



Economic study of hog and pork marketing in Montana
by William M Chase

A THESIS Submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Economics at Montana State College
Montana State University
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Abstract:

This report reveals research findings concerning the market structure for hogs, pork and pork products in Montana. It is oriented to the problem of adequate reflection of consumer preferences from slaughter plants to hog producers.

Part I introduces the problem and objectives of the study. It indicates the area and limitations of the study and the hypothesis formulated from the objectives.

Part II outlines the present market structure for hogs in Montana.

It includes information on the volume of hogs marketed, the marketing methods used, a brief summary of the present market situation throughout the state, and the marketing information available to producers through newspapers, radios, etc.

Part III contains an analysis of the buying and price structure for hogs used by slaughter plants. Information on available outlets and price differentials is presented. The above information is used to determine shortcomings and possible improvements of the market. Practices of agencies other than slaughter plants is introduced.

Part IV outlines some of the implications present due to the preferences of consumers, resources available for hog production, and potential outlets for hogs. It briefly covers the impact on interregional competition should present production be increased. Further research that is needed is pointed out in this section.

Part V is a summary of the research and the conclusions indicate the extent to which the hypothesis was supported.

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IN MONTANA

by

WILLIAM M. CHASE

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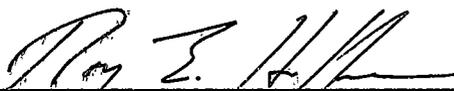
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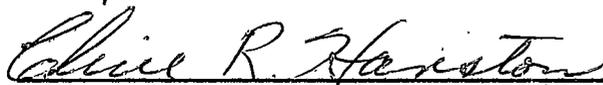
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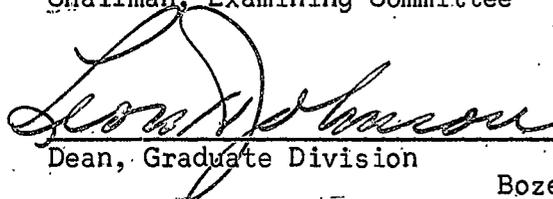
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Chairman, Examining Committee



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Bozeman, Montana
August, 1957

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ACKNOWLEDGMENTS.

The author wishes to express sincere appreciation and thanks to Dr. C. R. Harston for his encouragement, guidance, and critical review throughout the writing of this thesis. Special acknowledgment is also due Dr. E. H. Ward and Mr. T. S. Rackham, the other members of the author's thesis committee, for their valuable suggestions and criticisms.

Thanks are due Mr. J. R. Dynes of the Department of Animal Industry and Range Management and all others who have contributed to the development of this study.

Any errors or omissions in this study are the responsibility of the author.

ABSTRACT

This report reveals research findings concerning the market structure for hogs, pork and pork products in Montana. It is oriented to the problem of adequate reflection of consumer preferences from slaughter plants to hog producers.

Part I introduces the problem and objectives of the study. It indicates the area and limitations of the study and the hypothesis formulated from the objectives.

Part II outlines the present market structure for hogs in Montana. It includes information on the volume of hogs marketed, the marketing methods used, a brief summary of the present market situation throughout the state, and the marketing information available to producers through newspapers, radios, etc.

Part III contains an analysis of the buying and price structure for hogs used by slaughter plants. Information on available outlets and price differentials is presented. The above information is used to determine shortcomings and possible improvements of the market. Practices of agencies other than slaughter plants is introduced.

Part IV outlines some of the implications present due to the preferences of consumers, resources available for hog production, and potential outlets for hogs. It briefly covers the impact on inter-regional competition should present production be increased. Further research that is needed is pointed out in this section.

Part V is a summary of the research and the conclusions indicate the extent to which the hypothesis was supported.

PART I
INTRODUCTION

A. Problem Situation

Montana slaughter plants represent a market for a much larger production of quality hogs than are now produced. The larger slaughter plants are unable to secure even 50 percent of the hogs they need. They are going to the large Midwest markets plus North and South Dakota for hogs to supplement the supply now present in Montana. There seems to be no danger of a large increase in production causing an over supply in the markets, because the West Coast provides a good market for any surplus production that we might produce. The large number of carloads of hogs passing through Montana each year from the Midwest for the markets on the West Coast is an indication of a strong West Coast demand.

Canada has directed their production towards the meat-type hog for a number of years.^{1/} One of their markets for this meat-type hog is the West Coast. Their hogs are fattened on barley and other grains similar to those feeds available in Montana. Climate and other conditions here are very similar to those in Canada and the production of meat-type hogs should be as feasible in Montana as in Canada.

Experimental work has been done on all phases of pork marketing throughout the United States, especially in the Midwest, but until lately there seemed to be no reason for this type of study in Montana. These completed projects have been an excellent source of background

^{1/} T. S. Rackham, "Is Montana Missing an \$8 Million Bet?", Montana Farmer-Stockman, Great Falls, Montana, March 15, 1956, p. 1.

information, but the areas in which they were undertaken have conditions that are vastly different from those that exist in Montana. The solutions to their problems are not likely to be the answers to many of ours.

