



A STUDY OF LIVESTOCK MARKETING IN LENAWEE AND HILLSDALE
COUNTIES WITH EMPHASIS ON INFORMATION THAT A DISTRICT
MARKETING AGENT CAN USE TO HELP FARMERS INCREASE
THEIR NET INCOME FROM MARKETING LIVESTOCK

A THESIS

Submitted to the School of Graduate Studies of Michigan
State University of Agriculture and Applied Science
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

by

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1960

ABSTRACT

The District Marketing Agent is a relatively new position on the staff of Michigan Cooperative Extension Service. The first agent was hired in July, 1954. This study is one of several being made at Michigan State University to provide a broad background of information that might assist a District Marketing Agent to help farmers solve marketing problems. Efforts were made by the author to provide some of the background information that would help a Livestock and Grain Marketing Agent in the Lenawee-Hillsdale district to analyze and solve marketing problems in the area.

This thesis was devoted to livestock marketing information which could be made available to livestock producers. It was divided into seven parts: (1) Importance of livestock to the area, (2) information sources available to the area, (3) when livestock should be marketed, (4) where livestock should be marketed, (5) how livestock should be marketed, (6) the costs of marketing livestock, and (7) the net return from marketing livestock.

A budget analysis was used to find the marketing costs and the net returns to livestock producers. Hypothetical examples of a large and a small producer from a

five mile vicinity of Adrian and of Hillsdale were used to test six markets in the area. The study included shrinkage losses as a cost of marketing livestock. Shrinkage is a considerable charge to marketing whether or not a producer realizes its importance.

The reader must realize that the net returns are those at the time the analysis was made and with the assumptions presented by the writer. Those who may wish to retest the markets may do so by substituting the current market prices of the class of livestock being marketed. The cost of marketing data will be usable until changes occur in the direct charges at the market place, in the transportation rates, or in shrinkage loss as might be determined from new information. The author would recommend the budget analysis as a means of testing alternative markets to determine the cost of marketing livestock and the highest probable net returns.

ACKNOWLEDGMENT

The author wishes to express his sincere thanks to Dr. Robert C. Kramer, under whose leadership, inspiration, and unfailing interest this study was undertaken and completed.

He is indebted to Dr. L. L. Boger, Head of the Department of Agricultural Economics, who provided financial assistance to secure information in the counties and the areas involved in this study.

He is also indebted to Michigan State University for sabbatical leave to complete this study. Deep appreciation is expressed to Paul A. Miller, former Director of the Michigan Cooperative Extension Service; Noel P. Ralston, present Director; and A. A. Griffith and Bohn Musgrave, District Extension Directors, for their encouragement and cooperation.

He is further indebted to several members of the resident staff of Department of Agricultural Economics for their interest, assistance and objective criticisms.

The writer expresses sincere thanks to Mildred E. Bender, Ida B. Jones, St. Joseph County Extension Secretaries, and to Arlene King, Secretary, Department of Agricultural Economics, for their assistance in typing the

original manuscript.

And finally, he expresses gratitude and appreciation to his wife and children for their patience, encouragement, and self sacrifices.

NOTE TO THE READER

This thesis was started in 1955. The information secured from farmers regarding where they received their livestock marketing information and where, when, and why they marketed their livestock as they did was secured by personal interviews with farmers during April and May, 1955. Due to employment and family situations the author was unable to complete the thesis as planned in 1955.

The information used in analyzing the marketing problem was brought up to date in May, 1960. This was done by visiting the markets to secure the current marketing charges, transportation rates, and livestock prices.

The author was unable to make a new survey of farmers to determine the changes that may have occurred during the five-year period. The information secured from farmers and how it was secured is presented in Chapters I, II, III, and VII.

Forty-eight of the 76 farmers interviewed in 1955 had television sets. Recent surveys indicate that approximately 95 per cent of Michigan farmers own television sets. However, the author believes that television still ranks lowest in importance as a source of livestock information for farmers in southern Michigan.

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1. The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. This is crucial for developing effective interventions and policies.

2. The second part of the paper reviews the existing literature on this topic. It highlights the strengths and limitations of previous studies and identifies areas for further research.

