usually required to pay compensatory payments and a given administrative assessment per hundredweight on their Class I route disposition within the marketing area.

Exempt milk handlers are usually small operators, such as producer-handlers and manufacturing milk processing plants, whose share of the market is especially insignificant. Manufacturing milk processing plants are those plants which do not engage in the sale of fluid milk and therefore they need be approved by an appropriate health authority. Fully regulated plants must meet the sanitary requirements required by the order for the processing of Grade A milk. A producer-handler is usually thought of as being a dairy farmer who operates a plant from which Class I (fluid) milk from his own production is distributed.

Handlers Under the Proposed Order

The first requirement of any regulated milk handler is that he meet sanitary requirements necessary under the Federal order to process Class A milk. This hypothetical Federal order will impose the same sanitary requirements necessary under the Montana Milk Control Law.

The two Federal milk marketing orders which are nearest to this proposed Federal order are Federal Milk Order number 17 (Black Hills, South Dakota) and Federal Milk Order number 108 (Inland Empire, Washington-Idaho). Both of these orders have similar provisions for a fully regulated plant. A fully regulated "distributing plant" is a plant in which Class I milk disposition within the Federal market area is equal to not less than 20 percent of its Grade A milk receipts from producers and other plants. A fully regulated "supply plant" is one which ships fluid milk products equal to not less than 50 percent of its Grade A milk received from producers to fully regulated "distributing plants."^{1/}

The proposed Federal milk order will use the same provisions. Table V shows the fluid milk processing plants which will be fully regulated distributor plants under this order.

Partially regulated handlers under the proposed Federal order will be those which have Class I milk disposition within the proposed Federal market area but do not meet the above requirements for fully regulated distributing plants. Figure 9 is an example of this.

The manufacturing milk processing plants located within the proposed marketing area (see Table V) will be exempt from producer price control under the proposed Federal order.

Producer-Handler or Producer-Distributor Under the Proposed Order

At present, there are very few producer-handlers in existence in Montana and there is only one producer-handler located within the marketing area being considered (see Table V). Because of its relatively small size, this plant will not be regulated.

^{1/} This information was obtained from a complete set of Summaries of Federal Milk Orders which reflect revisions through December 1, 1961.

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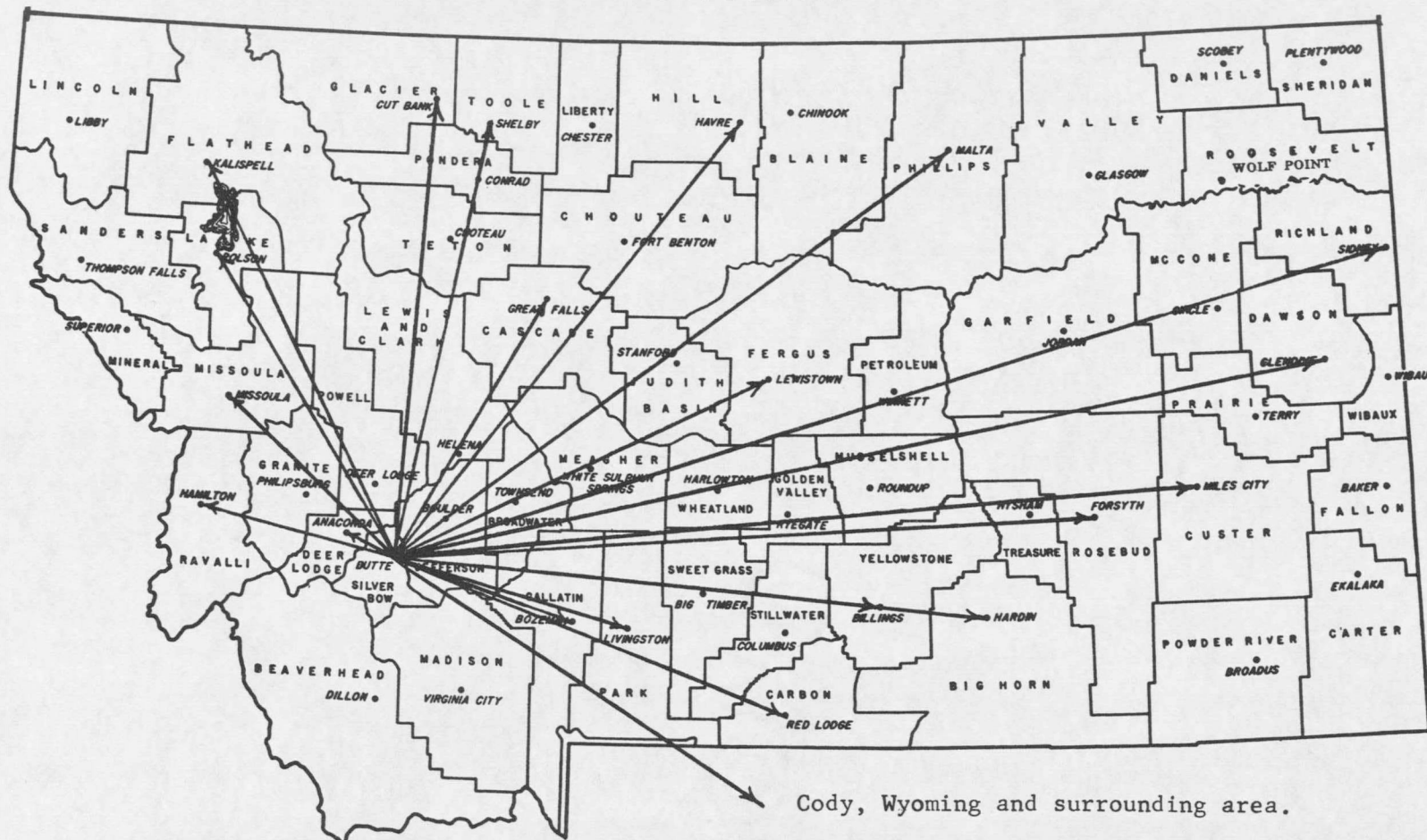


Figure 9. Example of a Partially Regulated Handler Under the Hypothetical Federal Milk Marketing Order-Sales Area of Safeway Milk Department, Butte, Montana.*

* Source: An unpublished survey of milk distributors who have sales of milk under their own brand name outside of the milk pricing zone in which they are located.

TABLE V. TOTAL NUMBER OF MILK PROCESSING PLANTS LOCATED WITHIN THE PROPOSED FEDERAL MILK MARKETING AREA (1961).*

Processing Plants	Marketing Area
<u>Fluid Milk Processing Plants Located Within the Federal Marketing Area Which are Classified as Fully Regulated Distributing Plants</u>	
1. Superior Dairy	Choteau, Montana
2. Conrad Creamery	Conrad, Montana
3. Quality Milk Plant	Conrad, Montana
4. Ayrshire Dairy	Great Falls, Montana
5. Hansen's Dairy	Great Falls, Montana
6. Pioneer Dairy	Great Falls, Montana
7. Jersey Gold Foods	Great Falls, Montana
8. Vita-Rich Dairy, Inc.	Havre, Montana
9. Meadow Valley Creamery	Malta, Montana
<u>Producer-Distributor Plants Located Within the Federal Marketing Area</u>	
1. Purvis Brothers	Vaughn, Montana
<u>Manufacturing Milk Processing Plants Located Within the Federal Marketing Area</u>	
1. Farmers Union Creamery	Chinook, Montana
2. Beatrice Foods Co.	Great Falls, Montana
3. Farmers Union Co-op Creamery	Great Falls, Montana
4. Franks Cream Depot	Great Falls, Montana (out of business)
5. Idowell Creamery Co.	Great Falls, Montana
6. Glacier Trail Creamery	Havre, Montana

* Source: The Montana Milk Control Board Office, Helena, Montana.

Producers Under the Federal Order

A producer is defined as "a dairy farmer who delivers to a fully regulated handler milk approved for sale as fluid whole milk in the regulated market."^{1/} Thus, the producers affected by this hypothetical Federal order will be those who deliver to the fully regulated handlers listed in Table V.

Pricing Milk for Fluid Use

The Classified Pricing System

In any milk market, in order to guarantee an adequate supply of milk from the producer to the handler despite seasonal variations, a greater volume of milk has to be produced than what is actually sold as fluid milk in the particular market. This surplus or reserve of fluid milk may cause a serious instability in the level of fluid milk prices, particularly seasonally. The classified pricing system answers this problem, at least partly, by establishing two distinct prices for milk in the market.^{2/} The first of these is the Class I price, which is the price paid to the producer for milk entering fluid use. The second of these is the Class II or surplus price, which is the price paid to the producer for surplus milk going to other than fluid uses, such as butter, cheese, etc.

^{1/} Ibid.

^{2/} Edmond S. Harris, Classified Pricing of Milk, Some Theoretical Aspects, United States Department of Agriculture, Technical Bulletin No. 1184, Washington, D. C., United States Government Printing Office, April, 1958, p. 1.

Classification Under the Present Montana Milk Control Law 1/

Under the present Montana Milk Control Law, classification of milk is broken down into four classes. These classes are:

1. Class I.--This class includes homogenized milk, pasteurized milk, hi-test milk, low fat milk, buttermilk, chocolate milk, and all shrinkage over 2 percent of the receipts of milk by the distribution from the producer.
2. Class II.--This class includes skim milk (including fortified skim milk), flavored milk drinks (such as chocolate drink), half and half cream, coffee cream, and whipping cream.
3. Class III.--This class includes sour cream, cottage cheese, ice cream, yogurt, and closing inventories of milk on the distributor's books.
4. Class IV.--This class includes butter, American cheese, livestock feed, waste skim milk, and shrinkage under 2 percent.

Actually, only Class I and Class II milk come under the jurisdiction of the Montana Milk Control Law. Classes III and IV were set up by the Montana Milk Control Board personnel to aid in classifying surplus milk usage.

Classification for the Proposed Federal Milk Marketing Order

In setting up the classification of milk for a Federal order, it should be understood that all milk, including surplus milk, processed by a regulated plant comes under the jurisdiction of this order. Thus the classification for the proposed Federal order will use only two classification numbers. These are Class I and Class II. Class I will refer to milk used in fluid products (a combination of Class I and Class II under the present Montana Milk Control Law). Class II will refer to surplus milk (a combination of Class III and Class IV under the present Montana Milk Control Law).

1/ This information was gotten in interviews with personnel working in the Montana Milk Control Board Office in Helena, Montana.

Possible Ways of Determining Class I Prices

There are two main ways in which to determine class I prices. These are:

1. Pricing through evidence admitted at a public hearing, such as now practiced under the Montana Milk Control Law, and
2. Pricing under the "formula" method, which automatically makes price changes to be paid by handlers for milk.

"In recent years, all markets under Federal milk regulation have used a 'formula' method for determining Class I prices."^{1/}

Currently, there are two general types of Class I pricing formulas. These are:

- a. "Economic formulas," which relate Class I milk prices to selected economic factors, and
- b. "Manufacturing milk formulas," which relate the price of Class I milk to the value of milk used for manufacturing purposes.

The interest in economic type formulas to price Class I milk has become especially keen since World War II.^{2/} This is due to the fact that economic formulas tend to relate the price of milk more closely to the economic situation of the marketing area for which the Class I price is being set up.

Manufacturing milk products, such as butter and cheese, may be stored and shipped great distances. Thus, a market area may receive competition in this type of dairy product from the entire country, or at least a greater area of the country than the marketing area under a particular Federal order. In contrast, although the fluid milk marketing areas for particular handlers (or distributors) have increased due to increased

^{1/} United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, op. cit., p. II-1-10.

^{2/} Ibid., p. II-1-11.

technology in refrigeration, transportation, etc., it still is of a fairly local nature. It seems logical that the price of Class I milk in a particular milk marketing area should reflect the situation of that general area rather than the economic circumstances of a relatively unrelated area.

Class I Milk Pricing for the Proposed Market Area

At present, all Federal milk marketing orders use a "formula" method to determine Class I price. Montana has recently had an "economic formula" set up for the state.^{1/} This, in conjunction with the shortcomings of a "manufacturing milk formula" for the milk marketing area involved warrant the use of this formula in this proposed Federal milk marketing order. Of course, this formula is intended for use in the entire state by the Montana State Milk Control Board. However, certain parts may be narrowed to the Great Falls-Hi-Line Area if it is felt that this is warranted.

The pricing formula is related to two main economic factors. These are cost items and consumer purchasing power (see Figure 10). In addition, the cost items are further broken down into direct cost items and opportunity cost items. "Opportunity cost refers to the profits which might be made in producing some other agricultural product."^{2/} Opportunity cost items are used in the formula to encourage milk producers to remain in the dairy industry.

The direct cost items used in the formula are costs of mixed dairy feed, farm labor, and alfalfa hay. The relative weights given to each of these factors was determined through surveys of costs of production taken by the Montana Milk Control Board in 1960.

^{1/} Ward, Pricing Formula for Montana Milk, op. cit.

^{2/} Ibid., p. 6.

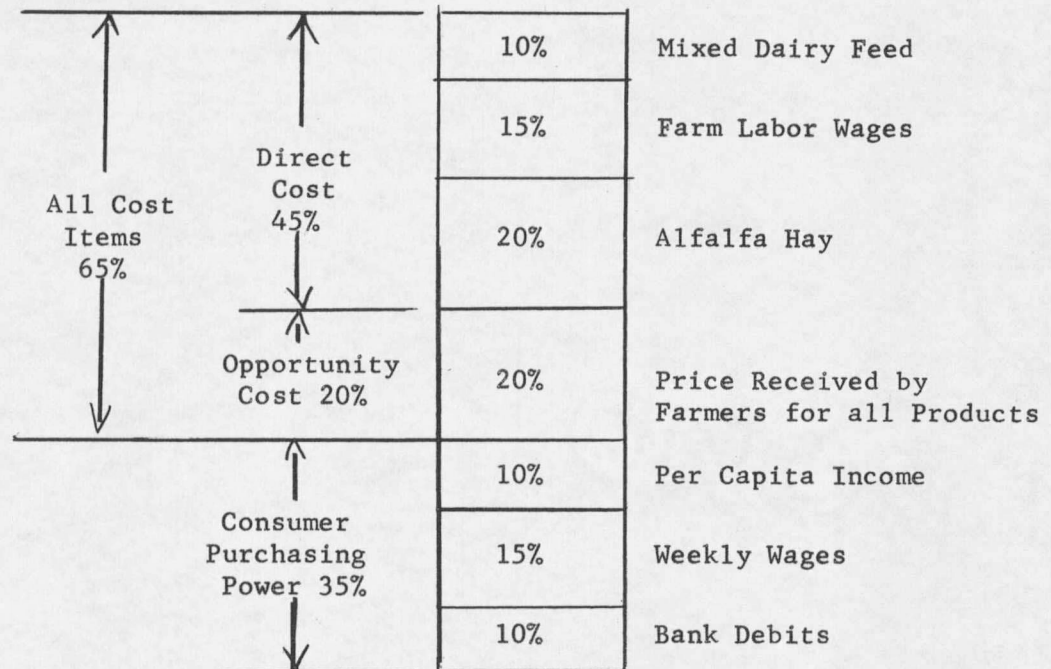


Figure 10. The Pricing Formula at a Glance.*

* Source: Edward H. Ward, Pricing Formula for Montana Milk, Montana Agricultural Experiment Station, Bulletin 569, Montana State College, Bozeman, Montana, p. 6.

Opportunity costs, with relation to the formula, include the prices received by farmers for all products. The reason for this is that there are diversified types of farming throughout the state.^{1/}

^{1/} Dr. Ward mentions the fact that the price of milk and dairy products is included in this index. However, he also states that less than 3 percent of all farm incomes in Montana is derived from dairy products and thus there is little error in using this measure of opportunity costs.

In measuring consumer purchasing power, the formula uses per capita income figures for Montana, an index of weekly wages in Montana, and an index of bank debits in Montana. The reason that the per capita income is not weighed more heavily than 10 percent is the fact that these figures are published annually and are released about six months after the year is completed. Thus, the formula uses an annual per capita income figure and there may be a lag in its use of up to 18 months. Another possible weakness in the formula which may become apparent in the future is that the proportion of people using checking accounts is changing, and also that the population of Montana is growing.^{1/} Thus, the bank debit index might be expected to rise and along with it the price of milk, when, in fact, actual consumer purchasing power does not warrant this rise in milk prices.

The formula is set up to determine the price paid to producers for Class I milk every three months. All components of the formula index are converted to a 1960 base. Thus, the index value of the formula with 1960 figures for all the components contained in the formula is equal to 100. Every three months, the derived formula index would be used in conjunction with a base price for the proposed Federal milk marketing order area to determine the price to be paid for producer milk sold as Class I.^{2/}

(Appendix D is the do-it-yourself kit taken from Dr. Ward's publication, Pricing Formula for Montana Milk. The purpose of this do-it-yourself kit is to aid in the reader's understanding of Dr. Ward's formula for Class I pricing.)