Today, in Montana, there is a growing surplus of feed grains and a larger market for pork and pork products. One way to provide some relief for both of these conditions is to encourage the production of quality hogs. Farm incomes, especially for small operators, have decreased in recent years and swine production could be a good supplemental enterprise to help increase incomes.

Two factors, increased production of meat-type hogs and a hog enterprise used for supplementing a rancher's income, have been pointed up already by experiments which show that barley and other grains are as satisfactory as a feed for fattening as is corn,^{1/} and that a hog enterprise can be profitably integrated into a grain ranching operation, especially in this day of acreage limitations.^{2/}

B. Research Problem

This is a study of the marketing structure for pork and pork products in Montana. It is directed to the area of marketing involved

^{1/} I. Wright, Barley, Various Weights for Fattening Pigs, Bulletin 366, Agr. Exp. Sta., South Dakota State College, Brookings, South Dakota, November, 1942, Leaflet.

^{2/} T. S. Rackham, Extension Implications of Budgets in Decision-Making as Illustrated by Dryland Alternatives for Diverted Wheat Acreage, Circular 89, Agr. Exp. Sta., Montana State College, Bozeman, Montana, August, 1955, pp. 67-69.

between the slaughter plants and producers to determine if an accurate indication of the market demand is being passed on to the producers.

C. Assumptions

Experimental evidence shows that most consumers in the Midwest, prefer lean pork.^{1/} The assumption is made in this project that Montana consumers also desire lean pork and that this preference is being indicated to the processing plants by the retail markets.

To check this assumption, a few interviews were arranged throughout the state with retail markets. Retail market owners supported this assumption and indicated that any pork item with a large amount of fat had to be trimmed extensively or reduced greatly in price before it would move across the counter.

The assumption is made in this project that price is the best means available to indicate market preferences.

D. Objectives of this Study

The project has been set up with three primary objectives:

1. To evaluate how quality is being reflected to producers through the price structure.
2. To describe and analyze the extent of differentiation among various quality hogs and methods used by buying agencies.

^{1/} E. Birmingham, D. E. Brady, S. M. Hunter, J. C. Grady, E. R. Kiehl, Fatness of Pork in Relation to Consumer Preference, Research Bulletin 549, Agr. Exp. Sta., University of Missouri, Columbia, Missouri, May, 1954, pp. 13-20.

3. To determine possible ways of improving the marketing system to encourage the production of quality hogs and pork in Montana.

Secondary objectives will include recommendations on future research which the researcher feels would be of value and indicate factors in the marketing structure about which more complete knowledge should be known by both producers and slaughtering plants for a more efficient marketing operation.

E. Statement of the Hypothesis

Markets in Montana are failing to differentiate between meat-type and lard-type hogs. The price structure is the best way to prompt the production of quality hogs which will more closely meet the consumers preferences.

F. Procedure and Data Used

The amount of literature on pork marketing and the related areas is quite extensive so it was possible to obtain a strong base from which to build the project. During the period of investigation, time was spent in talking to retail market owners in the Bozeman area, to men in the Animal Industry Department who have a broader knowledge of the field, and getting ideas from people in the Home Economics Extension Service. All of these sources were very helpful in defining the area and providing the foundation for the project.

The next step was the formulation of a tentative hypothesis. The hypothesis was arrived at through the literature that was reviewed and

knowledge of the specific problem area in which the work was to take place. Larrabee says that hypotheses have two common characteristics: (1) they go beyond the given to a possible patterning of arrangement or interpretation of it; and, (2) they do so provisionally, with a definite view to ultimate confirmation or rejection.^{1/}

Initially, it was decided that a survey of retail markets and slaughter plants would provide the information for testing of the hypothesis, but upon further investigation it was found that it would be impossible to complete both of these surveys in the time available. It was not possible to obtain the kind of accurate information desired over this large an area. Some assumptions with regard to consumer preference were then made and the retail market surveys were left out except for a few scattered ones taken in cities visited.

Personal interviews were conducted with the fourteen Montana slaughter plants with the largest volume. Ninety percent of the State's slaughter was done by these fourteen firms, according to the figures given by the State Statistician's office in Helena. Some facts may have been missed by not talking to buying stations and auction yards, but there was not much information that they could provide that was not obtained from the slaughter plant buyers. Another possible source of information was the swine producers in the state but, due to the small

^{1/} H. A. Larrabee, Reliable Knowledge, Houghton Mifflin Company, Cambridge, 1945, p. 168.

number of large producers and the questionable reliability of a mail questionnaire from a small population, this source of information was eliminated.