3. The third part of the paper presents the results of the current study. The findings suggest that the proposed model is a promising approach for addressing the research gap.

4. The fourth part of the paper discusses the implications of the findings for practice and policy. It emphasizes the need for a multi-disciplinary approach to tackle this complex issue.

5. The fifth part of the paper concludes the paper and provides a summary of the key points. It also offers some suggestions for future research and practice.

6. The sixth part of the paper is a reference list of the sources cited in the paper. It includes a mix of academic journals, books, and other relevant materials.

7. The seventh part of the paper is an appendix containing additional data and figures that support the findings of the study.

8. The eighth part of the paper is a glossary of key terms and definitions used throughout the paper.

9. The ninth part of the paper is a list of abbreviations and acronyms used in the paper.

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3. The third part of the document addresses the financial aspects of the project. It provides a detailed breakdown of the costs involved, including personnel, materials, and overheads. This section also includes a comparison of the expected costs with the actual expenses, allowing for a clear assessment of the project's financial performance. The importance of budgeting and cost control is stressed throughout this section.

4. The fourth part of the document discusses the impact of the project on the organization. It examines the changes in the organizational structure and the roles of different departments. This section also evaluates the overall effectiveness of the project, taking into account both the short-term and long-term impacts. The document concludes by summarizing the key findings and providing recommendations for future projects.

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The results of the experiment show that the rate of the reaction increases with the temperature of the water. The rate of the reaction is also affected by the concentration of the reactants. The results of the experiment are given in the following table.

I. INTRODUCTION TO THE PROBLEM

A. Purpose of the Study

Farmers of Lenawee and Hillsdale counties and Michigan State University have recognized a need for increasing the income of livestock producers of these counties through an improved marketing program. A District Marketing Agent has been employed by the Cooperative Extension Service as of June 1, 1955, to work with the farmers, the marketing agencies, and the news disseminating services to fulfill this need.

The purpose of this study is to determine through the use of primary and secondary data what some of the real problems are, how and where farmers market their livestock, why they market as they do, the source and kind of market information farmers receive and use, and what a District Marketing Agent can do to help farmers receive a higher price or reduce the marketing costs for the livestock to be sold.

B. Description of Lenawee and Hillsdale Counties

Lenawee County is located in the southeastern part of Michigan on the Ohio state line. Hillsdale County

lies adjacent to the west and lies next to the Ohio and Indiana state lines.

There is a great variety of soils ranging from the very heavy soil types of Miami, Brookston, and Hillsdale, to the very lightest Plainfield, Fox, and Bellfontaine. There are isolated muck areas which are of no great economic importance.¹ A comprehensive county drainage system has been established in the level, poorly drained, heavy soil areas. Much of the farm land of Lenawee County is tile drained.

Adrian is the county seat of Lenawee County. It has a population of 18,000 persons. The county population is 65,000. The population is 21.1 per cent rural farm residents, 38 per cent urban, 41 per cent rural non-farm (village), and 14.9 per cent rural non-farm non-village.²

Hillsdale is the county seat of Hillsdale County. It has a population of 7,000 persons. The county population is 32,000 persons. The population is 41.4 per cent rural farm residents, 22.9 per cent urban, 19.1 per cent rural non-farm (village), and 16.6 per cent non-rural non-village.²

¹J. O. Veach, Soil Survey Map, U.S. Dept. of Agriculture, Bureau of Soils, in cooperation with the Michigan Agricultural Experiment Station, revised, 1953.

²Anon., How Does Your County Rate? A county breakdown of statistics from census reports and various other sources. Prepared by the Dept. of Land Use and Water Conservation, Michigan State University, July, 1954.

L. G. Hall³ stated, "This area of the state was one of the earliest settled for farming in Michigan," and, "the farm population has become fully Americanized and it is quite easy to find natural leaders in the community." D. G. Leitch⁴ stated, "the people have a rather heterogenous background as far as nationalities are concerned," and "there is no group or community that sets itself apart from the rest because of national heritage or religious beliefs."

Michigan is divided into 17 type-of-farming areas based largely on sources of farm income and prevailing kinds of crops and livestock. Hillsdale and Lenawee Counties make up the greater part of Area I classified as a General Livestock and Corn Area.