^{1/} Ward, Pricing Formula for Montana Milk, op. cit., p. 9.

^{2/} It would be difficult to use a particular area price as set by the Milk Control Board because parts of areas VI, VIII, and XII (see Figures 4 and 8) are included in the proposed Federal milk marketing order area, and these areas have different producer prices (see Table II).

One part of the formula, as it is presently set up, could be excluded. This "economic formula" was originally developed to aid the Montana Milk Control Board. Because of this, and because the Montana Milk Control Board controls retail, (see Table II) as well as producer prices, the formula has a portion which relates the price of fluid milk per quart to the price received by the producer for Class I milk. The formula limits changes of price received by producers for Class I milk to 23 cent increments. The reason for this is that a 23 cent change in price to the producer corresponds to a 0.5 cent per quart change price to the consumer at the retail level.^{1/} This relationship between retail price and producer price for Class I milk is derived from the fact that most milk handlers expect to obtain 46 quarts of milk to sell from every 100 pounds of milk they receive.^{2/} However, a Federal milk marketing order relies on compensatory payments rather than retail price control to adjust the market performance of the milk industry, so this 23 cent increment would not be necessary. However, it might be advantageous to set up some small increment, say 5 cents, to aid in calculations by the market administrator.

This formula also imposes a price limitation on the price series. It recognizes the fact that some means must be used to avoid the possibility of inviting milk in from surrounding states by setting the price of milk in Montana too high in relationship to the milk prices in these surrounding states. Because of this, a ceiling is set above which the formula price may not rise. This ceiling is directly related to the cost of transportation of milk from these surrounding states. In the case of the Great Falls market, the ceiling is set at 40 cents per hundredweight above the price of milk in Spokane.^{3/}

^{1/} Ward, Pricing Formula for Montana Milk, op. cit., p. 10.

^{2/} Ibid.

^{3/} Ibid.

Supply-Demand Adjusters as Related to Class I Pricing of Milk 1/

"Supply-demand adjusters are devices employed in many Federal order markets to adjust Class I prices in response to changes in the relationship between receipts of milk from producers and quantities used in fluid milk, fluid cream, and other Class I products."2/

In any fluid milk market, three general types of surplus milk may be found these are:

1. Seasonal surpluses, resulting mainly from seasonal changes in the quantity of milk received from producers,
2. Day-of-the-week surpluses, resulting from increasing day-to-day variations in the quantities of packaged milk sold, and
3. Year-round surplus, resulting from a general excess of supplies of fluid milk over Class I sales plus seasonal and short-term surpluses.3/

Supply-demand adjusters are employed to regulate the volume of year-round surplus and also to cope with seasonal shortages or surpluses of milk. The purpose of all supply-demand adjusters is to help maintain a "normal" ratio of producer receipts to Class I sales on a year-round basis.

In using a supply-demand adjuster in conjunction with a Class I milk pricing formula, first a prescribed standard ratio between producer receipts and Class I sales in the particular milk marketing area involved is determined. This is "historically" determined by comparing past Class

1/ At present, Dr. Edward H. Ward's Class I milk pricing formula does not contain a supply-demand adjuster. However, this subject is brought in and discussed here because of a possible future need.

2/ University of Illinois Agricultural Experiment Station, The Mechanics of Supply-Demand Adjusters for Midwestern Milk Markets, Illinois Bulletin 684, North Central Regional Publication 134, Urbana, Illinois, p. 8.

3/ Ibid., p. 9.

I sales and producer receipts for a specified period of time. The ratio may be computed either as the quotient of receipts divided by sales or as the quotient of sales divided by receipts. With a given change in the relationship, the quotient of receipts divided by sales will vary by an appreciably larger number of percentage points than will the quotient of sales divided by receipts.

Next, the length of the base period for comparison between the present computed ratio and the "normal" historical ratio must be determined. Adjusters commonly have bases of either two months or 12 months.^{1/} Two-month bases have a tendency to be more sensitive to changes in relationships between producer receipts and Class I sales. However, they also are affected by abnormalities and shifts in the seasonal pattern. Adjusters using a 12-month base largely avoid this difficulty. In connection with these bases, sometimes an accelerator or accumulator is used.

An accelerator is commonly employed with a 12-month base to move the adjuster farther up or down than the 12-month moving average would, in periods of either continuing upward or downward movement of the present computed ratio. Thus, the adjuster is more responsive to changes in conditions during the latter part of the 12-month period than the 12-month average would be without an accelerator.

An accumulator is used in some markets in which the supply-demand adjuster has a two-month base. It increases the amount of the adjustment if the current ratio of milk receipts to Class I sales persistently remains either above or below the normal. However, a lower than usual basic rate of adjustment is used in conjunction with an accumulator.

Next, a tolerance zone is set up. It may vary in different markets from 2 to 10 points, and it provides a range within which the current ratio of producer receipts to fluid sales is considered normal as compared to the historically derived ratio.

^{1/} Ibid., p. 16.

Finally, the rate of adjustment is determined. This is determined, as much as possible, according to the needs of the particular milk market. The higher the rate is, the larger the adjustment will be. Along with the rate of adjustment, limits to the adjustment are usually decided on. These limits are usually the same for both plus and minus adjustments.

All that remains after instituting a supply-demand adjuster is the computational work to determine the actual adjustment to the determined Class I formula price.

Supply-Demand Adjuster as Related to Class I Pricing for The Proposed Market Area

As stated earlier, supply-demand adjusters are employed to regulate the volume of year-round surplus and also to cope with seasonal shortages or surpluses of milk. At present, the "economic formula" described in the previous section does not contain a supply-demand adjuster. The reason given for this lack of a supply-demand adjuster is that, at the present time, there is not enough available data to set up a seasonal factor.^{1/} However, even if this evidence were available, there is other evidence to indicate that a supply-demand adjuster is not really a necessity at the present time anyway.

The milk structure of Montana, today, is primarily characterized by deficit milk production areas. By all indications, the only surplus production area in the state, at present, is the Bozeman area. The Missoula area seems to have evolved into a self-supporting milk production area, while the proposed market area is a deficit milk production area.^{2/}

^{1/} Ward, Pricing Formula For Montana Milk, op. cit., p. 10.

^{2/} This information was obtained in an interview with Mr. T. P. McNulty, Executive Secretary of the Montana Milk Control Board.

Thus, there probably is not any immediate necessity for a supply-demand adjuster in connection with the "economic formula" for Class I prices. Of course, this situation is subject to change.

The supply-demand adjuster is also used to answer the problem of seasonal shortages or surpluses of milk. However, this, too, does not seem to be an immediate problem. Table VI shows that the total monthly milk production in the proposed Federal milk marketing order area varies only a -9.0 percent and a +6.6 percent from the monthly mean. Figure 11 is a graphic illustration of this. This does not mean that a supply-demand adjuster should never be instituted in connection with the proposed "economic formula." However, it does indicate that the formula would be sufficiently efficient in its present form to allow time for the accumulation of the data needed to inaugurate a supply-demand adjuster.^{1/} This data would be forthcoming from the reports required under the proposed Federal order.

Possible Ways to Price Surplus Milk Under a Federal Order

Any fluid milk market's primary purpose is to provide an adequate supply of fluid milk for the Class I requirements of the consumer. However, in order to guarantee an adequate supply of fluid milk throughout the year, production must be consistently greater than demand for fluid milk for Class I uses. This is primarily due to the seasonal characteristics of production of fluid milk. At present, it is impossible to store bottled fluid milk for any extended period of time. Thus, excess production of fluid milk cannot be stored during a period of surplus production due to

^{1/} In an interview at the Federal Control Board Office in Helena, the author was informed that it is generally felt that a 10 percent surplus of fluid milk over Class I requirements is usually considered fairly normal for a marketing area. In many cases the surplus of fluid milk may be far greater than this 10 percent figure.

TABLE VI. PERCENTAGE OF VARIATION FROM THE MONTHLY PRODUCTION MEAN OF TOTAL MONTHLY PURCHASES OF ALL CLASS I PLANTS LOCATED IN THE GREAT FALLS-HI-LINE AREA.*

Month	Total Monthly Purchases 1000 lbs. ^{a/}	Monthly Mean 1000 lbs. ^{a/}	Monthly Variation From The Mean 1000 lbs. ^{a/}	Percentage of Variation From Mean
January	3,463	3,486	- 23	-0.7%
February	3,175	3,486	-310	-9.0%
March	3,480	3,486	- 6	-0.2%
April	3,501	3,486	+ 14	+0.4%
May	3,716	3,486	+231	+6.6%
June	3,493	3,486	+ 7	+0.2%
July	3,373	3,486	-113	-3.2%
August	3,431	3,486	- 55	-1.6%
September	3,404	3,486	- 82	-2.3%
October	3,549	3,486	+ 63	+1.8%
November	3,548	3,486	+ 63	+1.8%
December	3,715	3,486	+229	+6.6%

* Source: Derived from figures obtained at the Montana Milk Control Office, Helena, Montana.

^{a/} All figures were rounded to the nearest 1,000 pound increment. Therefore, the difference between the total monthly purchases and the monthly mean may not be exactly equal to the monthly variation from the mean as given in this table.

seasonal factors. Thus, the way in which surplus milk is priced under a Federal order is very important because this price must guarantee an adequate year-round supply of fluid milk to be used for Class I purposes and at the same time, it must keep surplus milk within manageable limits.

At present, the surplus milk which is priced under Federal orders is usually priced by one of two general types of formulas. These two types of formulas are:

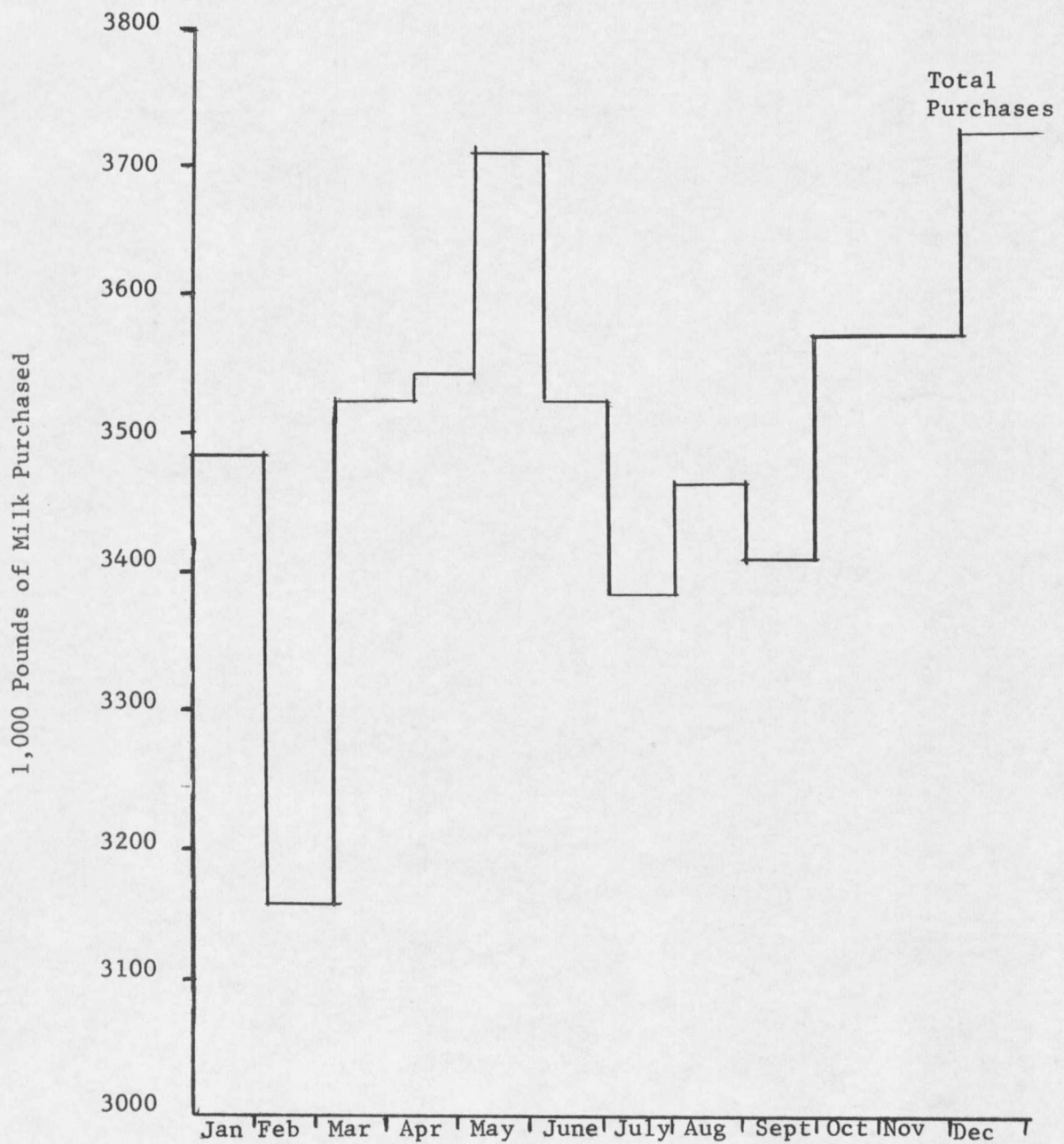


Figure 11. Monthly Variations of Total Milk Purchases by all Fluid Milk Processing Plants Within the Great Falls-Hi-Line Milk Marketing Area in 1961.*

* Source: Montana Milk Control Board Office, Helena, Montana.

1. Those based on manufactured dairy product prices, and
2. Those based on prices paid for milk by unregulated manufacturing plants.

Surplus milk pricing formulas based on dairy product prices are generally used in connection with a "manufacturing milk formula" for producer milk used for Class I purposes. Basically, under this method of pricing surplus milk, the formula computes a gross value for surplus milk from market quotations of end products and yield factors. A processing allowance is usually deducted from this gross value to determine the Federal market order price. Adjustments for seasonal factors may also be included. To determine the Class I price from the price paid to producers for surplus milk, a specified amount is added to this surplus milk price.^{1/} The size of this specified added amount depends upon the individual market area.

Market prices now being used in this method of pricing surplus milk in various Federal milk orders, along with abbreviated descriptions, are listed below:

- a. "Chicago 92-score butter"--A simple monthly average of the daily price per pound of butter, wholesale, for grade and market indicated, as reported by the U. S. Department of Agriculture.
- b. "Chicago 93 (92)-score butter"--This designation is used if the highest price for Chicago 92-score butter is substituted when no price for 93-score butter is reported.

^{1/} The classes of milk in a marketing area under a Federal milk marketing order may be broken down into more than just Class I and Class II milk. If this is the case, all classes of milk designated above surplus milk would be priced by adding a designated specified amount to the derived surplus milk price. However, these amounts would be different for different fluid milk classes. For example, if the milk were classified Class I, Class II-A, and Class II, where Class II is surplus milk and Class I and Class II-A are both different classifications of milk designated for fluid sales, different values would be added to the derived surplus milk price to determine the prices paid to producers for milk used in Class I and Class II-A sales.

c. "Wisconsin Cheese Exchange Cheddar--A simple monthly average of the weekly price per pound of Cheddar cheese on the Wisconsin Cheese Exchange, as calculated by the Dairy Division, AMS.

d. "Wisconsin Primary Market Cheddar--A simple monthly average of the daily (Monday--Thursday) price per pound for Wisconsin State Brand Cheddar cheese (car lot or truck-load, f.o.b. Wisconsin assembly point).

e. "Chicago spray (roller) powder--A simple monthly average of daily prices per pound of non-fat dry milk solids for human consumption, wholesale car lots at Chicago, spray or roller process, or a simple average of average spray and roller process prices.

f. "Chicago area spray (roller) powder--A simple monthly average of daily prices per pound of non-fat dry milk solids for human consumption, wholesale, car lots f.o.b. plant, Chicago area, spray or roller process, or a simple average of average spray and roller process prices.

g. "New York roller-powder-P.P.C.--Monthly average price per pound for roller process non-fat dry milk solids--'other brands', human consumption, in car lots, bags, or barrels, as published in the "Producers Price Current."1/

The second formula method for pricing surplus milk is based on prices paid for milk by unregulated milk manufacturing plants (i.e., cheese factories, etc.). This type of formula recognizes, to a greater extent, variation in prices paid for milk by unregulated manufacturing milk handlers. This tends to equate the price paid for surplus milk more closely to the local economic conditions faced by the particular market area, especially if the market area is not an important national source of manufactured milk products.

1/ This information was received from Mr. W. G. Sullivan, Chief, Marketing Orders Branch, Agricultural Marketing Service, U. S. Department of Agriculture in the introduction to summaries of all the Federal milk marketing orders now in affect throughout the United States.