The scattered retail market survey was directed toward getting a general idea of consumer preferences, information about price differentials with regard to fat versus lean pork, effects of close trimming on the price to consumer, weights of hams, bellies, etc., best selling cuts for indications of best live hog weights, sources of supply, reasons for relying on these sources (in-state versus out-of-state packers), and recommendations they might have regarding pork and pork products.

The slaughter plant surveys revealed information concerning sources of supply, premiums being paid, what type hog brings a premium, how they determine quality in live hogs and carcasses, what they are doing to bring pork products up to standards desired by consumers, how well consumer preferences were being reflected through the marketing channels, price differentials on pork products, location of buyers, methods of buying, and finally, recommendations they might have.

The complete results of the slaughter plant schedules were analyzed and with results of a statistical analysis of the primary data, were used to test the hypothesis. The analysis is directed toward determining if the price structure for hogs in Montana is doing the job set forth for it, indicating the market preferences. After testing the hypothesis, inferences were drawn, and some general conclusions reached concerning

areas in which further research is needed to increase the efficiency of
pork marketing in Montana.

PART II

MARKET STRUCTURE FOR HOGS IN MONTANA

A. Goals and Objectives of a Market

To do an efficient and economical job of production, it is becoming more and more important for the hog producer to have an understanding of the marketing process.^{1/} Recent developments in the marketing field have been changing the complex of the marketing picture to the extent that many hog producers are finding it necessary to re-examine the marketing process. During the past few years, there have been revisions in grade standards for hogs and pork, wider use of direct marketing, further expansion of interior packers, and more extensive use of truck transportation.

It is apparent that the job of marketing hogs should not be considered completed as soon as the producer disposes of his hogs to the first buyer. Marketing is not completed until the pork and by-products are in the hands of satisfied consumers. The demand for hogs is derived from the demand for cuts of pork and other by-products.

A successful marketing system does not just move the products to the consumers who will pay the most, but it includes studies such as this one by the Montana Experiment Station, of existing and potential demand

^{1/} The area of marketing includes all the functions that take place between producers and consumers. It comprises all the services which have to be performed in order to make raw products salable, and the fundamental problem of hog marketing is to supply the demands of the consumers from the output provided by the producers as cheaply and efficiently as possible.

in an attempt to get the producer to produce what is wanted, thus fitting production to the demand. To accomplish this, the producer, and to a certain extent the packer and retail meat dealer, must produce and prepare the kinds and qualities of meats which are in demand, and produce them in the quantity and at the rate which fits the demands of the consumers.

B. Volume of Marketings

The production of hogs for slaughter in Montana is only about one-half of present consumption. The state is and has been a deficit area in slaughter hog production for many years, making it necessary for the slaughter plants to draw on Midwest markets to make up the deficiency.

Estimates obtained from the Bureau of Agricultural Economics in Helena for the past four years indicate that about 100,000 head are imported each year for slaughter. (See Table I). Other estimates run as high as 150,000 head a year with a valuation of approximately 5 1/2 million dollars.^{1/} No matter which figure is used, large sums of money go outside the state each year to purchase hogs for slaughter in Montana. Montana is a good market for an increased production of good quality hogs.

The main sources of supply of hogs brought in from out of state are Omaha and South St. Paul. Large numbers are also obtained from

^{1/} William H. Burkitt, "Swine Production, a Needed Industry," Montana Affairs, Vol. VIII, No. 6, Montana Chamber of Commerce Official Publication, June, 1957, pp. 3 & 4.

TABLE I. MONTANA HOG PRODUCTION AND DISPOSITION.^{1/}

	1951	1952	1953	1954	1955	1956
	(All figures in thousands)					
Hogs on Farms, Jan. 1	145	183	123	91	112	141
Pig Crop for Year	324	261	171	194	235	195
Shipped in for Breeding	17	14	12	12	12	13
Yearly Total						
Disposition	486	458	306	297	359	349
Marketings	214	260	156	124	151	174
Farm Slaughter	58	54	44	42	44	42
Deaths	31	21	15	19	23	19
Total Disposed	303	335	215	185	218	235
Hogs on Farms, Dec. 31	183	123	91	112	141	114
Slaughter During Year	200	210	216	188	221	224
Shipments to Out of State Markets	41	51	27	30	36	51
Difference Between Marketings & Out Shipments	173	209	129	94	115	123
Hogs Shipped in for Slaughter	27	1	87	94	106	101

^{1/} Montana Agricultural Statistics, Montana Department of Agriculture Labor and Industry, Cooperating with U.S.D.A., Bureau of Agricultural Economics, Helena, Montana, December, 1952, 1954, and 1956.

markets in North Dakota and South Dakota. Some hogs coming from neighboring states have been fed barley shipped from Montana. Imported hogs are of higher quality and generally have a higher dressing percentage, but local producers have lower marketing expenses because shrinkage, death loss, and freight charges are all less for them.