The most important source of farm income for Area I is from the sale of livestock--mostly cattle, hogs, and sheep. The other sources of income in order of importance are dairy products; field crops--mostly wheat, sugar beets, and soybeans; and poultry and poultry products. On some farms, truck crops such as tomatoes, sweet corn, squash, melons, cabbage, and potatoes are important sources of income.⁵

The area has adequate railroad services and the state and county roads are surfaced to such a degree that the means for transportation

³Louis G. Hall, Annual Report of Cooperative Extension Work in Agriculture and Home Economics, Lenawee County, 1954, page 4.

⁴Duncan G. Leitch, Annual Report of Cooperative Extension Work in Agriculture and Home Economics, Hillsdale County, 1954, page 2.

⁵Elton B. Hill and R. Mawby, Types of Farming In Michigan, Special Bulletin 206, second revision, September, 1954, page 30.

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of farm products is favorable. Its close proximity to the Detroit, Toledo, and Cleveland industrial area lends to the ease of marketing and the advantage of favorable price levels for all farm products grown.⁶

C. Importance of Livestock in the Area

During the 11 year period 1949-1959, the number of cattle and calves of all ages on Lenawee and Hillsdale farms on January 1 increased from 85,800 to 91,000. The two counties had 4.9 per cent of the state total of 1,829,000 head. The number of milk cows decreased from 50,500 to 37,600 but still totaled 4.5 per cent of the 820,000 milk cows in the state. The number of stock sheep increased from 21,800 to 26,000 or to 7.7 per cent of the state total of 336,000. The number of sows farrowing decreased from 28,070 to 16,500 which was 9.1 per cent of the state total of 180,000 farrowings.⁷

A comparison of livestock on farms by counties on January 1, 1959, shows Lenawee ranked 4th in the number of all cattle and calves of all ages, 17th in the number of milk cows, and 3rd in the number of stock sheep. Hillsdale County ranked 12th in the number of all cattle and

⁶Louis G. Hall, op. cit., page 3.

⁷Michigan Agricultural Statistics, Michigan Dept. of Agriculture, Bureau of Animal Industry, Cooperating with the United States Dept. of Agriculture, Agricultural Marketing Service, 1949 through 1959.

calves of all ages, 11th in the number of milk cows and 10th in the number of stock sheep.⁸

Lenawee County ranked 1st along with Cass County in the total number of sows farrowed. Hillsdale County ranked 6th. There are 83 counties in Michigan.⁹

The eleven year trend of livestock on the farms of Lenawee and Hillsdale on January 1 and of the number of sows farrowing by years is shown in Tables I and II.

D. Nature of the Problem

The problem is primarily one of determining what livestock marketing information is available to farmers in the area and how it might be used by a District Marketing Agent to help farmers increase their net earnings.

E. Sources of Data

A personal interview of seventy-six farmers was conducted in Lenawee and Hillsdale counties. A random list was prepared by taking the name of the first two full-time farmers from each page of the county directories. The names of these farmers were then arranged by townships.

⁸Ibid. 1949 through 1959.

⁹Ibid. 1949 through 1959.

1. The first point to be considered is the importance of the subject matter. The subject matter should be of sufficient importance to warrant the attention of the court. If the subject matter is of minor importance, the court may decline to hear the case.

2. The second point to be considered is the standing of the parties. The parties must have a legal interest in the subject matter of the case. If the parties do not have a legal interest, the court may decline to hear the case.

3. The third point to be considered is the timing of the case. The case must be brought to the court within a reasonable time. If the case is brought to the court too late, the court may decline to hear the case.

4. The fourth point to be considered is the jurisdiction of the court. The court must have the authority to hear the case. If the court does not have the authority, it may decline to hear the case.

5. The fifth point to be considered is the merits of the case. The court must consider the merits of the case and decide whether the party bringing the case has a right to the relief sought. If the party does not have a right to the relief sought, the court may decline to hear the case.

6. The sixth point to be considered is the cost of the case. The court may consider the cost of the case and decide whether it is worth hearing. If the cost of the case is too high, the court may decline to hear the case.