Possible Dangers Involved With an Inadequate Surplus Milk Pricing Formula

In many respects, developing an adequate price formula for surplus milk is more difficult than developing a formula for the pricing of milk used for Class I (fluid) purposes. The reason for this is that an incorrect producer price paid for Class I milk, while it may have serious long-range effects, will have few short-run consequences because of the availability of a surplus outlet. Thus, defects in a Class I price formula may be taken up by the surplus price formula. However, if surplus milk is priced incorrectly under a Federal milk marketing order, there may be very serious consequences noted in a very short time. If the price paid for surplus milk is too low, the supply of fluid milk for Class I purposes may not be adequate to meet consumer demand. If the price paid for surplus milk is too high, surpluses reach the point where they are not economically disposable. Either the handler will not accept all of the surplus, or if the handler does accept these surpluses, he will not be able to dispose of the milk products manufactured from them.

Also, in deriving either type of surplus milk pricing formula, extreme care must be exercised in fitting the formula to the particular milk marketing area involved. In addition to the possible repercussions already mentioned as a result of a "too-high" or "too-low" surplus milk price, other dangers may become apparent. The final surplus milk price should be such that:

"(a) surplus handling is not so profitable as to encourage bringing more milk into the market in order to increase handler profits, (b) surplus is not withheld from Class I usage when needed, and (c) unstabilizing effects upon the markets of producers of manufacturing milk are avoided."1/

1/ United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, op. cit., p. II-1-19.

A Surplus Milk Pricing Formula for the Proposed Federal Milk Marketing Area

One of the most important objectives in deriving a surplus milk pricing formula is to fit this formula to the economic structure of the milk market in the particular milk marketing area involved. If the producers of a marketing area are primarily engaged in the production of milk designed for Class I sales, it would seem highly probable that a surplus milk pricing formula based on prices paid for milk by unregulated manufacturing plants would be most applicable to this type of economic structure. In the proposed marketing area, the total estimated milk receipts for manufacturing purposes by manufacturing milk processing plant in 1961 was about 11,000,000 pounds (see Table VII).^{1/}

TABLE VII. ESTIMATED TOTAL MANUFACTURING MILK RECEIPT'S BY UNREGULATED MANUFACTURING MILK PROCESSING PLANTS WITHIN THE PROPOSED FEDERAL MILK MARKETING ORDER AREA IN 1961.*

Plant	City	County	Total Mfg. Milk Receipts
			1,000 Pounds
1. Farmers Union Creamery	Chinook	Blaine	1,305
2. Beatrice Foods Co.	Great Falls	Cascade	1,188
3. Farmers Union Coop Cry.	Great Falls	Cascade	4,022
4. Frank's Cream Depot	Great Falls	Cascade	932
5. Idowell Creamery	Great Falls	Cascade	2,920
6. Glacier Trail Creamery	Havre	Hill	982
Total			11,351 ^{a/}

* Source: Derived with conversion formulas from total products sold in 1961.

^{a/} These figures have been "rounded" to the nearest 1,000 pound increment so the total does not always agree with the individual milk receipts.

^{1/} It must be noted that these figures were derived with conversion formulas from total products sold by these plants in 1961. Therefore, the figures may not be entirely accurate. However, for comparison purposes, they are probably adequate.

In comparison to this figure, total production of milk within the proposed marketing area in 1961, which was designated for Class I use, is about 42,000,000 pounds (see Table VIII). This would mean that about 79 percent of the total 53,000,000 pounds ($11,000,000 + 42,000,000 = 53,000,000$) produced in 1961 was produced for the Class I market. Thus, taking this evidence into consideration, it becomes obvious that milk production in the proposed Federal milk marketing area is primarily for the Class I market. For this reason, it seems highly probable that a surplus milk pricing formula should be based on prices paid for milk by unregulated manufacturing plants. By all indications, this would relate the surplus price for milk more closely to the economic structure of the proposed Federal milk marketing area.

TABLE VIII. TOTAL PURCHASES OF CLASS I MILK HANDLERS LOCATED IN THE GREAT FALLS-HI-LINE MARKETING AREA IN 1961.*

Plant	City	County	Total Class I Milk Receipts 1,000 Pounds
Ayrshire Dairy	Great Falls	Cascade	9,083
Conrad Creamery	Conrad	Pondera	3,149
Hansen's Dairy	Great Falls	Cascade	4,373
Jersey Gold Foods	Great Falls	Cascade	3,975
Meadow Valley Creamery	Malta	Phillips	673
Pioneer Dairy	Great Falls	Cascade	4,687
Quality Milk Plant	Conrad	Pondera	652
Superior Dairy	Choteau	Teton	781
Vita-Rich Dairy, Inc.	Hayre	Hill	14,454
Total Class I Purchases (1961)			41,828

* Source: Montana Milk Control Board Records, Helena, Montana.

There is one major difficulty in setting up a surplus price formula for the proposed marketing area in this manner. At present, the prices paid for milk by the manufacturing plants located within this area are

not available. A Federal order has the power to provide the means of getting this information. In addition, certain basic steps in deriving the formula may still be described.

One point which seems evident in the operation of this type of formula pricing for the proposed area is that price changes for surplus milk should be set up on the three-month period to coincide with the "economic formula" for Class I prices. If the prices paid for milk by unregulated manufacturing plants is obtainable monthly, this three-month system of price changes will involve computing the average price paid per month and working from there to the designated time period for surplus milk price changes. Another way to compute this average price paid would be to receive figures every three months rather than every month. This is probably as satisfactory as receiving them every month if the three-month system of price changes was put into effect in the surplus milk pricing formula.

Even if the formula just described for pricing surplus milk were already developed, there would remain the final test. Does it work? No formula so far developed has given the right answer at all times. Whether the formula works must be based on the market developments themselves. In checking whether a particular surplus milk pricing formula is working, the surplus milk prices must be compared to those in adjacent fluid milk markets and national markets for manufactured dairy products as well as to internal market developments.

Market Pooling of Milk

Types of Market Pooling Now Used Under a Federal Order

Because of the fact that classified pricing is used under a Federal milk marketing order, a method of pooling is used to distribute the proper payment, according to final milk use in sales to the producer by the handler. Basically, there are two general types of pooling being used under all Federal milk marketing orders at the present time. These are:

1. Individual handler pools, and
2. Market wide pools.

The individual handler type of pooling blends returns among producers delivering to the same handler. There is one very important objection to individual handler pools. It stems from the fact that not all handlers have the same type of sales market at the consumer level. Some handlers sell a proportionately larger percentage of Class I milk to their total sales than others. Thus, these handlers would pay a higher blend price to the producers than the blend price paid by the handlers with a lower proportion of Class I sales to total sales. This gives them a strong competitive tool in bidding for the larger volume producers.

The market-wide type of pooling blends returns among all producers delivering to all handlers in the market. This is done through a "Producer Settlement Fund." In other words, each handler is required to pay at least the uniform blend price to all producers from whom he purchases milk. The handler then goes to the "Producer Settlement Fund" to equalize his actual blend price to be paid his producers and the uniform blend price which he is required to pay his producer under a market-wide pool. If he sells a greater percentage of Class I milk than the market average, he will be required to pay the difference between what his producer milk should have cost him and what he actually paid his producers into the "Producer Settlement Fund." This money in the "Producer Settlement Fund" is then paid out to handlers with lower-than-average utilization of Class I sales in their total sales. In this way the equalization of producer returns is guaranteed.

Recent years have brought about a reduction in the proportion of individual handler pools to market-wide pools in Federal milk marketing orders (see Table IX). Some of the possible reasons for this reduction of individual handler pools are the increased emphasis on equalization of blend

TABLE IX. PRODUCER RECEIPTS IN MARKETS WITH SPECIFIED TYPE OF POOLS AND NUMBER OF MARKETS WITH SPECIFIED TYPE OF POOLS.*

Year	Market-Wide Pools				Individual Handler Pools			
	Number of Markets with M-H Pools ^{a/}	Percent of all Federal Order Markets	Producer Receipts	Percent- age of Producer Receipts for all Markets	Number of Markets with I-H Pools ^{a/}	Percent of all Federal Order Markets	Producer Receipts	Percent- age of Producer Receipts for all Markets
	Number	Percent	1,000 lb.	Percent	Number	Percent	1,000 lb.	Percent
1946	22	73	11,419,779	79	8	27	2,998,349	21
1950	29	74	15,860,218	85	10	26	2,799,572	15
1955	46	73	24,710,947	85	17	27	4,237,120	15
1957	51	75	29,311,451	88	17	25	4,143,887	12
1961	67	83	44,296,350	91	14	17	4,505,763	9

* Source: United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, Washington, D. C., April, 1962, p. II-3-4.

^{a/} Numbers apply to pooling arrangements in effect at the end of the year.

prices to the producer and lower administrative costs connected with a market-wide pool.^{1/}

Use of Market Pooling of Milk to Combat Seasonal Variation of Milk Production

In some Federal milk marketing orders efforts have been made to modify seasonal variations of milk production through the market-wide pooling system if seasonal variations in Class I pricing are not used.

One way in which market-wide pooling may be used to combat seasonal variations is called the "take out and pay back" plan.^{2/} With this plan, specified deductions per hundredweight of milk are made on all milk delivered during the months of seasonally high production. The funds thus collected are then added to the uniform blend price paid for milk delivered in the normally low production months.

Another way in which seasonal variations are combatted is through the "base excess" or "base payment plan." In this case, a producer establishes a base equal to his production during months of normally low production rates. This base is then used to establish the quantity of milk for which the producer will receive Class I prices during the rest of the year.

Type of Market Pooling to be Used in the Proposed Federal Milk Marketing Order

One of the problems encountered in instituting a Federal milk marketing order in a marketing area which is relatively large and yet has a low population is administrative costs. Even though a group of producers want a Federal milk marketing order for their handler's marketing area, it is

^{1/} The fact that a market-wide pool would tend to have lower administrative costs connected with it would seem logical because of its simpler structure.

^{2/} The "take out and pay back" plan is also known as the "Louisville plan."

still necessary to prove that the order is economically feasible. The proposed market area is of this "large area--low population" type. Therefore, there would seem to be no logical alternative to using a market-wide pooling system in this proposed Federal milk marketing order. Not only would it be less expensive, but it would equalize payments to the producers as well.

Compensatory Payments

"Compensatory payments are sums of money paid into the producer settlement fund of a market-wide pool order by handlers who receive milk from unregulated sources, or in some instances, from plants whose milk is priced and pooled under other Federal orders."^{1/}

Originally, compensatory payments were applied to milk which was sold by producer-handlers to pool handlers.^{2/} Under a Federal milk marketing order, producer-handlers are generally exempted from pricing and pooling provisions of the order. Producer-handler's operations are small, and, as a result, the cost of regulating these small operations tends to raise the administrative costs of the Federal order prohibitively. However, producer-handlers ordinarily have a very high percentage of Class I sales in comparison to total sales. This fact, coupled with the lack of regulation, made it appear reasonable that these producer-handlers should not receive the market-wide pool blend price for the excess milk which they might sell to other handlers in the market area. Thus, most orders stipulated at an early date that if producer-handlers were to be nonregulated in a Federal market area, any handler who purchased milk from the producer-handler would have to pay a compensatory payment to the market pool equal to the difference between the Class I price and the manufacturing class or surplus price.

^{1/} United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, op. cit., p. II-4-23.

^{2/} United States Department of Agriculture, Federal Milk Marketing Orders, Their Establishment, Terms and Operation, op. cit., p. 30.

During the early years of the Federal milk marketing order program, any milk distributor (or handler) whose milk found its way into a market area under a Federal order became subject to full regulation under the order. It did not matter how small these quantities of milk were. Thus, the distributor incurred a considerable obligation for what might be a very small percentage of his total sales. However, as the Federal order program developed through time, it was recognized that the compensatory payment idea might be applied to these handlers as well as to the producer-handlers already governed by it. This finally led to the partial regulation system in Federal orders for those handlers who sold only a small portion of their milk inside the market area.

General Situations Where Compensatory Payments are Used

Today, there are two general situations where compensatory payments are used extensively. These two situations are:

1. When a handler has most of his business outside a Federal milk marketing order area but has some route sales within the regulated area, and
2. When a handler who is fully regulated under a Federal order with a market-wide pooling system receives milk from a plant not regulated by that order and disposes of this milk for fluid use.

Both of these situations are common in Federal market areas.

Possible Methods of Computing Compensatory Payments

Several methods may be employed to compute the actual compensatory payments necessary. The method used depends upon the specific purpose intended. However, one important fact should be emphasized here. It is specifically stated in the Agricultural Marketing Agreements Act of 1937 that:

"No marketing agreement or order applicable to milk and its products in any marketing area shall prohibit or in any manner limit, in the case of the products of milk, the marketing in that area of any milk or product thereof in any production area in the United States."1/

In the Lehigh Valley Cooperative Farmers, Inc., et. al., Petitioners, versus United States et.al., the Supreme Court of the United States, on June 4, 1962, found the compensatory payment provision of the New York-New Jersey Milk Marketing Order inconsistent with this policy expressed by Congress in the Agricultural Agreements Act of 1937.2/ Thus, care must be taken in setting up compensatory payment provisions for a Federal milk marketing order so that milk is not prohibited from entering the Federal market area.

Dr. Roland W. Bartlett, Professor of Agricultural Economics at the University of Illinois, has presented a brief which is related to the above supreme court decision. Appendix C gives the important parts of this brief, as well as his opinions on the realistic and legal nature of particular types of compensatory payment proposals.

However, a summary of the proposals in Appendix C and the particular type of compensatory payment with which they deal, which Professor Bartlett feels are both desirable and legal, is listed below:

a. Milk sold on routes within area by partially regulated handlers:

1. Proposal 2: Partially regulated handler must pay. (Class I price--market uniform price) x quality sold. Both adjusted for butterfat content.
2. Proposal 3: As related to Proposal 2. (Payment under Proposal 2--Class I milk received by partially regulated plant from a fully regulated plant).

1/ The Agricultural Marketing Agreements Act of 1937, Section 8c (5) (G).

2/ A more comprehensive outline of this case is shown in the Appendix C of this thesis.

- b. Milk received at a fully regulated plant from a plant which is not fully regulated under a Federal order:
 - 1. Proposal 5: Regulated handler must pay into producer-settlement fund. (Class I price--market-wide uniform price) x quantity assigned to Class I use.
- c. Bulk milk received at a regulated plant from an unregulated plant:
 - 1. Proposal 6: A regulated handlers total obligation would be:
 - (a) All milk received by the fully regulated handler from producers and unregulated sources calculated on the basis of class prices according to its utilization.
 - (b) Quantity from unregulated handlers x blend price.
 - (c) Blend price x amount received from producers.
 - =(d) Handlers obligation to the producers-settlement fund.
 - 2. Proposal 9: Allow a regulated handler credit on receipts of non-fluid milk products $\leq$ the lowest class price, regardless of actual use.
 - 3. Proposal 10A: Provide measures for dealing with milk from producer-handlers.
- d. Bulk milk received by a fully regulated handler from a plant fully regulated under another order:
 - 1. Proposal 11: Credit allowed a fully regulated handler for bulk milk received from a plant fully regulated under another order = quantity x classification or pricing required under the other order.
 - 2. Proposal 12: Allow credit to fully regulated local plant = quantity x classification agreed upon between both fully regulated plants.
- e. Packaged milk or fluid milk products received by a fully regulated handler from a plant fully regulated under another order:

1. Proposal 15: Assign this milk to Class I utilization in the receiving plant. (Should not be included in the pooling operations of the receiving market).
- f. Milk or fluid milk products shipped from a local fully regulated plant to a plant fully regulated under another order:
 1. Proposal 16: Classify the milk at the transfer or plant in the same manner as in the receiving plant. (This Class I and Class II milk should be included in the pooling operations of the local market area only).

Compensatory Payments Recommended for the Proposed Federal Milk Marketing Order

Compensatory payments are not designed to restrict the movement of milk between production areas. Therefore, the compensatory payment provisions proposed for this order tend to follow the recommendations of Professor Bartlett.

1. Compensatory Payments to be Paid by Partially Regulated Handlers on Milk Sold on Routes Located Within the Proposed Market Area.--Payment =

(Class I price adjusted for butterfat content

- Market blend price adjusted for butterfat content).

x Quantity sold within the market area.

- (Class I milk received by partially regulated plant from a fully regulated plant x Class I producer price).

2. Compensatory Payment to be Paid by Fully Regulated Handler into the Producer-Settlement Fund for Milk and Fluid Milk Products Which are Received from a Plant Which is not Fully Regulated Under any Federal Order and Which is Assigned to Class I Use.--Payment = (Class I price - market-wide blend price) x quantity assigned to Class I use.

3. Bulk Milk Received at a Regulated Plant from an Unregulated Plant.--Payment = (Class I price - market-wide blend price) x quantity assigned to Class I use.

4. Non-fluid Milk Products Received at a Regulated Plant from an Unregulated Plant.--Payment = (Class I price - Class II price) x quantity used in Class I products.

5. Bulk Milk Received by a Fully Regulated Handler From a Plant Fully Regulated Under Another Federal Order.--Payment = (Class I price - pricing under other orders of classification sold at) x quantity assigned to Class I use.