C. Marketing Methods

There are a number of possible ways to measure the grade-price relationship for hogs. All of the methods, with the possible exception of the carcass weight and grade method, contain some discrepancy between the purchase price and the cut-out value of the hog. Even the most experienced buyers are unable to make a completely accurate evaluation of a hog on the hoof by inspection. The carcass weight and grade method, which has been receiving a lot of attention in the United States in recent years, is the most accurate method for determining the value of a slaughter hog, because a purchase price is not set until the carcass can be inspected and an accurate cut-out evaluation made.

Hog buyers in Montana are presently using one method almost exclusively, price paid is set by the weight of the hog. Price of the hog is either determined by the lot average or individual weights. When hogs are weighed individually a more accurate price for the hog is obtained, but a great many discrepancies still exist. Generally, Montana markets will pay top prices for hogs falling into a 180-240 pound weight classification. Top quality hogs, the lean meat-type hog at about 210 pounds, fall into this classification, but with this wide a range for top there is a great variety of hogs that qualify in this

group. Many unfinished, scrubby hogs, receive top prices on the lower end of the scale and on the upper end overfat, lardy hogs receive top prices. For this reason, a producer who is bringing lean meat-type hogs to market is not receiving a price differential for his hogs.

One means of partially eliminating this discrepancy is to pay a premium to the producers of the top quality hogs. The buyer is then determining the grade not only by weight but by inspection of the live hog. This is another method used for the purchase of hogs in Montana.

The practice is used quite extensively in Midwest markets, but it is not generally used by Montana buyers. A few slaughter plants in the state do pay premiums for lean meat-type hogs and find the practice worthwhile. Generally Montana slaughter plants do not pay premiums but they list a number of reasons why they do not. They say that they cannot pay a premium to a few producers of high quality hogs without the other local producers demanding the same premiums. If they don't get the higher price for inferior hogs they take them to other outlets. It may be that a few producers will become unhappy and sell elsewhere, but how long will producers continue to raise poorer quality hogs when they know that they can get higher prices by raising a meat-type hog? A premium is a good means of indicating to the producer what the consumer wants. Any business is interested in increasing its profits and if a certain product brings a higher profit the producer will work to supply the market with that product.

Buyers reported that the supply is not great enough to warrant premium payments. The additional time and effort does not pay out

because there are not enough lean meat-type hogs marketed to make this practice worthwhile to buying agencies. One way to overcome this is by shifting the breeding stock to meat-type hogs and by increasing production. Theoretically, this argument is not sound, but is significant because several packers have this notion.

An important factor mentioned by buyers is that producers are not sorting hogs before bringing them to market. This means that mixed in with the top quality hogs are unfinished hogs, small scrubby hogs, and poorer quality hogs that should have been sorted out before they reached the market. Part of the market's job is to sort them but it is not always feasible after reaching the market, so producers, instead of receiving a higher price or even a premium for top quality hogs get just what the average hog is bringing that day. Sorting of hogs before they are taken to market would also provide an opportunity for producers to withhold unfinished hogs for further fattening.

Slaughter plant operators claim that the locally produced hogs do not have the quality or finish comparable to Midwest hogs. Local buyers do not feel that the hogs get the care and attention they should have. Hogs marketed are dirtier and have meat that is soft, which means more work and expense for the plants in processing the local hogs. It is very important in the raising of high quality hogs that the breeding

stock is of a meat-type, that the hogs are handled with care, and that they are fed a well balanced ration.^{1/}

Greater production, sorting of hogs before marketing them, and higher quality and finish are all things that the producer must work on and improve. They are things that the market structure itself has limited control over, but through the price structure it can encourage producers to undertake them.

Greater differentiation between meat-type and lard-type hogs might result from a reduction in the weight range for the top grade hogs. Montana markets are more liberal than many Midwest markets. Top prices in the Midwest are paid on a 190-230 weight group and in some instance it is 200-220 for top quality premium hogs. By reducing the weight range, many of the unfinished, scrubby hogs are cut out on one end and on the other, some of the lardy hogs are eliminated, making those that receive top prices a select group of higher quality. However, there will still be some short, fat hogs that will fall into the top group. Therefore, when only live weight is used to determine the grade there is a discrepancy between the live hog grade and the carcass grade.

Premium payments and a more limited weight range are both means of distinguishing between meat-type and lard-type hogs. However, both of these are measures that must be used when purchasing by weight and

^{1/} R. P. Forshaw, "Management and the 'A' Grade Hog," Agricultural Institute Review, Published Bi-Monthly by the Agricultural Institute of Canada, March-April, 1956, pp. 40-44.

inspection of the live hog. There still remains a large area for error because the true carcass value is very hard to determine on the hoof. Purchase of hogs by carcass weight and grade basis is the most accurate measure at present for determining the true value of a hog and eliminating most of the error between the purchase price and the cut-out value.^{1/}

Buying of hogs on a carcass weight and grade basis is being used more and more by the large Midwest packers.^{2/} Interest has been shown throughout the whole country in this marketing method and many of the Montana packers showed a great deal of interest in this method. With a strong local interest by packers, it is important that producers in this area take a greater interest in this marketing method and encourage its use by slaughter plants.