7. The seventh point to be considered is the complexity of the case. The court may consider the complexity of the case and decide whether it is able to hear it. If the case is too complex, the court may decline to hear the case.

8. The eighth point to be considered is the public interest. The court may consider the public interest and decide whether it is in the public interest to hear the case. If it is not in the public interest, the court may decline to hear the case.

9. The ninth point to be considered is the availability of other remedies. The court may consider whether there are other remedies available to the party bringing the case. If there are other remedies available, the court may decline to hear the case.

10. The tenth point to be considered is the discretion of the court. The court has the discretion to hear or not hear a case. It may consider all of the points mentioned above and decide whether to hear the case.

Table I. Livestock Numbers on Farms, January 1, and Sows Farrowed in Lenawee County for the Eleven Year Period Beginning in 1949.*

Jan. 1	Livestock Numbers on Lenawee County Farms			Number of Sows Farrowed		
(year)	All Cattle and Calves	Cows, 2+ for milk	Stock Sheep	Spring Dec.1- June 1	Fall June 1- Dec. 1	Total
1949	46,100	26,500	12,000	9,000	6,810	15,810
1950	47,200	22,400	14,000	8,070	5,890	13,960
1951	46,600	20,000	15,900	8,600	10,000	18,600
1952	41,800	20,000	17,000	8,400	7,200	15,600
1953	53,000	23,900	15,700	5,400	8,200	13,600
1954	55,000	23,000	15,600	6,500	8,500	15,000
1955	45,000	24,000	9,800	5,400	3,500	8,900
1956	38,000	20,500	11,000	4,100	3,700	7,800
1957	39,000	19,100	11,800	4,100	3,800	7,900
1958	38,000	19,300	10,000	3,400	3,200	6,600
1959	41,000	19,500	10,000	3,000	3,900	6,900

* Source: Michigan Agricultural Statistics, Michigan Dept. of Agriculture, 1949 through 1959.

Table II. Livestock Numbers on Farms, January 1, and Sows Farrowed in Hillsdale County for the Eleven Year Period Beginning in 1949.*

Jan. 1	Livestock Numbers on Hillsdale County Farms			Number of Sows Farrowed		
(year)	All Cattle and Calves	Cows, 2+ for Milk	Stock Sheep	Spring Dec.1- June 1	Fall June 1- Dec. 1	Total
1949	39,700	24,000	9,800	6,980	5,280	12,260
1950	39,800	22,500	9,800	7,530	4,920	12,450
1951	44,700	25,600	11,700	5,700	4,300	10,000
1952	44,700	23,800	11,700	4,900	3,400	8,300
1953	48,000	21,700	11,100	4,500	3,600	8,100
1954	45,000	24,000	10,600	5,400	3,500	8,900
1955	55,000	23,000	15,600	6,500	8,500	15,000
1956	50,000	18,500	15,000	6,000	4,600	10,600
1957	48,000	19,000	14,500	6,600	4,600	11,200
1958	46,000	18,000	13,000	5,300	4,000	9,300
1959	50,000	18,100	16,000	5,100	4,500	9,600

* Source: Michigan Agricultural Statistics, Michigan Dept. of Agriculture, 1949 through 1959.

There was an average of 12 farmers per township. The County Agricultural Agents of the two counties were asked to select two names from each of the townships. The basis for selection was to secure at least one farmer who was making the sale of livestock one of his main sources of income and one farmer who was making the sale of cash grain his main source of income.

The author interviewed thirty-six farmers from the eighteen townships in Hillsdale County.¹⁰ Carlton Dennis, a graduate student working on a related problem in grain marketing, interviewed forty farmers in Lenawee County. Dividing the interviews this way it was possible for each interviewer to secure the information needed for both problems with one call at the farm.

Information regarding livestock market news that was being provided to farmers from radio and television stations in the area was requested by mail.

Marketing charges and volume of business conducted was secured by a questionnaire, a personal visit, or a telephone call, from all the auction markets and terminal markets serving the area.

The author visited the auction markets at Hillsdale and Adrian to interview truckers, farmers, and auction personnel.

¹⁰The survey form may be found in the appendices.