If utilization in another class is claimed by both plants, producer milk receives priority in Class I.

6. Transfers of Packaged Milk or Fluid Milk Products Between Fully Regulated Plants Under Different Orders.--If a fully regulated plant receives packaged milk or fluid milk products from a plant fully regulated under another Federal order, this milk should be classified as Class I.

Payment = (Class I price - blend price) x quantity received.

Butterfat Differentials

Basically, milk contains three main components. These are butterfat, solids-not-fat, and water.^{1/} Milk obtained from different producers usually varies in percentage of concentration of these components due to

1/ United States Department of Agriculture, Report to the Secretary of Agriculture by the Federal Milk Order Study Committee, op. cit. II-1-17.

differences in breed of dairy cattle, season of the year, types of feed, management practices, etc. Thus, in the market, equal volumes of milk from different producers may have different values to the receiving handlers. Historically, these different values have been recognized through the use of butterfat differentials.^{1/}

Essential Characteristics of Butterfat Differentials

The essential characteristics of butterfat differentials are fairly simple. In setting a price for producer milk, whether by formula or by public hearing, a "standard" level of butterfat content for milk is established. This "standard" level of butterfat may be determined in different ways. In the present Montana Milk Control Law, the "standard" level of butterfat in a particular pricing area is based on the average test of all producer receipts in that area (see Table III). Federal milk orders may use an arbitrary figure determined from the normal usage of milk by the handler or distributor.

When the average butterfat content of milk delivered by a particular producer varies from the "standard" level of butterfat, it is necessary to adjust the price paid to producers accordingly. If the producers butterfat test indicates a greater percentage of butterfat than the "standard" level, he is paid a butterfat differential in addition to this price and vice versa. The actual amount of this addition or deduction is based on the differential multiplied by the difference between the average level of butterfat in the producers milk and the "standard" level of butterfat set up for the marketing area in tenths of a percent per hundredweight. Perhaps an example would illustrate this butterfat differential principle more clearly (see Table X).

^{1/} In recent years, there has been more emphasis placed on the solids-not-fat portion of milk. The reason for this is that the sales of products derived from this portion has tended to increase with respect to the sales of fat-containing products.

TABLE X. HYPOTHETICAL EXAMPLE OF A BUTTERFAT DIFFERENTIAL PAID TO A PARTICULAR PRODUCER.

Assumptions

1. Butterfat differential (cents)	=	8
2. "Standard" level of butterfat	=	4.0%
3. Producers butterfat average for period under consideration	=	4.1%
4. Formula price per cwt. ^{a/}	=	5.50/cwt.

Solution

1. Formula price per cwt.	\$5.50/cwt.
+ 2. Value of butterfat differential .08 (4.1 - 4.0)	.08/cwt.
= 3. Total price paid to producer	\$5.58/cwt.

^{a/} cwt. = hundredweight

In the previous example, no recognition is given to the possibility of different butterfat differentials for different milk classifications (Class I and Class II). This is not usually the case in most Federal milk marketing orders. Usually, Federal orders have a lower butterfat differential value for milk used for Class II purposes. For example, the February, 1963 Class I butterfat differential for the Inland Empire Marketing Area was \$.075 while the Class II butterfat differential for the same period was \$.070.^{1/}

Butterfat Differentials to Handlers and Producers

The actual amount of differential which the handler must add to or deduct from the price paid to the producer for his milk may be derived in

^{1/} These facts were obtained from the "Statistical Summary for February, 1963" for the Inland Empire Marketing Area.

several ways. However, there are two main methods of arriving at a butterfat differential for a particular marketing area. The first of these methods is to set a given butterfat differential according to the economic needs of a marketing area. The second of these methods is to relate the butterfat differential to the average price of butter. The second of these methods is by far the most prevalent method in use for determining butterfat differentials under the Federal milk marketing orders now in existence.^{1/}

Relating the butterfat differential to the average monthly price of butter as reported by the U. S. Department of Agriculture (Chicago 92--Score butter price) is usually done by multiplying this average price by a given fraction to obtain the Class I butterfat differential, and by a smaller given fraction to obtain the Class II butterfat differential.^{2/*} It is not absolutely necessary that the butterfat differential be related to the Chicago 92--score butter price, however, most of the present Federal milk marketing orders do use this butter price.

The actual amount of the butterfat differential that is paid to the producer is usually a weighted average of Class I and Class II differentials. An example of how this would work is shown in Table XI.

^{1/} This information was obtained from a complete set of Summaries of Federal Milk Marketing Orders which reflect revisions through December 1, 1961.

^{2/} An example of this method is Federal Milk Order No. 23 (Appalachian Milk Order). In this order the butterfat differentials paid by the handler are:

"1. Class I. Chicago 92--score butter price for the previous month x 0.12.

"2. Class II. Chicago 92--score butter price for the previous month x 0.11."

* Source: Federal Milk Order No. 23, Appalachian (Tennessee, Virginia, West Virginia, Kentucky), pp. 23-24.

TABLE XI. A HYPOTHETICAL EXAMPLE OF THE ACTUAL AMOUNT OF A BUTTERFAT DIFFERENTIAL PAID TO A PARTICULAR PRODUCER WHEN THE CLASS I AND CLASS II BUTTERFAT DIFFERENTIALS HAVE DIFFERENT VALUES.

Assumptions

1. Class I butterfat differentials	=	\$.08
2. Class II butterfat differentials	=	.07
3. "Standard" level of butterfat	=	4.0%
4. Producers butterfat average for period under consideration	=	4.1%
5. Formula price per cwt. (Class I)	=	\$5.50/cwt.
6. Formula price per cwt. (Class II)	=	3.50/cwt.
7. Amount of Class I milk produced during the period under consideration by the producer	=	800,000
8. Amount of Class II milk produced during the period under consideration by the producer	=	200,000

Solution

a.1. Formula price per cwt. (Class I)	=	\$5.50/cwt.
+ 2. Value of Class I butterfat differential .08 (4.1 - 4.0)	=	.08/cwt.
= 3. Total Class I price paid to producer	=	5.58/cwt.
b.1. Class II formula price	=	\$3.50/cwt.
2. Value of Class II butterfat differential .07 (4.1 - 4.0)	=	.07/cwt.
3. Total Class II price paid to producer	=	3.57/cwt.
c.1. Amount paid producer		
1. Class I ($\$5.58 \times \frac{800,000}{100}$)	=	44,640
2. Class II ($\$3.57 \times \frac{200,000}{100}$)	=	7,140
		<u>51,780</u>

Butterfat Differentials Related to an Individual Handler Pooling System and a Market-Wide Pooling System

A butterfat differential works with both an individual handler pooling system and with a market-wide pooling system in the same way. In both cases, amount is added to or deducted from the price paid to the producer for his milk in the manner indicated in the previous examples.

Thus, the actual weighted average of Class I and Class II butterfat differentials would be equal to:

$$(.08 \times .80) + (.07 \times .20) = (.064) + (.014) = .078/\text{cwt.}$$

A proof of this is as follows:

Class I amount received by producer

$$(5.50 + .078) \times \frac{800,000}{100} = \$44,624$$

Class II amount received by producer

$$(3.50 + .078) \times \frac{200,000}{100} = \underline{7,156}$$

Total amount received by producer \$51,780

This figure agrees with the total amount paid the producer in Table XI.

Computation of Separate Prices for Skim Milk and Butterfat

Some Federal orders require the computation of separate prices for skim milk and butterfat. This separate price computation is required in these orders because of the wide variation in the proportions of butterfat in different dairy products. The butterfat content may vary from almost no fat in skim milk to 40 to 50 percent butterfat in cream. The way in which this separate price computation is done is shown in Table XII.

Possible Butterfat Differentials for the Proposed Federal Milk Marketing Order

In setting up a butterfat differential for a proposed Federal milk marketing order, it is necessary to cover the following:

TABLE XII. AN EXAMPLE OF COMPUTATION OF SEPARATE PRICES FOR SKIM MILK AND BUTTERFAT.*

1. Explanation

In the milk industry, one tenth of 1 percent of butterfat (4.1 percent - 4.0 percent) is usually referred to as a "point" of butterfat. Thus, 100 pounds of milk with 4.0 percent butterfat content contains 40 points of fat, and 100 pounds of milk with 100 percent butterfat content would contain 1,000 points of fat.

2. Computation of the Class I price per hundredweight for skim milk (0 percent fat) in an order with a 4.0 percent "standard" level of butterfat

Class I butterfat differential	\$.080
Times: Points of fat in 4.0 percent milk	<u>40</u>
Differential fat value of 40 points of fat	3.200
Class I price per hundredweight of 4.0 percent milk	\$5.735
Less: Differential fat value of 40 points of fat	<u>3.200</u>
Class I price per hundredweight for skim milk (0 percent fat)	<u>\$2.535</u>

3. Computation of a price per hundredweight of butterfat

Class I butterfat differential	\$.080
Times: Points of fat to increase 4.0 percent to 100.0 percent	<u>960</u>
Differential fat value of 960 points of fat	\$76.800
Add: Class I price per hundredweight of 4.0 percent milk	<u>5.735</u>
Class I price per hundredweight for butterfat (100 percent)	<u>\$82.535</u>

* Source: Texas Agricultural Experiment Station, Marketing Milk Under Federal Orders in Texas, College Station, Texas; Bulletin 959, July, 1960, p.13.

1. The "standard" level of butterfat for the particular area under consideration,
2. The derivation of the Class I butterfat differential,
3. The derivation of the Class II (in the case where milk is broken down into only two classes) butterfat differential, and
4. The derivation of the producer price to be paid.

These are considered in the order listed.

As mentioned earlier, the proposed Federal milk marketing area includes parts of pricing zones XII, VIII, and VI, Zone B, (see Figures 3 and 7) as set up under the Montana Milk Control Law. Thus, the proposed area now has a midpoint percent (or "standard" level) ranging from 3.5 to 3.7 percent (see Table III). The Federal milk orders now in effect which are closest to the proposed Federal milk marketing area are Federal Milk Order number 108 (Inland Empire, Washington-Idaho) and Federal Milk Order number 17 (Black Hills, South Dakota). These two orders have a "standard" level of butterfat of 4.0 percent and 3.5 percent respectively.^{1/} It would seem logical to continue the present "standard" level of butterfat for determining the butterfat differential under the proposed Federal milk marketing order. The reason for this is that the midpoint in Table III is the average test of all producer receipts in the area. Therefore, the proposed Federal milk marketing order will have a "standard" level of butterfat set at 3.5 percent.

At present, under the Montana Milk Control Law, the Class I butterfat differential is set at \$.07 per hundredweight in zones VI and XII. In zone VIII the Class I butterfat differential is set at \$.105 per hundredweight (see Table III). Most of the Federal milk marketing orders now in operation relate the Class I butterfat differentials to the 92-score butter price.^{2/} However, at least initially, the proposed order will have a "set"

^{1/} This information was obtained from summaries of these orders.

^{2/} Ibid.

or "fixed" Class I butterfat differential.^{1/} The actual amount of this Class I butterfat differential will require more investigation. If future studies seem to indicate that this type of Class I differential is not adequate, the differential may then be related to the 92-score butter price. However, for the purpose of this study, the Class I butterfat differential is set at \$.07 per hundredweight.

The Class II butterfat differential for proposed marketing area probably should be related in some way to the 92-score butter price. Just how it is related is subject to argument. However, for the purposes of this proposed Federal milk marketing order, the simplest method would seem the best. Many of the present Federal orders relate the Class II butterfat differential to the price of butter by multiplying the Chicago 92-score butter price by some constant. The Class II butterfat differential for this proposed order will use a similar method. The actual amount of this constant is subject to argument. However, for this study, the constant will be set at 0.11 because this seems to be the most prevalent constant used in present Federal orders now in operation.^{2/}

Again, the simplest method of deriving the butterfat differential price paid to the producer is probably as effective as any other method of deriving the producer differential. Therefore, this Federal order will use the weighted average of Class I and Class II differentials.

Location Differentials

Description of Location Differentials

Many Federal orders use location differentials in pricing milk, especially Class I milk, between the producer and the handler. These

^{1/} It is the contention of the author that this method could "more" nearly relate the Class I butterfat differential to the economic conditions of the proposed Federal marketing area.

^{2/} This information was obtained from summaries of orders now in effect.

location differentials take into account the fact that milk produced a distance from the market has a lesser value than milk produced a shorter distance from the market because of transportation costs. Generally, the theory behind these location differentials is that they should be closely related to actual transportation costs. This type of location differential tends to make the handler indifferent to the location of his fluid milk producers.

There are two basic ways in which milk may move from the producing area to the marketing area. It may move directly from the farm to the marketing area with the producer paying the hauling costs, or it may move to a country receiving plant or a processing plant near the supply area and thence to the marketing area in bulk form or packaged form. In the latter case, if this country receiving plant is operated by a handler, this handler pays part of the transportation costs involved in moving the milk from this plant to the market.^{1/}

Location Differentials as Related to the Proposed Federal Milk Marketing Order

In the proposed marketing area, there seems to be no pressing need for a location differential at the present time. Almost all of the milk now produced in this area moves directly from the farm to the marketing area.^{2/} Because of this, there will be no location differential set up for the proposed Federal milk marketing order. This does not mean that there should never be a location differential in the proposed Federal milk marketing order. However, a more adequate study of transportation costs must be conducted before an adequate location differential can be initiated.

^{1/} Texas Agricultural Experiment Station, Marketing Milk Under Federal Orders in Texas, op. cit., p. 13.

^{2/} This fact was obtained through discussions with producer groups located within the marketing area.

Entrance of New Producers Under a Federal Milk Marketing Order

One Possible Plan for Entrance of New Producers

A number of plans are now under discussion involving the assignment of farm marketing bases or quotas for milk. It is not the purpose of this thesis to treat each of these plans in length. However, they all try to answer problems involved in transferring milk bases among producers or in allowing new producers entrance under a Federal milk marketing order.

Several of the proposed plans would allow farmers to transfer among themselves, either permanent bases or annual marketing certificates representing the right to sell milk without the payment of penalties. Thus, a farmer increasing production would have the choice of paying penalties on over-quota milk or of buying additional base or marketing certificates from other producers. Usually, under these plans, every holder of a base or quota would be entitled to obtain annual marketing certificates equal to some uniform percentage of base for all producers. The producer would be required to turn over to the handler certificates to cover the amount of milk sold. Any sales not covered by these certificates would require a penalty payment by the producer to the handler, who would turn it over to the appropriate government agency.

Entrance of New Producers Under the Proposed Federal Milk Marketing Order

At present, there is very little data available about producer entrance in the proposed marketing area. As a result, there will be no producer entrance qualifications in this proposed Federal milk marketing order.

Expense of Administration

Description of the Expense of Administration

The administration costs of operating a Federal milk marketing order are usually financed by assessments against regulated handlers based on the milk received from producers and on all other source milk allocated to Class I. The rate of assessment usually ranges between 2 and 6 cents per hundredweight of milk handled.^{1/} Ordinarily, operators of unregulated distributing plants pay the same rate as regulated plants on Class I route disposition in the marketing area.

Expense of Administration for the Proposed Federal Order

The two closest Federal milk orders (Black Hills order and Inland Empire order) both have a rate of assessment against the regulated handler of 5 cents per hundredweight of milk handled. They have the same assessments against unregulated handlers on Class I route sales within the marketing area.^{2/} A similar assessment is set up in the proposed Federal milk order.

Summary of the Hypothetical Great Falls-Hi-Line Federal Milk Marketing Order

Marketing Area

All territory, including military installations, which is included in the Montana counties of Blaine, Cascade, Chouteau, Hill, Lewis and Clark

^{1/} Texas Agricultural Experiment Station, Marketing Milk Under Federal Orders in Texas, op. cit., p. 16.

^{2/} These facts were obtained from summaries of Federal Milk Order No. 17 (Black Hills, South Dakota) and Federal Milk Order No. 108 (Inland Empire, Washington-Idaho).

(northeastern part), Liberty, Pondera, Teton, Toole, and Valley. The principal cities included in the area are Chinook, Great Falls, Fort Benton, Havre, Chester, Malta, Conrad, Choteau, Shelby, and Glasgow.

Handler

A handler includes the following:

1. The operator of a fully regulated distributing plant,
2. The operator of an unregulated distributing plant from which Class I disposition is disposed of in the marketing area, and
3. A cooperative association with respect to producer milk diverted by it, for its account, from a regulated to an unregulated plant.

Producer-Handler

A producer-handler is a dairy farmer who operates a plant from which Class I milk is disposed of in the area.

Producer

A producer is any dairy farmer, except a producer-handler, who produces milk which is inspected and approved for fluid consumption in accordance with sanitary requirements of the order, and which is received at a regulated plant.

Regulated (Pool) Plant

There are two types of regulated plants under this order. These are:

1. A "distributing plant" which distributes not less than 20 percent of total Grade A milk receipts in the form of Class I milk sales in the market area, and
2. A "supply plant" which ships not less than 50 percent of its Grade A milk received from producers in the form of fluid milk products to regulated plants.