The carcass weight and grade method has many definite advantages over other marketing methods, but there are areas in which more research and study needs to take place before it will operate in the most efficient manner. Canada and the Scandinavian countries have used the method very successfully for a number of years but their slaughter operations vary somewhat from those in the United States.^{3/}

^{1/} G. Engelman, A. A. Dowell, E. F. Ferrin, and P. A. Anderson, Marketing Slaughter Hogs by Carcass Weight and Grade, University of Minnesota, Agr. Exp. Sta., Technical Bulletin 187, April, 1950, p. 53.

^{2/} "Meat-Type Hogs," Armour's Analysis, Armour's Livestock Bureau, Chicago 9, Illinois, Vol. 5, No. 4, August-October, 1956, p. 2 & 3.

^{3/} J. R. Wiley, D. Paarlberg, and R. C. Jones, Objective Carcass Factors Related to Slaughter Hog Value, Purdue University, Agr. Exp. Sta., Lafayette, Indiana, Station Bulletin 567, December, 1951, p. 9.

The carcass method of marketing is a system of grading hogs individually. If the producer knows how many hogs were sold in each grade, he will know the extent to which he will need to change his breeding and management practices to get more hogs in the desired grade. A comparison of the carcasses of hogs from different sows or different boars, or from different breeds or crosses can be made.

Returns to producers would be distributed differently under the more precise carcass method of pricing. The more valuable hogs would receive more, while the less valuable animals would receive less than under the present system where hogs below average are carried along at the same price as hogs above average. This would provide a greater incentive to produce the kind of hogs and pork consumers desire. More of the high value pork cuts and less low value lard would be produced from the same amount of feed resources. In this way the productive resources of agriculture would be used more effectively to satisfy consumers' demands.^{1/}

Several other improvements would be obtained with the carcass method of grading. Sale by description would be facilitated since carcass prices by grades would provide a more accurate language for price quotations. Any incentive to fill animals excessively before they were sold would be completely removed, and the expense of such feed saved. Bruising and disease loss prevention programs could be carried on more effectively because the carcasses would be identified. The more

^{1/} Gerald Engelman, Austin A. Dowell, and Robert E. Olson, Relative Accuracy of Pricing Butcher Hogs on Foot and by Carcass Weight and Grade, University of Minnesota, Agr. Exp. Sta., Technical Bulletin 208, June, 1953, p. 46.

accurate pricing method would provide a more clearly defined objective for research in animal genetics, animal nutrition, and consumer preferences.^{1/}

Several practical problems would have to be solved. A means of identification, such as tattooing, would have to be established. Weighing and grading of carcasses within the slaughter plants would require some adjustments since these operations were carried on in the yards before. The producer would have to realize that there will be a delay of 1 to 4 days in receiving his full settlement. The clerical work of maintaining records and calculating payments would be increased and some adjustments made in the slaughter operation.

The effect on marketing costs would have to be given consideration. If they are reduced, the shift would represent a clear gain, but if there is an increase the added costs would have to be weighed against the gains that would be obtained from the more accurate pricing method.

The standards used for grading a carcass have gone through a number of changes in recent years. This continual changing has taken place because the ideal classification for top quality can only be obtained through examination and experimentation over a number of years. The United States Department of Agriculture feels the standards are quite well defined and it has set up an official United States Standards for Grades of Pork Carcasses. (See Table II for a complete description of the five U. S. Grades for barrow and gilt). It is very likely that these will change over time to more closely meet consumers desires.

^{1/} Ibid., p. 47.