• The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. Once a problem is identified, the next step is to define the problem more precisely. This involves determining the scope of the problem, the resources available, and the constraints that may be affecting the problem. The third step is to analyze the problem. This involves identifying the causes of the problem and the factors that are contributing to it. The fourth step is to develop a solution. This involves brainstorming ideas and selecting the best one. The fifth step is to implement the solution. This involves putting the solution into action and monitoring its progress. The sixth step is to evaluate the solution. This involves assessing the effectiveness of the solution and making any necessary adjustments.

• The second step in the process of identifying a problem is to define the problem more precisely. This involves determining the scope of the problem, the resources available, and the constraints that may be affecting the problem. The third step is to analyze the problem. This involves identifying the causes of the problem and the factors that are contributing to it. The fourth step is to develop a solution. This involves brainstorming ideas and selecting the best one. The fifth step is to implement the solution. This involves putting the solution into action and monitoring its progress. The sixth step is to evaluate the solution. This involves assessing the effectiveness of the solution and making any necessary adjustments.

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• The fourth step in the process of identifying a problem is to develop a solution. This involves brainstorming ideas and selecting the best one. The fifth step is to implement the solution. This involves putting the solution into action and monitoring its progress. The sixth step is to evaluate the solution. This involves assessing the effectiveness of the solution and making any necessary adjustments.

• The fifth step in the process of identifying a problem is to implement the solution. This involves putting the solution into action and monitoring its progress. The sixth step is to evaluate the solution. This involves assessing the effectiveness of the solution and making any necessary adjustments.

F. Summary

The District Marketing Agent is a relatively new position in the expanding program of the Michigan State University Cooperative Extension Service. The agent must be a pioneer in this field of service dedicated to help farmers solve their marketing problems in Michigan. There is much information available for the agent to use. There are years of experience in working with people in the extension service that should be of help. This thesis was developed to assist the livestock and grain District Marketing Agent in the Lenawee-Hillsdale district.

Primary data were secured through a survey of farmers living in Lenawee and Hillsdale counties. Personal interviews with personnel in the marketing industry were also conducted. Two farmers were selected from each of the thirty-eight townships in the district. The seventy-six farmers gave basic information as to where they were marketing their livestock and why and what marketing information they were securing, from what sources, and how they were using it.

Information regarding the markets, livestock transportation, and sources of information in the area was secured through correspondence and personal interviews with people in the livestock industry.

Secondary data were secured from the Michigan Agricultural Statistics, County Extension Agents' reports, textbooks, bulletins, and miscellaneous special studies covering phases of the problems.

II. INFORMATION ON LIVESTOCK MARKETING AVAILABLE FOR USE BY A DISTRICT MARKETING AGENT

In this chapter information that has an important bearing on the main problem of determining the farmer's marketing costs and his net returns is discussed. It will include what information the farmers have, the information available to them, and information that should be considered in making decisions regarding when to market livestock, where to market livestock, and how to market livestock.

F. L. Thomsen ¹¹ says:

Many farmers can contribute to more efficient marketing by doing a better individual job of marketing their own livestock. This means a more skillful job of deciding when, where, and by what method to market. This requires (1) familiarity with the various market outlets which are available, (2) use of market news reports and other information in following current market conditions, for the purpose of taking advantage of temporary market strength at or about the time the livestock is ready for marketing, and (3) use of outlook information in coordinating the farm production program with marketing so as to take maximum advantage of seasonal, annual and cyclical changes in commodity prices.¹¹

In the Lenawee-Hillsdale area, the importance of when to market livestock is illustrated by the responses

¹¹F. L. Thomsen, Agricultural Marketing, McGraw-Hill Book Company, Inc., New York, Toronto, London, 1951, page 427.

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in the interviews of 76 farmers. When asked how they determine when to sell their livestock, only 26 of them used seasonal price and outlook information in deciding when to have their livestock ready to sell. The others raised the livestock, sold when it was ready for market or when they needed the money. Only 49 of the 76 used daily market quotations to assist in determining when to market their livestock. Seventeen started their livestock to market when ready or convenient. Some sold when their trucker or commission men indicated they should.

A. Market Information Used by Farmers

Radio. The most important source of livestock market information was radio. Sixty-four farmers of the 76 interviewed gave this as their most important source, seven made it their second choice and three their third choice.