Classification

1. Class I.--Class I milk is all skim milk and butterfat disposed of in the form of a fluid milk product. This class includes homogenized milk, pasteurized milk, hi-test milk, low-fat milk, buttermilk, chocolate milk, skim milk (including fortified skim milk), flavored milk drinks (such as chocolate milk), half and half cream, coffee cream, whipping cream, and all shrinkage over 2 percent of the receipts of milk by the distributor from the producer.

2. Class II.--Class II milk is all skim milk and butterfat included in sour cream, cottage cheese, ice cream, yogurt, butter, American cheese, livestock feed, waste skim milk, closing inventories on the handlers books, and shrinkage of producer milk under 2 percent.

Class Prices (3.5 percent butterfat)

1. Class I Milk Price.--The economic formula for Class I price is made up of the following economic indicators related to the area milk industry:

1. Mixed dairy feed--10 percent,
2. Farm labor wages--15 percent,
3. Alfalfa hay--20 percent,
4. Prices received by farmers for all products--20 percent,
5. Per capita income--10 percent,
6. Weekly wages--15 percent, and
7. Bank debits--10 percent.

The formula is set up to determine the price paid to producers for Class I milk every three months. All components of the formula index are converted to a 1960 base. Thus, the index value of the formula with 1960 figures for all components contained in the formula is equal to 100.

2. Class II Milk Price.--The Class II milk price equals the average price paid at the following manufacturing milk processing plants for 3.5 percent milk in the previous quarter:

1. Farmers Union Creamery, Chinook, Montana,
2. Beatrice Foods Company, Great Falls, Montana,
3. Farmers Union Co-op Creamery, Great Falls, Montana,
4. Idowell Creamery Company, Great Falls, Montana, and
5. Glacier Trail Creamery, Havre, Montana.

Butterfat Differentials

1. Class I Butterfat Differential.--The Class I butterfat differential is set at \$.07 per hundredweight.

2. Class II Butterfat Differential.--The Class II butterfat differential is equal to the average Chicago 92-score butter price for the previous quarter x .11.

Location Differentials

There are no location differentials.

Method of Accounting for Milk

Skim milk and butterfat are accounted for separately.

Type of Pool

The order has a market-wide pool.

Transfers Between Regulated Plants

Transfers of milk from one plant or another in the form of fluid milk products are Class I unless Class II utilization is claimed by both plants. In this case, producer milk at both plants receives priority in Class I over other-source milk.

Transfers of Fluid Milk Products to Unregulated Plants

This milk is classified as Class I in the following cases:

1. Transfers to producer-handlers, and
2. Transfers in consumer packages.

Receipts From Unregulated Plants

1. Classification.--The milk is classified according to its utilization.

2. Compensatory Payment.--Regulated handlers payment = Class I price minus: Market-wide blend price
times: Quantity assigned to Class I use.

Expense of Administration

1. Regulated Plants.--Operators of regulated plants must pay administrative costs not to exceed 5 cents per hundredweight of producer milk and other source milk allocated to Class I.

2. Unregulated Plants.--Operators of unregulated distributing plants pay the same rate as regulated plants on Class I route disposition in the marketing area.

Special Handler Provisions (Unregulated Plants)

1. Plants Subject to Other Federal Orders.--Plants subject to other Federal orders are not subject to this order except for reports requested by the market administrator unless such a plant qualifies as a "regulated plant" under this order and disposes of a greater volume of fluid milk products in the Great Falls-Hi-Line marketing area than in the marketing area of the other Federal order.

2. Unregulated Plants not Subject to Other Federal Orders.--Operators of unregulated plants are required to:

1. Submit requested reports to the market administrator,
2. Pay a specified administrative assessment (see "Expense of Administration" provision), and
3. Pay compensatory payments on Class I route disposition in the marketing area equal to:

Class I price adjusted for butterfat content

minus: Market blend price adjusted for butterfat content

times: Quantity sold within the market area

minus: Class I milk received by partially regulated plant from fully regulated plant

times: Class I producer price.

CHAPTER IV

A COMPARISON OF THE HYPOTHETICAL FEDERAL MILK MARKETING ORDER DEVELOPED FOR THE GREAT FALLS-HI-LINE AREA WITH THE MONTANA MILK CONTROL LAW IN ITS PRESENT STATE OF EFFECTIVENESS AND ITS POTENTIAL STATE OF EFFECTIVENESS

Norms Used in the Comparison Analysis

When an economist has the problem of determining the impact of two alternative economic policies on industry performance, he usually finds that he must be prepared to make his appraisal on both efficiency and equity grounds. Basically, the norm of efficiency, as used for the comparison of alternative types of economic policies can be broken into two parts: "Economic efficiency" and "technical efficiency." The "technical efficiency" of an industry or firm is purely physical and the term means to maximize the rate of output with given resources. Thus, it is actually an engineering problem. "Economic efficiency" means to conform to the communities wishes. This involves the industry's combining the factors of production correctly, producing the different products in the right proportions, and choosing the most desirable rate of output. This comparison analysis will deal with the latter concept of that of the "economic efficiency" of the alternative policies under consideration.

Using the Concept of "Economic Efficiency"

The "economic efficiency" of a particular industry may be directly related to the industry's "performance." Many economists argue that pure competition provides the largest possible degree of "economic efficiency" in those industries in which it can exist. If this is assumed to be true and simulating, pure competition is assumed to be the goal of both alternative policies, the relative "pure competition performance" of the Montana dairy industry under the alternative types of agricultural policies will determine which policy is most efficient. The comparison, using

pure competition as a guide, can be made theoretically as well as directly.^{1/}

Economic Efficiency vs. Equity

In economics, equity usually refers to the distribution of income or the division of income among the factors of production. In the classical welfare model, equity, in the functional sense, occurs when the factors of production (or their owners) receive the marginal value productivity of the resources as compensation. Equity, in this sense then, turns out to be almost synonymous with "economic efficiency" under pure competition. Accordingly, it is assumed in this analysis that the most equitable division of income in the input factor portion of the Montana dairy industry is equivalent to the most efficient position of this input factor portion. Thus, "economic efficiency" can be used as the sole comparison norm.

This is not to deny that equity in terms of a distributive norm is not important. However, in most cases, separating considerations of efficiency from those of equity is an impossibility. The term "equity", as used as a norm for comparison of two alternative agricultural policies, is related to the actual social structure of the United States. According to John M. Brewster, the present social structure of this country is the result of compromise between the various factions of the population involved in status aspiration. There are three main groups of value judgments connected with this. They are the "work ethic", the "democratic creed", and the "enterprise creed."^{2/}

^{1/} A direct comparison, in this thesis, means to show answers offered by the hypothetical Federal order to problems now present in the Montana dairy industry under the state control law.

^{2/} John M. Brewster, "The Impact of Technical Advance and Migration on Agricultural Society and Policy", Journal of Farm Economics, Volume XLI, No. 5, December, 1959, pp. 1169-1184.

The "work ethic" has the following components:

1. The "work-imperative" component, which states that one fails to deserve esteem from his fellow man or from himself if he places love of easy ways above love of excellence in any employment,
2. The "superior industry" component, which states that society owes to each man the equivalent of his contributions and also equal access to the means necessary for developing his creative potential to the fullest extent, and
3. The "human capacity" component, which states that human capacities are quite sufficient to improve the lot of the common man without limit.

The "democratic creed" can be broken into two parts. These are:

1. That all men are of equal worth and dignity, and
2. That no man, however wise or good, is wise enough to have dictatorial power over another.

The main judgments involved in the "enterprise creed" are:

1. The judgment which states that proprietors deserve exclusive rights to prescribe the working rules of their production units, and
2. The judgment which states that, because of this proprietor right, a prime function of government is to prevent anyone, including government itself, from invading this power of proprietors to run their businesses as they please.

It is quite evident that there is conflict between some of these value judgments. Compromise between them must play an important part in agricultural policy in general. It is this compromise which forms some of the basis for equity judgments in evaluating agricultural policies. However, the analysis involved in this thesis is in an area where compromise has already been accepted by the Montana dairy industry. The Montana Milk Control Law is already in effect. Thus, this present analysis concerns itself with measurable differences in equity under the alternative types of agricultural policy.

Pricing and Performance Under Alternative
Milk Programs

Structure of the Montana Dairy Industry

The structure of the Montana dairy industry is definitely not purely competitive. It was shown in Chapter I that the industry is characterized by many producers, few distributors, and many consumers. The input factor portion of the Montana dairy industry is basically oligopsonistic in nature. In an oligopsony one individual firm has a perceptible degree of control over the prices paid for his input factors (in this case, milk). Figure 12 illustrates how an oligopsonistic distributor would arrive at the price paid for milk.

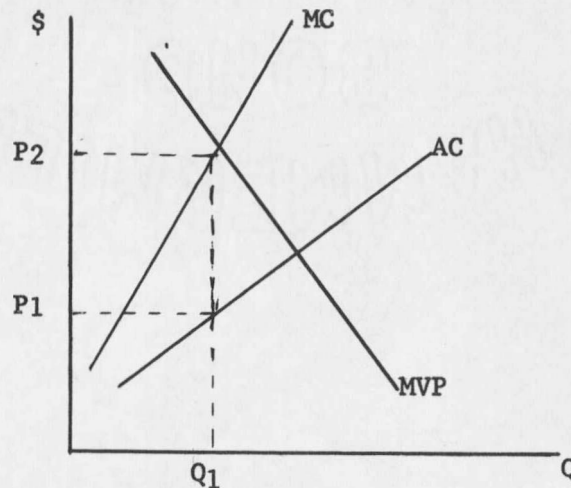


Figure 12. An Example of an Oligopsonistic Market.

In the case of an oligopsonistic milk market, the distributor would pay the producer P_1 for his milk and thus would enjoy abnormal profits

equal to $(P_2 - P_1) \times Q_1$.^{1/} This position would be both inefficient and inequitable, using equity in the classical sense.

It was also shown that the distributor-consumer relationship is somewhat oligopolistic in nature because of the relatively few distributors. However, the sales area of the individual milk distributor has expanded, thus bringing more of them into direct competition.

A Comparison of the Hypothetical Federal Order With the Montana Milk Control Law in its Present State of Effectiveness

It is assumed that both the proposed Federal order and the Montana Milk Control Law have the goal of improving industry performance by directing this performance as closely as possible to the situation which would exist under pure competition. However, different means are used to achieve this goal. The main differences between the two policies will now be compared.

First, it appears that in most respects a Federal order could more effectively achieve the stipulated goal. A Federal order would provide more adequate information on the milk picture within the state on which to base decisions and achieve effective administration. The Montana Milk Control Board requires reports from fluid milk distributors only. In addition to this, it cannot get a completely accurate picture of milk moving into the state from out-of-state sources. The Federal order may require reports from manufacturing milk distributors as well as fluid milk distributors. It also may require reports from out-of-state sources of milk. As a result, its policies would probably be more accurately correlated to the Montana milk picture.

^{1/} It should be noted here that it is assumed that the average cost to the distributor includes a "normal" profit. This is true of all the diagrams that follow.

Secondly, the Montana Milk Control Board operates under an individual handler pooling system. The Federal order operates under a marketwide pooling system. Because of this, the distributor would have less justification in "playing favorites" among his producers under a Federal order.

Third, a Federal order, in most cases, requires better training of its personnel. This would probably mean that a Federal order would be more effectively handled.

The Montana Milk Control Law uses price hearings to set the prices of fluid milk. This is both time consuming and costly. The Federal order would use a formula pricing system, with periodic checks. This would tend to be more efficient, and certainly more expedient.

The Montana Milk Control Board sets prices, and thus directs, only that milk sold for fluid purposes. The Federal order would control prices paid to the Class I producer on both fluid milk and surplus milk. However, the Federal order would use a surplus pricing formula based on manufacturing milk prices in the area so there probably would be little difference between the two systems.

The Montana Milk Control Law is still being challenged in the courts. Federal orders have already been subjected to sufficient legal tests, and therefore their authority has already become secure. In addition, state cases are often tried under officers of the court inexperienced in milk problems who are subject to local politics and pressure. Issues arising under a Federal order are tried under experienced Federally appointed judges. Thus, the Federal order would probably be more effective and require lower court costs.

The State Control Board sets milk prices at both the producer and consumer levels. In other words, it is inferred that the Board attempts to simulate the conditions that would be present in the Montana dairy industry under pure competition at both levels. The Federal order controls milk prices at only the producer level, relying on its compensatory payment provision to aid in helping to make the movement of milk as

efficient as possible. The question is: Is this complete control of milk prices at the producer and consumer level necessary to simulate pure competition, or can price controls at only the producer level simulate this? It is the author's contention that price controls at only the producer level can simulate competition throughout the market.^{1/}

In the input-factor market, it is assumed that the Montana Milk Control Board attempts to equate the price paid to the producer for his product to the marginal productivity of that product to the distributor. This is the equality that would exist under pure competition. Figure 13 is an example of how this would work.

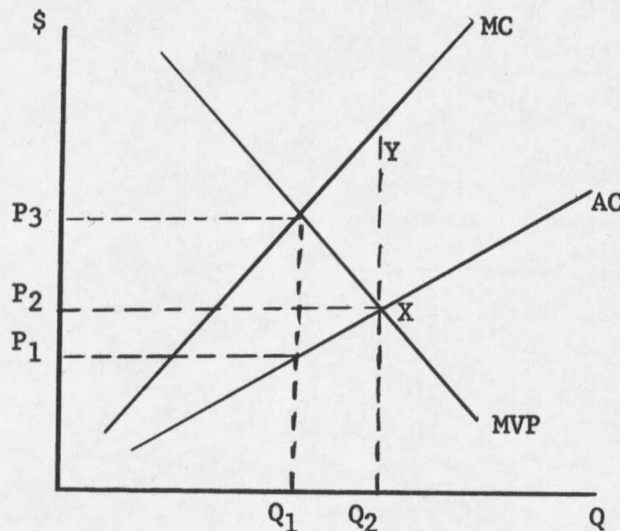


Figure 13. Equating the Price Paid for Milk to the Marginal Value Productivity of Milk.

^{1/} For simplicity, this argument assumes that all milk goes for fluid uses. This assumption is not necessary to the main argument, but merely serves to provide a neater presentation.

Under oligopsonistic conditions, the distributor would pay P_1 for producers' milk. This would mean that he would enjoy abnormal profits equal to $(P_3 - P_1) \times Q_1$. If the Montana Milk Control Board attempts to follow the efficiency-equity criterion set forth earlier, it would set the producers' milk price at P_2 . If this were accomplished, the shape of the marginal cost curve would be $P_2 \times Y \text{ MC}$. At this price, $P_2 = \text{MVP}$ and no abnormal profits accrue to the distributor.

The Montana Board also sets the consumer price of milk in the state. Figure 14 is an example of how this works.

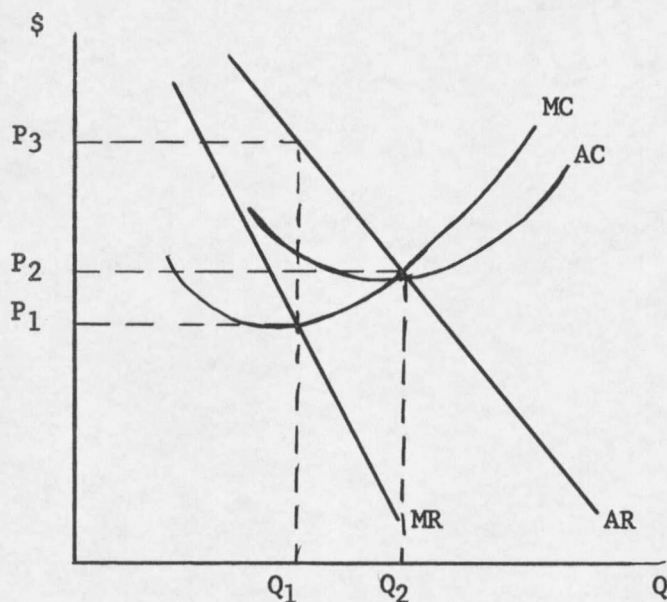


Figure 14. Equating the Price Charged for Fluid Milk to the Marginal Cost.

In this case, it is assumed that the State Control Board attempts to equate the price charged the consumer for fluid milk to the marginal cost of milk. This would be the situation under pure competition. With no controls whatsoever, assuming profit maximization as a distributors goal, the distributor would sell Q_1 quantity of milk at price P_3 . Thus, he would enjoy abnormal profits equal to $(P_3 - P_1) \times Q_1$. If the price

were set at P_2 , these abnormal profits would be erased, and the resources of the Montana milk industry would be directed to the most efficient use according to classical economic theory.

The Federal order would attempt to accomplish the same results using price controls at only the producer level. Figure 15 is a hypothetical example of how this might work.