TABLE II. WEIGHT AND MEASUREMENT GUIDES TO GRADES FOR BARROW AND GILT CARCASSES.^{1/}

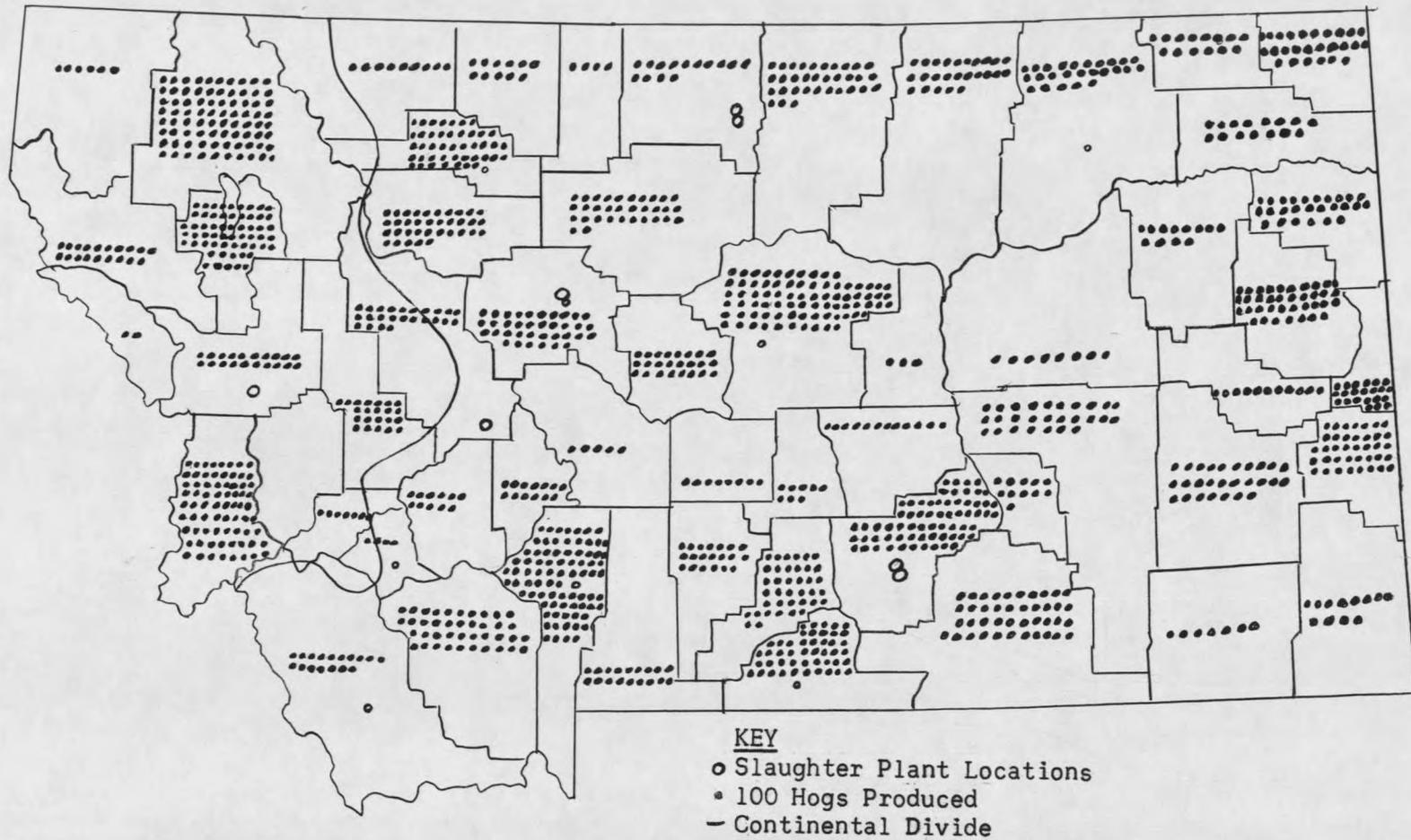
Carcass Weight or Carcass Length ^{2/}	Average back fat thickness (inches) ^{3/} by grade				
	U. S. No. 1	U. S. No. 2	U. S. No. 3	Med.	Cull
Under 120 lbs. or under 27 inches long	1.2 to 1.5	1.5 to 1.8	1.8 or more	0.9 to 1.2--	Less than 0.9
120 to 164 lbs. or 27 to 29.9 inches long	1.3 to 1.6	1.6 to 1.9	1.9 or more	1.0 to 1.3--	Less than 1.0
165 to 209 lbs. or 30 to 32.0 inches long	1.4 to 1.7	1.7 to 2.0	2.0 or more	1.1 to 1.4--	Less than 1.1
210 or more lbs. or 33 or more inches long	1.5 to 1.8	1.8 to 2.1	2.1 or more	1.2 to 1.5--	Less than 1.2

^{1/} Official United States Standards for Grades of Pork Carcasses (Barrow and Gilt), United States Department of Agriculture, Agricultural Marketing Service, Service and Regulatory Announcements No. 171, July 1955, Leaflet.

^{2/} Either carcass weight or length may be used with back fat thickness as a reliable guide to grade. The table shows the normal length range for given weights. In extreme cases where the use of length with back fat thickness indicates a different grade than by using weight, final grade is determined subjectively as provided in the standards. Carcass weight is based on a chilled, packer style carcass. Carcass length is measured from the forward point of the aitch bone to the forward edge of the first rib.

^{3/} Average of measurements made opposite the first and last ribs and last lumbar vertebra.

TABLE III. AREAS OF PRODUCTION AND LOCATION OF SLAUGHTER PLANTS.^{1/}



^{1/} Montana Agricultural Statistics, Montana Department of Agriculture, Cooperating with U.S.D.A., A.M.S., Helena, Montana, December, 1956. p. 64.

Though some changes will take place, it is unlikely that there will be any major changes in the five grades. For that reason these standards should be very satisfactory in carcass grading.

D. Market Situation in State

There are two distinct areas in the market structure for hogs in Montana. The Continental Divide separates the two areas. East of the Divide, the major price influence comes from Midwest markets, because Montana's deficit production is made up from Midwest markets. West of the Divide the West Coast markets directly influence the price structure, because they are buying hogs in Western Montana markets and producers have the alternative of selling in Spokane, Seattle or Portland.

The Billings market is the major market in the eastern area and the other markets, Great Falls, Helena, Butte, and Bozeman, generally adjust the price they pay for hogs in accordance with quotations at the Billings market. The exceptions to this are the eastern most markets at Sidney and Glendive and along the border between Montana and the Dakotas. Here the influence is directly from the North and South Dakota markets. Prices at Billings follow quite closely the Omaha market with some influence from South St. Paul.

A comparison of the market prices over the past year was made, to determine how Billings prices compare with the Omaha, Chicago, and Portland markets. Table IV shows the price differentials between the Billings market and the other markets. For example on August 13, 1956 Billings price was 25 cents less than Chicago, while on August 27, 1956

TABLE IV. PRICE DIFFERENTIALS FOR HOGS BETWEEN BILLINGS AND CHICAGO, OMAHA, AND PORTLAND MARKETS.^{1/}

Date	Billings "minus" Chicago		Billings "minus" Omaha		Billings "minus" Portland		
	U.S. 1-3		U.S. 1-3		U.S. 1-3		
	Barrows & Gilts	Sows	Barrows & Gilts	Sows	Barrows & Gilts	Sows	
8/13/56	.25-	.75-	Same	.75-	2.00-	Same	
8/27/56	.25+	.75-	.50+		2.25-	1.00-	
9/10/56	.25+		.25-.50+		1.50-		
9/17/56	.35+	1.50-	.25-.50+	1.50-	1.50-	.50-	
9/24/56	.25+	1.75-	.25-.50+	2.00-	1.25-	.50-	
10/1/56	.25+	2.25-	.50-.75+	2.50-	1.50-	2.00-	
10/11/56	Same	2.25-	.25-.50+	2.00-	1.00-	.75-	
10/22/56	.25-	2.25-	.50-.75+	2.00-	1.25-	1.25-	
10/29/56	.25-	2.25-	.25-.50+	1.50-	1.50-	.75-	
11/5/56	Same	2.00-	.25-.50+	2.00-	1.25-	1.25-	
11/15/56	Same	1.50-	.25-.50+	1.50-	1.75-	1.25-	
11/19/56	.50-	2.00-	Same	1.75-	1.50-	1.75-	
11/26/56	.75-	2.50-	Same	2.50-	1.25-	2.00-	
12/3/56	.50-.75-	1.50-	.25-	2.00-	1.75-	2.00-	
12/10/56	.50-.75-		.25-		2.00-		
12/17/56	.25-.50-	2.00-	.25-.50+	2.25-	1.75-	2.50-	
1/2/57	.25-.50-		Same		1.75-		
1/7/57	.25-.50-	2.25-	.25-.50+	2.75-	1.75-	2.50-	
1/14/57	.25-	2.75-	Same	2.75-	1.50-	2.50-	
1/21/57	.25-.50-	2.50-	.25-.50-	2.25-	1.50-	1.50-	
1/28/57	.25-.50-	2.50-	Same	2.75-	2.00-	2.25-	
2/4/57	Same	2.00-			2.00-	1.50-	
2/11/57	.25-	2.00-	Same	2.50-	2.25-	1.25-	
2/18/57	.25-	2.50-	.25-.50+	2.50-	1.50-	2.50-	
2/25/57	.25+		Same		1.50-		
3/4/57	Same		Same		2.00-		
3/11/57	.25+	2.75-	Same	3.00-	2.25-	3.50-	
3/18/57	.25+	2.00-	.25+	2.25-	2.00-	2.50-	
3/25/57	Same	2.25-	.25-	2.25-	2.25-	3.00-	
4/1/57	.25+		.50-.75+		1.75-		
4/8/57	.25-	3.00-	Same	3.00-	2.00-	4.25-	
4/15/57	Same		.25+		2.00-		
4/29/57	.25-.50+	1.50-	.25-.50-	1.75-	2.50-	4.25-	
5/6/57	Same	2.50-	.25+	2.00-	2.50-	4.25-	
5/13/57	Same		.25+		2.50-		
5/20/57	.25-	.75-	Same	1.50-	2.00-	2.50-	
5/27/57	Same	1.25-	Same	3.00-	2.00-	3.00-	
6/3/57	.25-		Same				
6/10/57	Same	2.25-	.25-.50+	3.00-	1.50-	3.00-	
6/17/57	.25-.50-		Same		2.00-		
6/24/57	Same		.25+		2.00-		
7/1/57	.25-.50-	1.50-	.50-.75-	2.00-	2.00-	2.75-	
7/8/57	.25-.50-	2.00-	Same	2.00-	1.75-	3.25-	
7/15/57	.50-.75-	2.50-	Same	2.75-	2.00-	2.75-	
7/22/57	.50-.75-		.50-.75-		3.00-		
7/29/57	Same	2.50-	.25-.75-	2.75-	3.50-	1.75-	
8/5/57	.25-.50-	2.75-	.25-	3.25-	1.75-	2.25-	
Average	Low	.1096-	1.9643-	.0707+	2.2197-	1.8696-	2.1286-
	High	.1734-		.1141+			
Standard	Low	.3534	.7818	.2426	.6679	.2792	1.1170
	High	.3627		.3958			