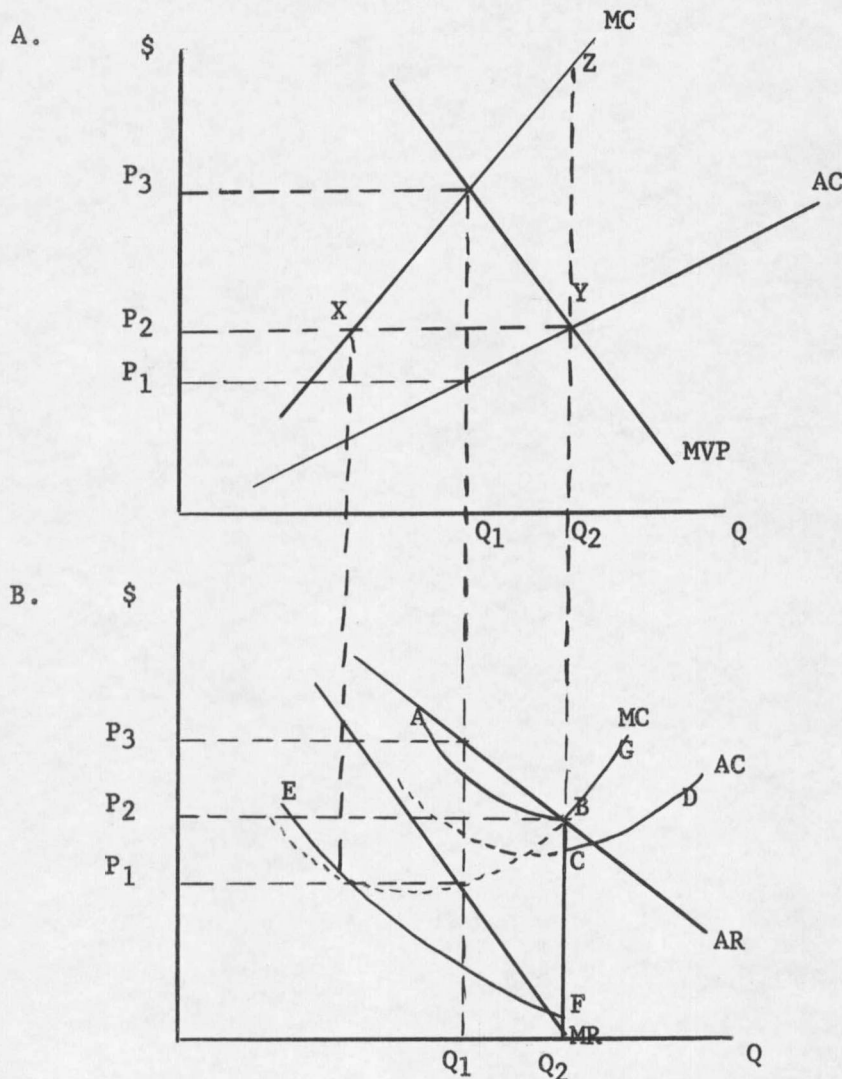


Figure 15. A Hypothetical Example of How Price Controls at Only the Producer Level can Simulate Conditions Under Pure Competition at All Levels.

Assume that, under a Federal milk marketing order, the price paid for milk by the distributor is set at P_2 as in Figure 15A. This would mean that the marginal cost curve in Figure 15A. would assume the shape P_2 X Y Z MC. The average cost curve would assume the shape P_2 X Y AC. This would simulate purely competitive conditions in the factor market. This price setting in the input factor market would also change the shape of the marginal cost and average cost curves faced by the distributor in the retail market. The average cost curve would assume the shape of ABCD, and the marginal cost curve would assume the shape of EFCBG in Figure 15B. Thus, the distributor, in order to maximize net revenue, would set his selling price at P_2 in Figure 15B., because at this point $MR = MC$. However, this is the same retail price that the Montana Milk Control Board would set in an attempt to simulate pure competition in the distributor-consumer market (see Figure 14). Therefore, producer price controls would simulate pure competition in the distributor-consumer market. It seems logical to conclude that the Federal order would be more efficient in price control in that less data, less implementation, and a narrower area of enforcement would be involved. This system provides a simpler structure and encourages distributors toward economies of scale.

In concluding this particular comparison, it must be pointed out that the hypothetical Federal order would tend to have higher administrative costs. However, these costs would probably be more than offset by the satisfaction derived from the Federal order's greater overall efficiency. Finally, the Montana Milk Control Law, in its present form, is not operating at its potential state of effectiveness. However, even if it were so operating, the bargaining analysis suggests that the hypothetical Federal order would be more efficient. The state law would still have inefficiencies connected with price controls at all levels, inadequate records, price hearings for setting the price of fluid milk, and lack of control over out-of-state milk movements.

Another Solution to the Problems Present Under
the Current Montana Milk Control Law

It should be noted that a Federal milk marketing order is not the only solution for problems of "performance" now present in the Montana milk industry. A revision of the Montana Milk Control Law is a potential solution to some of these problems. Some of the revisions which would increase the law's efficiency are:

1. Revise the state order to control price at only the producer level,
2. Require more adequate reports from distributors and producers within the state,
3. Issue a joint and concurrent order with surrounding states,
4. Incorporate Dr. Ward's milk pricing formula into the state order, and
5. Get rid of the "paper tiger" aspect of the law.

Of course, these revisions would probably involve the time consuming challenges brought into court. However, this would be preferable to the present situation. Even then the revised state law would probably be less efficient than a Federal order. However, revisions of the state order would, in all probability, be more readily accepted than a Federal order by the Montana dairy industry as a whole.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The relative "performance" possible under two alternative types of agricultural policy may be used in comparing these two policies. This study is an attempt to compare the present Montana Milk Control Law with a hypothetical Federal milk marketing order. Their relative ability to simulate conditions which would be present under pure competition is the main guiding factor for an efficiency comparison.

The area selected for this study is the Great Falls-Hi-Line Area. This area has most of the problems present in the milk industry throughout the state. In addition, in the past the producers of this area have indicated their preference for a Federal order.

The present Montana Milk Control Law was revised in 1959. This revision corrected, at least partially, many of the inadequacies of the previous law. It provides for more adequate records, a better understanding of the "natural market area" for milk, and a generally stronger position with relation to the industry. However, there are still many problems present in the Montana dairy industry. Some of these problems are:

1. The Montana Milk Control Board has no jurisdiction over out-of-state milk,
2. The Board has jurisdiction over only that milk which is sold in fluid form, and
3. The Montana Milk Control Law is still being challenged in the courts.

A Federal milk order is one possible solution to these problems. Another possible solution is a revision of the present Montana Milk Control Law.

In developing any Federal order, certain parts are similar in structure. Of course, the economic factors present in the area selected must be integrated into the order. The hypothetical Federal order developed in this study takes advantage of this fact. It is developed using other Federal orders as well as the economic conditions present in the Great Falls-Hi-Line Area. This includes outlining the area selected, firms affected by the order, milk pricing under the order, pooling of milk, compensatory payments, butterfat differentials, location differentials, entrance of new producers, and expense of administration.

Finally, a comparison of the differences between the two alternative agricultural policies is made using efficiency as the main criterion.

Conclusions

The results of the alternative agricultural policies tend to indicate the proposed Federal order is more efficient than the present Montana Milk Control Law. First, it would provide better information on the Montana milk industry. Secondly, it operates under a marketwide pooling system. Third, in most cases it requires better training of its personnel. The Federal order would also save time and money by using a formula pricing system. Finally, it theoretically would achieve the same results as the state order while using price controls at the producer level only. This would involve a narrower area of enforcement and, as a result, a simpler structure. Thus, the "performance" of the state dairy industry would probably be improved under a Federal order.

Future Research

There are three general areas in which research on the Montana milk industry might be conducted. The first of these is research connected with a possible Federal order for the state or part of the state. The gaps in the information gathered for this study are many. Data is needed

on manufacturing milk processing plants (cheese factories, etc.) in the state. Transportation costs are needed to develop location differentials. Information is needed in connection with supply-demand adjusters.

Secondly, future research might be conducted in connection with a possible revision of the present Montana Milk Control Law. Revision of the state order to control price at only the producer level would be an important area of study. In addition, the possibility of concurrent state milk orders might be considered.

Finally, future research may be necessary on the Montana milk industry structure itself. The milk industry is dynamic, and thus research must be undertaken from time to time to show the changes which have taken place in it.

APPENDICES

APPENDIX A

TABLE I. CONVERSION FORMULAS USED TO TRANSLATE TOTAL PRODUCT SALES BY MANUFACTURING MILK PROCESSING PLANTS IN 1961 TO TOTAL POUNDS OF FLUID MILK RECEIVED IN 1961.*

-
1. Conversion Formula for Butterfat
 - a. Average butterfat content for Montana: 3.8081 percent
 - b. Conversion formula: a/
Pounds of butterfat $\div$.0381 = Pounds of milk
 2. Conversion Formula for American Cheese and Cottage Cheese
 - a. Assumption:
13 pounds of cheese obtained from 100 pounds of milk
 - b. Conversion Formula:
Pounds of cheese $\div$.13 = Pounds of milk
 3. Conversion Formula for Butter
 - a. Assumption:
Yield of butter is 120 percent of the butterfat content in milk
 - b. Conversion Formula:
$$\frac{\text{Pounds of butter}}{1.20 \times .0381} = \frac{\text{pounds of butterfat}}{.04572} = \text{pounds of milk}$$
 4. Conversion Formula for Ice Cream
 - a. Assumption:
(lbs. of ice cream $\div$ 2) $\times$.12 = lbs. of butterfat
 - b. Conversion Formula:
$$\frac{.12 \times \text{lbs. of ice cream}}{2 \times .0381} = \frac{.06 \times \text{lbs. of ice cream}}{.0381} = \text{lbs. of milk}$$
 5. Conversion Formula for Yogurt
 - a. Assumption:
.0025 $\times$ lbs. of yogurt = lbs. of butterfat
 - b. Conversion Formula:
$$\frac{.0025 \times \text{lbs. of yogurt}}{.0381} = .065617 \times \text{lbs. of yogurt} = \text{lbs. of milk}$$
-

* See asterisk on following page.

a/ See footnote on following page.

TABLE I. CONVERSION FORMULAS USED TO TRANSLATE TOTAL PRODUCT SALES BY MANUFACTURING MILK PROCESSING PLANTS IN 1961 TO TOTAL POUNDS OF FLUID MILK RECEIVED IN 1961.* (CONTINUED)

6. Conversion Formula for Low-Fat Ice Cream

a. Assumption:

$$\frac{\text{lbs. of low-fat ice cream} \times .05}{1.65} = \text{lbs. of butterfat}$$

b. Conversion Formula:

$$\frac{.05 \times \text{lbs. of low-fat ice cream}}{1.65 \times .0381} = .795355 \times \text{lbs. of low-fat ice cream} = \text{lbs. of milk}$$

7. Conversion Formula for Ice Milk

a. Assumption:

$$.033 \times \text{lbs. of ice milk} = \text{lbs. of butterfat}$$

b. Conversion Formula:

$$\frac{.033 \times \text{lbs. of ice milk}}{.0381} = .866142 \times \text{lbs. of ice milk} = \text{lbs. of milk}$$

8. Conversion Formula for Sherbert

a. Assumption:

$$\frac{.045 \times \text{lbs. of sherbert}}{1.65} = \text{lbs. of butterfat}$$

b. Conversion Formula:

$$\frac{.045 \times \text{lbs. of sherbert}}{1.65 \times .0381} = .715820 \times \text{lbs. of sherbert} = \text{lbs. of milk}$$

* Source: The Montana Milk Control Office, Helena, Montana.

a/ For purposes of developing these conversion formulas, the author has "rounded off" the average butterfat content of milk from 3.8081 percent to 3.81 percent.

APPENDIX B

TABLE I. PRODUCER-DISTRIBUTOR PLANT BY SIZE BY COUNTIES IN MONTANA.*

County	Total plants	Number of plants - 1961		
		Under 3	3 - 15	15 - over
	<u>Number</u>	<u>Mil. lbs.</u> <u>of milk</u>	<u>Mil. lbs.</u> <u>of milk</u>	<u>Mil. lbs.</u> <u>of milk</u>
Carbon	1	1	--	--
Cascade	1	1	--	--
Custer	2	2	--	--
Flathead	1	1	--	--
Gallatin	2	2	--	--
Lewis and Clark	2	2	--	--
Madison	1	1	--	--
Missoula	2	2	--	--
Park	1	1	--	--
Ravalli	1	1	--	--
Richland	1	1	--	--
Sanders	1	1	--	--
Silver Bow	2	2	--	--
Total	19	19	--	--

* Source: The Montana Milk Control Board Office, Helena, Montana.

TABLE II. NUMBER OF FLUID MILK PROCESSING (DISTRIBUTING) PLANTS BY SIZE BY COUNTIES IN MONTANA.*

County	Total plants	Number of plants - 1961			a/
		Under 3	3 - 15	15 and over	
	Number	Mil. lbs. of milk	Mil. lbs. of milk	Mil. lbs. of milk	
Broadwater	1	1	--	--	
Carbon	1	1	--	--	
Cascade	4	--	4	--	
Custer	1	--	1	--	
Dawson	2	1	1	--	
Fergus	3	3	--	--	
Flathead	3	1	2	--	
Gallatin	3	1	1	1	
Hill	1	--	--	1	
Lake	2	1	1	--	
Lewis and Clark	3	2	1	--	
Missoula	3	--	2	1	
Musselshell	1	1	--	--	
Park	3	2	1	--	
Phillips	1	1	--	--	
Pondera	2	1	1	--	
Powell	1	1	--	--	
Roosevelt	2	2	--	--	
Sanders b/	1	1	--	--	
Sheridan	1	1	--	--	
Silver Bow	3	2	1	--	
Stillwater	1	1	--	--	
Sweet Grass	1	1	--	--	
Teton	1	1	--	--	
Yellowstone	3	--	3	--	
Total	48				

* Source: The Montana Milk Control Board Office, Helena, Montana.

a/ None over 50 million pounds of milk.

b/ More manufactured milk sold than Class I milk.

TABLE III. NUMBER OF MANUFACTURING MILK PROCESSING PLANTS BY SIZE^{a/} AND BY COUNTIES IN MONTANA.*

County	Total plants	Number of plants - 1961		
		Under 3	3 - 15	15 and over ^{b/}
	<u>Number</u>	<u>Mil. lbs. of milk</u>	<u>Mil. lbs. of milk</u>	<u>Mil. lbs. of milk</u>
Beaverhead	1	1	--	--
Blaine	1	1	--	--
Carbon	1	--	1	--
Cascade	4	3	1	--
Fergus	1	1	--	--
Gallatin	3	1	2	--
Hill	1	1	--	--
Jefferson	1	1	--	--
Lake	1	--	1	--
Lewis and Clark	1	1	--	--
Missoula	1	1	--	--
Park	1	1	--	--
Ravalli	2	--	1	1
Sanders	1	1	--	--
Silver Bow	3	3	--	--
Stillwater	1	1	--	--
Yellowstone	2	1	1	--
Total	26			

* Source: The Montana Milk Control Board Office, Helena, Montana.

^{a/} The size of these plants was derived using conversion formulas.

^{b/} None over 50 million pounds of milk.

APPENDIX C-1

SUMMARY OF COURT CASES OF INTEREST TO THIS STUDY

1. Montana Milk Control Board, plaintiff vs. Kessler Dairy, Inc., a corporation, and James Robert Hansen, d/b/a Hansen's All Star Dairy, defendants. (In the district court of the Eighteenth Judicial District of the State of Montana, in and for the County of Gallatin, hearing on March 6, 1963.)1/

This court case is concerned with the shipment of bulk milk from Kessler Dairy, Inc. in Bozeman to Hansen's All Star Dairy in Great Falls. Kessler sold the milk to Hansen as Class III or manufacturing milk at \$1.20 per pound butterfat. The going price paid to the producer for manufacturing milk at the time of the sale was 70 cents per pound butterfat. The Milk Control Board's audit records established that the ultimate usage of this milk made by Hansen was Class I. Neither defendant denies the above facts or that Kessler's producers were underpaid for milk involved in the transaction. However, each defendant denies respective responsibility for such underpayments. The Montana Milk Control Board maintains that Kessler Dairy is responsible to its producers for actual underpayments. At the time of this writing, the case is still in court.

2. Lehigh Valley Cooperative Farmers, Inc., et. al., Petitioners, vs. United States et. al., (Supreme Court of the United States.)2/

1/ The facts on this case were obtained from a copy of the Plaintiff's Brief, No. 15170.

2/ Supreme Court of the United States, Lehigh Valley Cooperative Farmers, Inc., et. al., Petitioners, vs. United States, et. al., No. 79-- October Terms, 1961, Washington D. C., June 4, 1962.