^{1/} Price quotations used were obtained from Market News, United States Department of Agriculture, Agricultural Marketing Service, Livestock Division, Billings, Montana.

the Billings price was 25 cents over Chicago. In making such a comparison, it is hard to determine accurate differentials because the quotations from each market vary. Also it is impossible to know whether or not the quality of the hogs, in the various grade-price classifications being compared, are the same. Though this limitation reduces the accuracy of the comparisons, they are still worthwhile and give a fair picture of market price differences.

It can be seen from the table that the prices in Billings compare closely with both the Omaha and Chicago markets on barrows and gilts. The variation is not greater than 75 cents per hundred at any time. Billings prices are usually only 25 to 50 cents above or below the Chicago and Omaha prices. With this being true, it can readily be seen that the Montana producer would find no advantage in shipping his hogs to Omaha or Chicago for slaughter. Freight charges from Billings to Omaha are about 56 cents per cwt. plus shrinkage and death loss and one feed stop, which would mean that the differential would have to be about \$1.50 or more at Billings to make it pay to ship to Midwest markets.

In comparing Billings prices with those at Portland, we find that the price differential varies from around \$1.00 to about \$2.50. This is quite a variation from week to week and if a carload of top quality hogs reached the Portland market when the differential was at \$2.00 to \$2.50, the producer would probably receive a larger return than he would have had selling on the Billings market. When a producer is investigating possible markets a differential of this size looks very good, but

when shipping from Billings to Portland there are freight charges of about 70 cents per hundred, shrinkage and death loss, and a feed stop in Spokane, which means that a \$2.00 or better differential is needed to cover these costs. Therefore, with the risk involved and with the price differential varying so greatly in short periods of time the chances of receiving a greater return in Portland are very unlikely.

The investigation of price differentials provides one very interesting fact. The comparison indicates that the price paid for local hogs in Billings is as good or better than that paid at the other markets when freight and other expenses are considered in the calculations. This means that local producers are in a very satisfactory position price-wise in the Billings area. There are recent examples of producers who felt they could get greater returns at another market only to find after shipping there that their margin was less or if it were greater the difference was so small that the additional risk was not worth the small additional return received.

Probably the major reason for this condition existing is that the production is a great deal less than the demand. It is a deficit area for hog production and large numbers of Midwest hogs come into Billings each day for slaughter. The buying agencies are very much interested in securing all of the local hogs that are available, even though they are not of as high a quality or finish as the Midwest hogs, so prices are relatively high. If local hogs were of a quality and finish comparable with Midwest hogs, prices in Billings might be higher. The buyers then might be willing to pay the Midwest price plus freight charges for

bringing in slaughter hogs. At the present time this not done, because of the added cost of processing local hogs.

It is easily seen that prices for sows in Billings are lower than any of the other markets. Demand is just not great enough locally to bring the price up and the quality of local sows is not as high according to buyers in the Billings area.

Generally other slaughter plants east of the Divide are able to secure large enough numbers to fill their slaughter requirements. The Bozeman area is the only one which seems to have a surplus and it finds a ready market for this surplus in either the Helena or Butte areas and occasionally hogs are shipped to Spokane. Slaughter plants in the Helena area use all possible sources within about a 100 mile radius, but still find it necessary to purchase hogs for slaughter from Midwest markets. Havre buyers are in a position similar to Helena. There are not enough local hogs available to meet present demands so Midwest hogs have to be shipped in. The Great Falls area buyers are able at the present time to secure enough from local sources to fill their needs, although they are going as far as Lewistown to purchase hogs.

All of the slaughter plants in these areas feel that the quality or finish in the local hogs is not equal to that found in hogs shipped in from the Midwest. They are interested in improving the quality of local hogs and some slaughter plants are going ahead with measures to try and improve the quality and increase the production of hogs in Montana. Premium payments are used by a few to show the producer what type hog the market is demanding. Some work very closely with