In this case, the petitioners, operating milk processing plants in Pennsylvania, challenged the validity of certain "compensatory payment" provisions included in milk marketing orders affecting the New York--New Jersey area. A previous judgment of the Court of Appeals for the Third Circuit, 287F. 2d 726, upheld the validity of this "compensatory payment" provision. However, this previous judgment conflicted with a decision rendered by the Court of Appeals for the Second Circuit, Kass vs. Brannan, 196F. 2d 791. The Supreme Court of the United States was called in to resolve this conflict.

Basically, the New York--New Jersey Order had a compensatory payment provision which provided that a handler who brings "outside" milk into the marketing area, under the jurisdiction of this order, and sold it for fluid use had to pay the pool's producers, through the Producer Settlement Fund, an amount equal to the difference between the minimum prices for the highest and the lowest use classifications which prevailed in the area. Thus, for each hundredweight of non-pool milk sold for Class I use in the New York--New Jersey area, a compensatory payment had to be paid by the seller into the Producer Settlement Fund which was equal to the difference between Class I (fluid milk) and Class III (surplus milk) prices.

The Court of Appeals for the Second Circuit held that this compensatory requirement was a "penalty." After this decision, the Secretary of Agriculture conducted extensive hearings to determine whether the compensatory payment requirement should be retained. He found that it should be retained because it was the most satisfactory means of imposing "a suitable charge on such unpriced milk in an amount sufficient to neutralize, compensate for and eliminate the artificial economic advantage for non-pool milk which necessarily is created by the classified pricing and pooling of pool milk under the order."^{1/}

^{1/} Ibid., p. 79.

When this case was brought before the Supreme Court of the United States, the government used two arguments in contending that the compensatory payment provision was legal. These were:

1. That the effect of § 8c (5) (G), which states that

"No marketing agreement or order applicable to milk and its products in any marketing area shall prohibit or in any manner limit, in the case of the products of milk, the marketing in that area of any milk or product thereof in any production area in the United States."^{1/}

could not be considered by the Court since that provision was not cited by the petitioners in the administrative proceeding in the Department of Agriculture, and

2. That the petitioners had the choice of joining the market-wide pool, in which case they wouldn't have been subject to the compensatory payment provision in the New York--New Jersey Order.

However, the Supreme Court found the compensatory payment provision invalid. There were several reasons given for this finding.

First, the Court found that the Secretary of Agriculture's reasoning was inadequate. His reasoning was based on the supposition that non-pool milk was not worth more than the Class III prices as set by the New York--New Jersey Order. The Court found that this supposition was not true.

Second, the Court found that the administrative petition filed by the petitioners did make an obvious reference to the prohibition of § 8c (5) (G). Thus, their decision could be based on this section of the Federal milk law.

Third, they found that any "election" by the petitioners to join the market-wide pool under the order was purely illustionary. Therefore, this argument by the government was invalid.

^{1/} Ibid.

APPENDIX C-2

OPINIONS OF DR. ROLAND W. BARTLETT ON THE REALISTIC AND LEGAL NATURE OF PARTICULAR TYPES OF COMPENSATORY PAYMENT PROPOSALS AS RELATED TO THE PREVIOUS SUPREME COURT ON THE UNITED STATES DECISION.

"Proposals relating to packaged milk and packaged fluid milk products disposed of on routes in the marketing area or to a regulated plant by a plant not fully regulated under a federal order:

"Proposal No. 1. Compute the handler's obligation under the option chosen by the handler as follows: (a) The amount which would be his obligation for all receipts if his plant were fully regulated, less the sum of his payments to dairy farmers who furnish his Grade A milk supply; or (b) the amount computed by multiplying the hundredweight of fluid milk products disposed of on routes in the marketing area by the difference between the Class I price and the Class II (or lowest class) price adjusted for butterfat content of the milk and for location of the plant.

"Answer No. 1. (a) This proposal is unrealistic and probably illegal. There is not necessarily any relationship between the market value of milk in an unregulated plant and its market value in a regulated market to which packaged milk was sold. For example, if a handler sold 5 percent of his packaged milk in the regulated market and 95 percent of his milk elsewhere, in many unregulated areas, to meet competition, he would be forced to sell his Class I milk below the Class I price in the regulated market. In this case it would be impossible for him to pay a blend price for all his milk as high as that paid by a plant in a regulated market. In this situation, is it not possible that the exaction of an unnecessarily high blend price would be considered a trade barrier which would tend to prevent his selling packaged milk in the regulated market, thereby limiting his sales, and thus might be considered illegal under the Agricultural Marketing Agreements Act of 1937?

"Furthermore, even if it were legal, would it be desirable for a market to be loaded with a large amount of surplus milk which would act as a millstone around the blend price? (b) Probably illegal similar to the Lehigh Valley case.

"Proposal No. 2. Compute the handler's obligation by multiplying the quantity of fluid milk and fluid milk products disposed of on routes in the marketing area by the difference between the Class I price and the market uniform price both adjusted for butterfat content of the milk.

"Answer No. 2. This proposal looks workable, and would prevent the unregulated handler from buying his milk at a blend price and selling this in competition with the Class I price in the regulated market. Since the payment to the pool would be based only upon the amount of packaged milk disposed of on routes, this should not result in hardship for the unregulated handler.

"Proposal No. 3. Compute the handler's obligation as in proposals (1) or (2), but offset any quantity of milk on which obligation is due by any amount of milk received from a fully regulated plant and classified and priced at such plant as Class I milk.

"Answer No. 3. As applied to Proposals (1a) and (1b), this would reduce the amount of obligation of the unregulated handler. Otherwise the same reasons as set forth above would apply to this proposal, and it would still be unrealistic and probably illegal.

"As applied to Proposal (2), Proposal (3) would be desirable.

B. Proposals related to milk and fluid milk products received at a fully regulated plant from a plant not fully regulated by any Federal order:

"Proposal No. 4. Require a regulated handler to make payment into the producer-settlement fund with respect to milk received from an unregulated plant, if it is assigned to Class I use, at the rate which is the difference between the applicable Class I and Class II prices at the location of the plant from which received.

"Answer No. 4. Same reason as set forth for packaged milk under Proposal (1b).

"Proposal No. 5. Require a regulated handler to make payment into the producer-settlement fund with respect to milk received from an unregulated plant, if it is assigned to Class I use, at the rate which is the difference between the Class I price and the market-wide uniform price.

"Answer No. 5. Same reasons as set forth for packaged milk under Proposal (2).

Bulk Milk From Unregulated Plant to Regulated
Plant Under Federal Order

"Proposal No. 6. A regulated handler's obligation would be computed as follows: (a) The value of all milk received by the handler from producers and unregulated sources would be calculated on the basis of class prices according to its utilization. (b) With respect to receipts of milk from unregulated sources, allow the regulated handler credit at the market-wide blend price. (c) The handler's obligation for producer milk would be the market-wide blend price. (d) The handler's obligation to the producer-settlement fund would be the remainder.

"Answer No. 6. (a) Desirable. Under Proposal (5), the unregulated handler would pay the difference between the Class I price and the market uniform price for the amount of milk sold in the regulated market. Under this provision, the regulated handler would receive credit at the market blend price for the unregulated milk; would pay his own producers the market blend price; and then owe the producer-settlement fund the remainder based upon utilization values of the regulated market. (b) Desirable. (See Proposal 5.) (c) Desirable. (d) Desirable.

"Proposal No. 7. With respect to receipts of milk from unregulated sources, allow a regulated handler credit at the actual cost of the milk to the handler.

"Answer No. 7. Not desirable, and inconsistent with Proposal (2). In practice this would tend to destroy the classified system used in the pricing of milk and create unnecessary instability in a regulated market.

"Proposal No. 8. Allocate bulk receipts from unregulated distributing plants to Class II utilization to the extent available, and then to Class I utilization.

"Answer No. 8. Undesirable and probably illegal. If a handler in a regulated market needs more milk to meet his Class I needs during part of a month, and pays a price necessary to get this milk, he should be credited at the Class I price and not at the Class II price for these purchases. Furthermore, this proposal would tend to act as a trade barrier against purchases of milk outside the local market and as such might be construed as being illegal under the Agricultural Marketing Agreements Act of 1937.

"Proposal No. 9. Require that, with respect to receipts of non-fluid milk products, the pool obligation of a regulated handler shall be credited at not more than the Class II (or lowest class) price, regardless of actual use of such non-fluid milk products.

"Answer No. 9. Desirable. If Class II products are used to fortify skim milk, flavored drinks, or other Class I products, these should be credited at the Class II price.

"Proposal No. 10. Require no payment with respect to milk received from an unregulated plant if the unregulated plant has paid for its milk supply an amount at least equal to what its obligation would have been had it been regulated by the same order as the plant to which the milk is transferred.

"Answer No. 10. Undesirable, since it would tend to ignore differences in utilization. There would not necessarily be any relationship between the utilization of milk in the regulated plant with that in the non-regulated plant. For example, if the regulated plant had 50 percent Class I milk, and the non-regulated plant 75 percent Class I milk, while both plants had the same blend price, this would mean that the unregulated plant sold its Class I milk at a price substantially below that of the regulated plant.

"Proposal No. 10A. Provide measures for dealing with milk from producers who are also handlers.

"Answer No. 10A. Desirable. Not spelled out so cannot be analyzed.

"Proposal No. 11. Allow a credit to a fully regulated handler with respect to bulk milk received from a plant fully regulated under another order according to the classification or pricing required under the other order.

"Answer No. 11. Desirable. Transactions between handlers in different markets should be handled in the same way as in inter-handler transactions within a given market. This would permit inter-market shipments of milk in an orderly way and be in line with the principle of comparative advantage. Furthermore, freedom of inter-market shipments of milk would tend to take away the need for regional or national federal orders. One reason for the success of the federal order program during the past 29 years has been its decentralized operation.

"Proposal No. 12. Allow a credit to a fully regulated handler with respect to bulk milk received from a plant fully regulated under another order according to the classification agreed upon between transferor and transferee handler.

"Answer No. 12. Desirable. Would permit specialization of plants under two or more federal orders similar to what would be possible under a single federal order. Furthermore, if classification prices of the two or more orders were not in line, this provision would encourage getting them in line.

"Proposal No. 13. Assign bulk milk received from a plant fully regulated under another order pro rata with producer milk to utilization in the plant of receipt.

"Answer No. 13. Not desirable and probably illegal. There would not necessarily be any relationship between the proportions of utilization in the two plants. If a handler in the regulated market buys Class I milk from a handler in another regulated market, this transaction should be handled like an inter-handler transaction in the same market. The market from which the Class I milk originated has a surplus as well as the market where it is received. Furthermore, payment of the blend price of the receiving plant, for Class I milk originating in that plant under another order, would act as a trade barrier and might be considered illegal under the Agricultural Marketing Agreements Act of 1937.

"Proposal No. 14. With respect to bulk milk received from a plant fully regulated pursuant to another order allow the receiving handler a credit at the market-wide average class use value.

"Answer No. 14. Not desirable and probably illegal. Same reasoning as for Proposal (13).

"Proposal No. 15. Assign packaged milk or fluid milk products received from a plant fully regulated under another order to Class I utilization in the receiving plant."

"Answer No. 15. Desirable, but should be treated as a statistic and not included in the pooling operation of the receiving market."

"Proposal No. 16. Provide that milk or fluid milk products transferred from a fully regulated plant under one order to a fully regulated plant under another order shall be classified at the transferor plant in the same manner as in the transferee plant."

"Answer No. 16. Desirable, but both Class I and Class II milk so handle should be treated as statistics and not included in the pooling operations of the receiving market."1/

1/ Roland W. Bartlett, "Brief Relative to Compensatory Payments and the Intergration of Other Source Milk into Proposed Regulation," Proceedings--Federal Order Hearing, Coronado Hotel, St. Louis, January 8, 1963, p. 1-7.

APPENDIX D-1

SALES AREA OF CLASS I MILK PLANTS
WITH RESTRICTED MARKETING 1/

Restricted Marketing

Plant	Sales Area
1. Farmers Creamery	Livingston area
2. Sweet Grass Dairy	Big Timber area
3. Dillon Creamery	Dillion area (out-of-state source)
4. Connelly's Creamery	Livingston
5. Columbus Creamery	Columbus
6. Lind's	Harlowton area
7. Jersey Creamery	Hardin area
8. Carbon Co. Creamery	Red Lodge area
9. Fallon Co. Creamery	Baker
10. Plentywood Creamery	Plentywood
11. Moore Dairy	Culbertson area
12. Dufner	Glendive area
13. Gate City	Glendive and Sidney
14. Jensen	Sidney area
15. Rothe's	Wolf Point area
16. Meadow Valley Creamery	Malta
17. Burke	Lewistown
18. Lewistown Creamery	Area VII
19. Quality Milk Plant	Conrad
20. Superior Dairy	Choteau
21. Meridian	Kalispell area

1/ This information was obtained from the Montana Milk Control Board Office, Helena, Montana.

22. Sky Line	Kalispell and Area IX
23. Mission Range Dairy	Missoula area
24. Crystal Creamery	Butte area (out-of-state source)
25. Deer Lodge Creamery	Same as Golden West Dairies Deer Lodge and Anaconda
26. Treasure State	Butte
27. Broadwater Creamery	Townsend and Helena
28. Brookside	Helena
29. Clover Leaf	Helena
30. Phillips	Helena

APPENDIX D-2

SALES AREA OF PLANTS IN THE STATE MARKETING
MILK UNDER THEIR OWN BRAND NAMES^{1/}

^{1/} This information was derived from an unpublished survey of these 11 plants which have sales of milk outside of the pricing zone in which they are located.

MONTANA



Figure 1. Community Creamery, Sales Area.

MONTANA



Figure 2. Missoula Creamery and Cold Storage, Sales Area.

MONTANA



Figure 3. Billings Dairy, Sales Area.

MONTANA



Figure 4. Nye's Dairy, Sales Area.

MONTANA



Figure 5. Thompson's Dairy, Sales Area.



Figure 6. Sanitary Dairy, Sales Area.

MONTANA

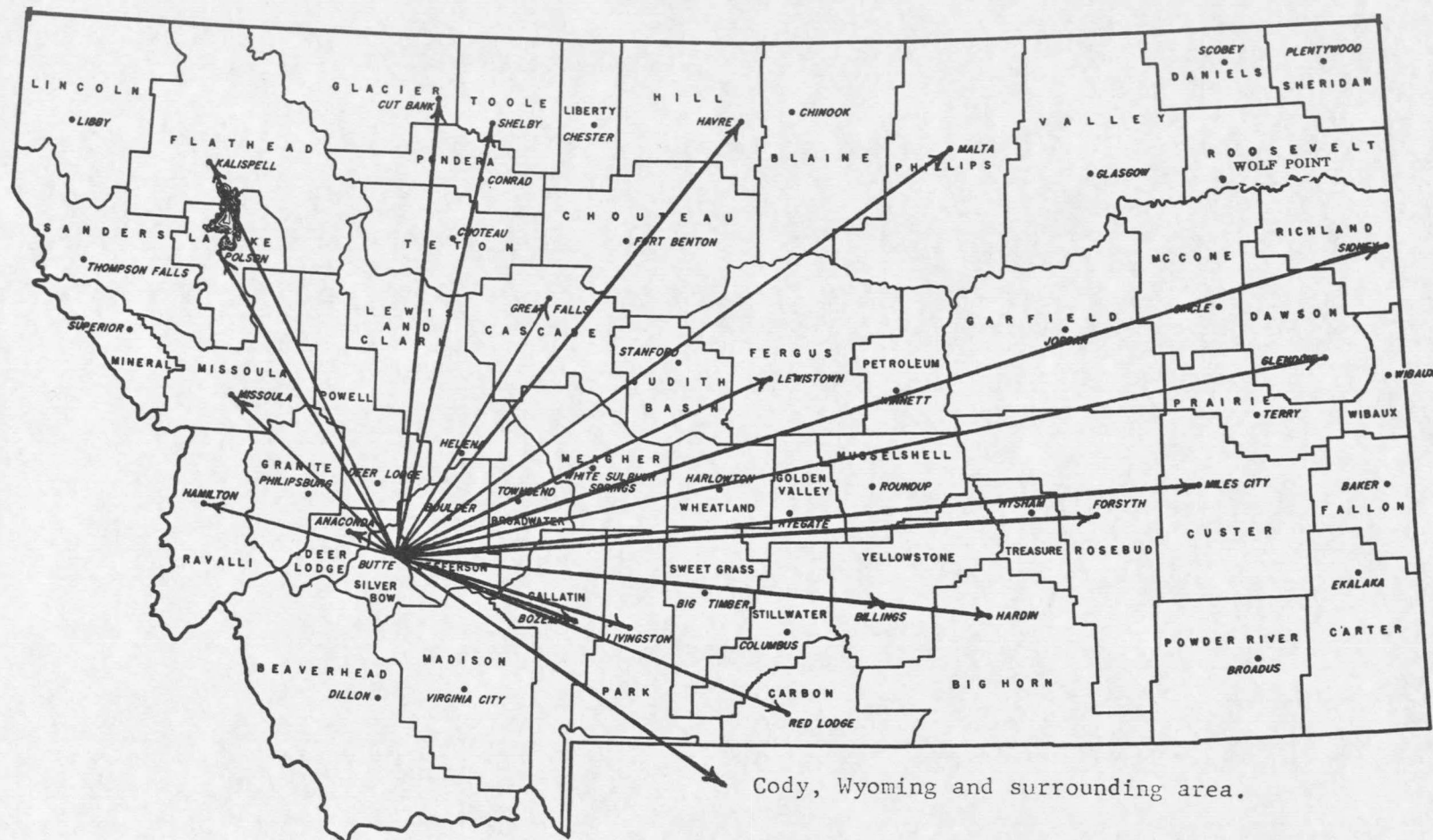


Figure 7. Safeway, Sales Area.

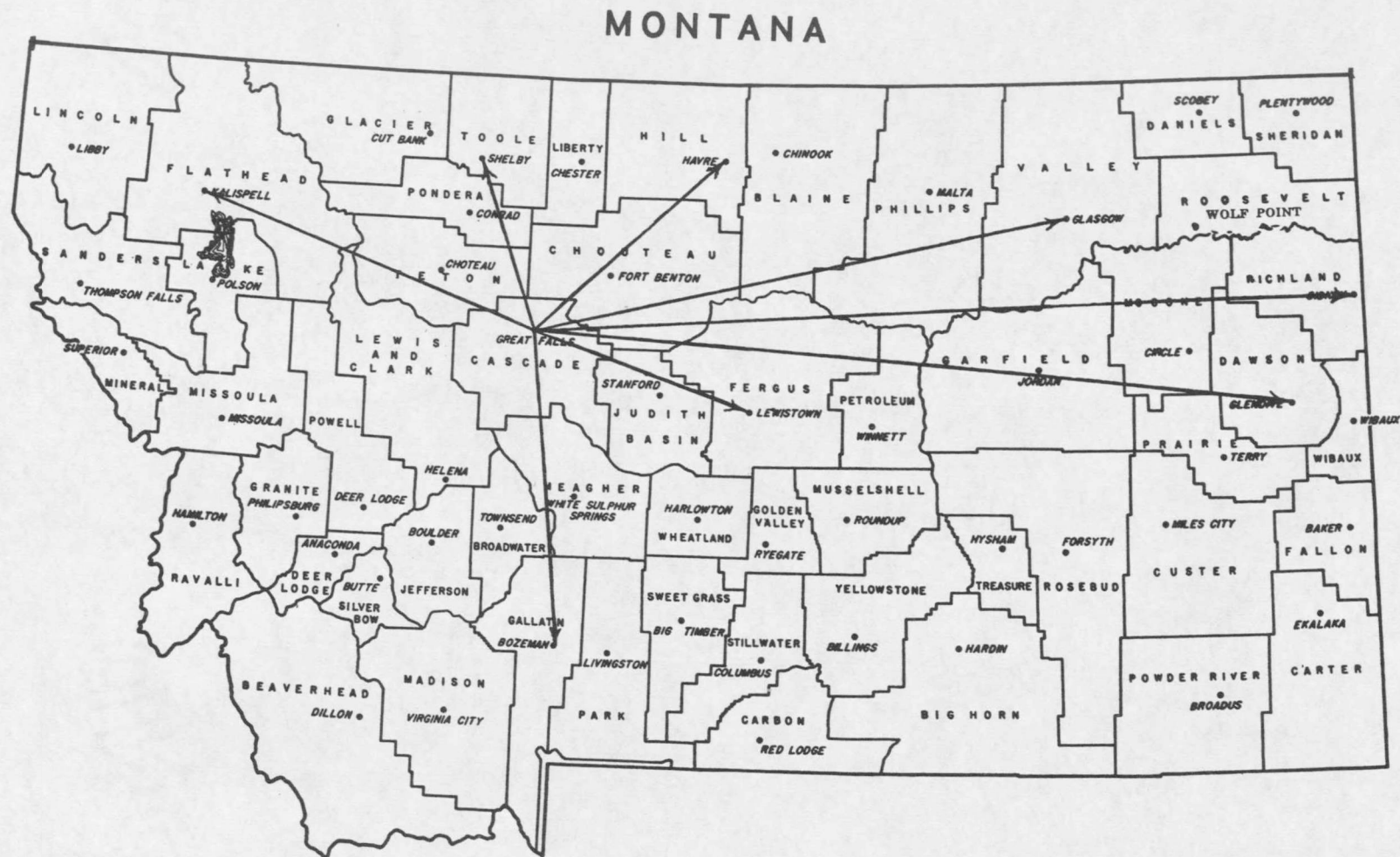


Figure 8. Pioneer Dairy, Sales Area.

MONTANA

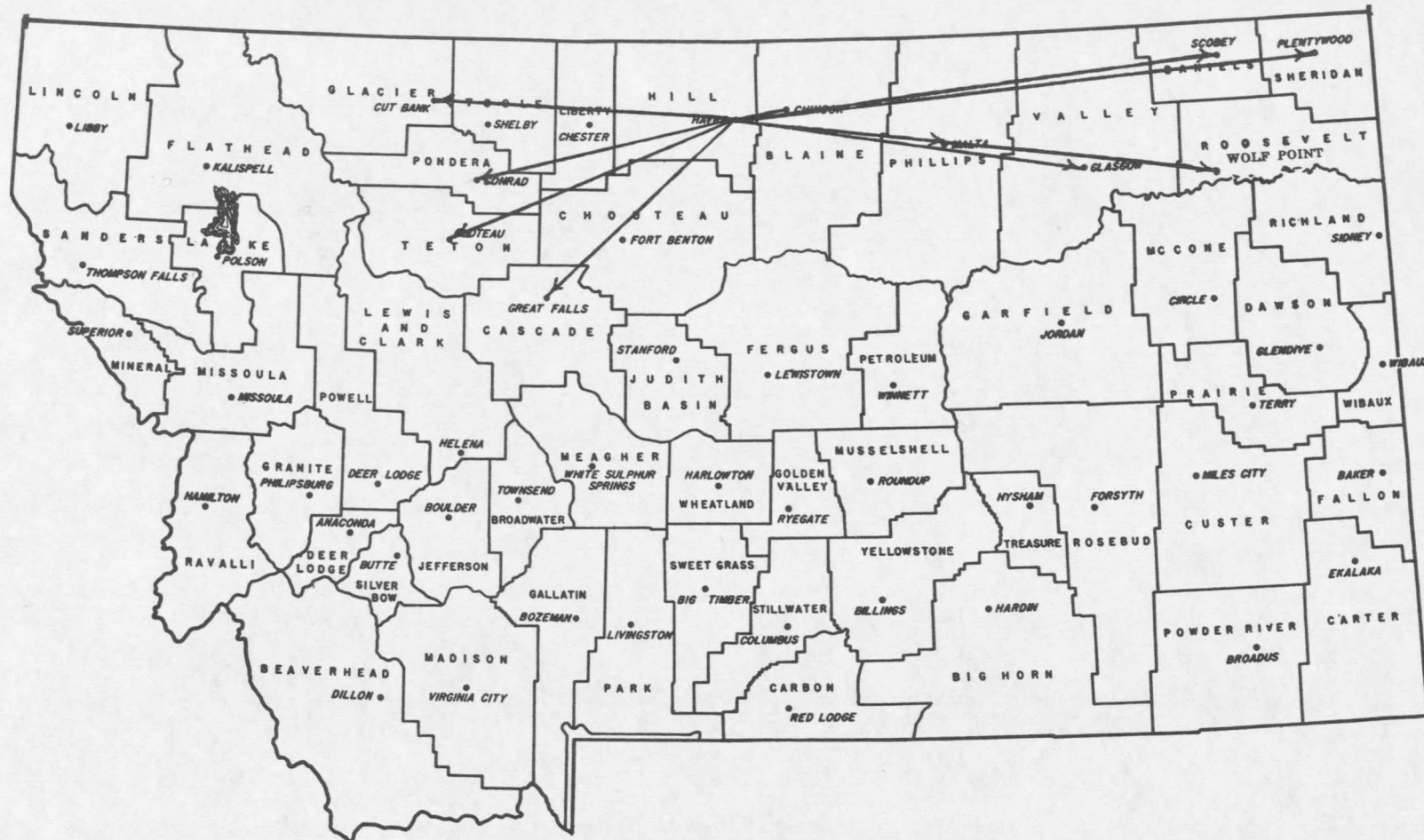


Figure 9. Vita-Rich Dairy, Sales Area.

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Figure 10. Best Dairy, Sales Area. a/

a/ This dairy is a combination of what was Kessler Dairy (Bozeman), and Yellowstone Dairy (Livingston).

MONTANA

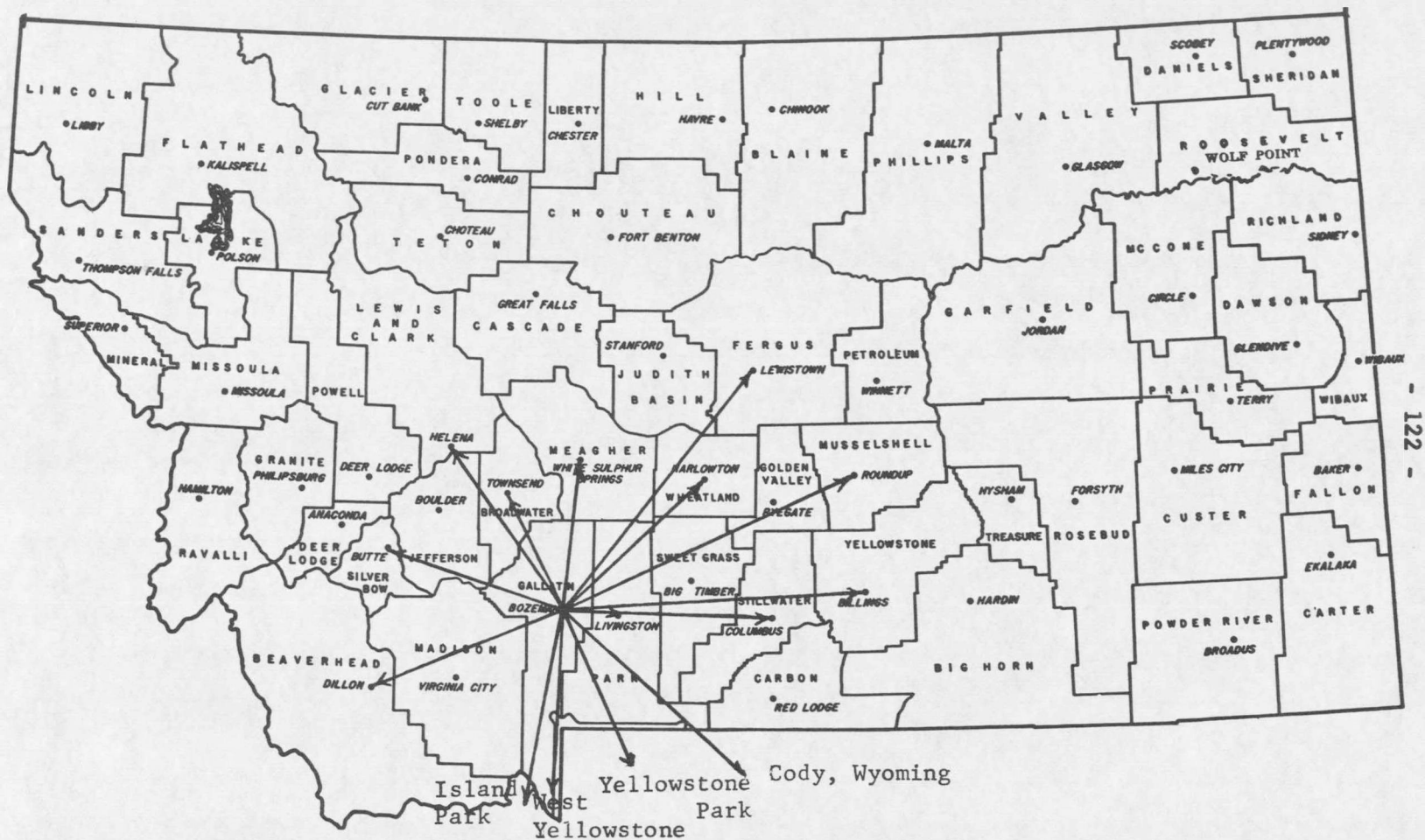


Figure 11. Gallatin Co-op, Sales Area.

APPENDIX E

The ways in which the values of the various components of the formula are converted to a 1960 base and the proper percentage weights are given to them is shown below.

1. Farm Wages Paid

To give the "farm wages paid" a 15 percent weight in the formula and convert it to the 1960 base, do the following:

- a. Get the index of farm wages published by the Montana Crop and Livestock Reporting Service for the previous quarter.
- b. Multiply this figure by 0.1158500.

This answer will be one of the numbers to be added to get the formula index for the following quarter.

2. Prices Paid for Alfalfa Hay

To give the "prices paid for alfalfa hay" a 20 percent weight in the formula and convert it to the 1960 base, do the following:

- a. Get the monthly figures of prices paid in dollars for alfalfa hay for the previous quarter from the Montana Crop and Livestock Reporting Service.
- b. Multiply these prices by the figures shown in Table I for the particular months involved. Match the price month with the table month. The figures in this table will adjust the hay prices for the seasonal variation.
- c. Now add the products derived in "b". This answer will be the second number to add to get the formula index for the following quarter.

TABLE I. CONSTANTS FOR ALFALFA HAY.*

Month	Constant
January	0.2173538
February	0.2188167
March	0.2237654
April	0.2255395
May	0.2268887
June	0.2287129
July	0.2350923
August	0.2365108
September	0.2397991
October	0.2317407
November	0.2242063
December	0.2242063

* Source: Edward H. Ward, A Formula for Montana Milk, Montana Agricultural Experiment Station, Bulletin 569, Montana State College, Bozeman, Montana, p. 13.

3. Mixed Dairy Feed

To give the "mixed dairy feed" a 10 percent weight in the formula index and convert it to the 1960 base, do the following:

- a. Get the three monthly dollar figures for mixed dairy feed costs for the previous quarter from the monthly release of the Montana Crop and Livestock Service.
 - b. Multiply these figures by the constants shown in Table II matching the month that the figures are for with the month the constants are for. The constants in Table II will remove the seasonal pattern in this price series.
 - c. Now add these products up to get the answer.
- This answer is the third number to add to get the formula index for the following quarter.

TABLE II. CONSTANTS FOR MIXED DAIRY FEEDS.*

Month	Constant
January	0.9864738
February	0.9835401
March	0.9737867
April	0.9737867
May	0.9689796
June	0.9632953
July	0.9786527
August	0.9796376
September	0.9835304
October	1.0035860
November	1.0139323
December	0.9995165

* Source: Edward H. Ward, A Formula for Montana Milk, Montana Agricultural Experiment Station, Bulletin 569, Montana State College, Bozeman, Montana, p. 13.

4. Prices Received by Farmers for all Products

To give the "prices received by farmers for all products" a 20 percent weight in the formula index and convert it to the 1960 base, do the following:

- a. Get the three monthly figures for the previous quarter from the monthly release of the Montana Crop and Livestock Service.
- b. Multiply these three figures by 0.07699711.
- c. Add the three answers gotten in "b".

This answer in "c" is the fourth number to add to get the formula index for the following quarter.

5. Per Capita Income in Montana

To give the "per capita income in Montana" a 10 percent weight in the formula index and convert it to the 1960 base, do the following:

a. Obtain the most recent annual figure from the Survey of Current Business.

b. Multiply this figure by .004955401.

This answer will be the fifth number to add to get the formula index for the following quarter.

6. Weekly Wages Paid in Montana

To give the "weekly wages paid in Montana" a 15 percent weight in the formula index and convert it to the 1960 base, do the following:

a. Obtain the average weekly wages paid workers in (1) all manufacturing, (2) all mining and (3) transportation and utilities from The Montana Labor Market.

b. Multiply the average weekly wages of manufacturing workers for the previous quarter by 0.02131558.

c. Multiply the average weekly wages of transportation and utilities for the previous quarter by 0.02131558.

d. Multiply the average weekly wages of mining workers for the previous quarter by 0.00812022.

e. Add the answers from b, c, and d.

This will give the sixth number to add in getting the formula index for the following quarter.

7. Bank Debits

To give the "bank debits" a 10 percent weight in the formula index and convert it to the 1960 base, do the following:

a. Obtain the seasonally adjusted index of bank debits which is published monthly in the Montana Business Review for the previous quarter.

b. Multiply the three monthly index numbers by 0.01699741.

This will give the seventh and final number to add in getting the formula index for the following quarter.

8. Final Formula Index

To get the final formula index add the seven answers derived above. To get the Class I price for the following quarter, multiply this final formula index by the set 1960 base price for Class I milk.

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