Forty-nine farmers received market news from the morning program on Radio Station WJR in Detroit and twenty-one from the noon program on this station. Marshall Wells, commentator, is very popular with the rural people. His programs are presented between 6:00 a.m. and 6:30 a.m., and 12:15 p.m. and 12:30 p.m., every day except Sunday. Market quotations are from the Detroit and other mid-west stockyards.

Nine farmers followed livestock market reports

2. The second section addresses the challenges faced by organizations in managing their resources effectively. It highlights the need for strategic planning and the allocation of funds based on long-term goals. The author argues that without a clear vision and a well-defined strategy, organizations risk misallocating resources and failing to achieve their intended outcomes.

3. The third part of the document focuses on the role of leadership in driving organizational success. It stresses that leaders must be proactive in identifying opportunities and challenges, and in making informed decisions. The text also discusses the importance of communication and collaboration within the organization, as these factors are crucial for the effective implementation of any strategy.

4. The fourth section explores the impact of external factors on an organization's performance. It notes that organizations must remain vigilant in monitoring their environment, including market trends, regulatory changes, and technological advancements. The author suggests that organizations should adopt a flexible approach, allowing them to adapt quickly to changing circumstances.

6. The sixth section addresses the issue of human resources. It argues that organizations must invest in their workforce to ensure they have the talent and skills needed to succeed. The text discusses the importance of recruitment, training, and development, and provides suggestions for how organizations can create a supportive and motivating work environment.

8. The eighth section discusses the importance of ethical considerations in organizational decision-making. It argues that organizations must operate with integrity and transparency, and must be committed to ethical values. The text provides guidance on how organizations can establish a strong ethical framework and ensure that their actions are consistent with their values.

10. The final part of the document provides a summary of the key points discussed and offers concluding thoughts. The author reiterates the importance of maintaining accurate records, strategic planning, effective leadership, and a commitment to ethical values. The text concludes by expressing optimism about the future of organizations that embrace these principles and work towards continuous improvement.

from Radio Station WOWO, Fort Wayne, Indiana. The commentator is Jay Gould. Fifteen farmers, mostly in Lenawee County, followed reports from Radio Station WABJ, Adrian.

Other radio programs mentioned as valuable to six or fewer of the farmers interviewed are as follows.

WTVB Coldwater	AP News Wire
WKAR East Lansing	AP News Wire Detroit Market News Wire Michigan Livestock Exchange, Michigan Livestock Auction Report
WPAG Ann Arbor	Michigan Livestock Exchange, Detroit, and AP Wire
WSPD Toledo, Ohio	UPI Wire
CKLW Windsor, Can.	Ridley Commission Co., UIP Wire
WMAQ Chicago, Ill.	AP and UPI Wire
WLS Chicago, Ill.	Chicago Yards
WGN Chicago, Ill.	Chicago Union Stockyards

Newspapers. All the farmers interviewed subscribed to a daily newspaper. Seven farmers indicated newspapers as their most important source of livestock market news, forty-five made it their second choice, and twelve their third choice. Twenty-eight farmers living in Hillsdale County depended upon the Hillsdale News. Forty-four depended upon the Adrian Daily News. Other daily papers were the Toledo Blade, Jackson Citizens' Patriot, and Chicago Daily Drovers' Journal.

The weekly newspapers were unimportant as a source of market news. There were fifteen weekly newspapers being subscribed to by the farmers interviewed. Only one was reported to carry livestock market information.

Magazines. Magazines were listed by the farmers interviewed as the fourth most valuable source of livestock marketing information. In contrast to radio and newspapers where current price and market receipts were of value, this source was used to learn trends in price, production, movements of livestock, and the outlook situation for producers.

Television. Forty-eight of the seventy-six farmers interviewed owned television sets. Only ten rated it as important, one as most important, five as second choice, and four as third choice.

The popular program was from WSPD, Toledo, Ohio. It is largely a participation program with interviews featuring County Agricultural Agents, Home Demonstration Agents, Specialists from O.S.U. and M.S.U., FFA, FHA, and 4-H Club members, and farmers. The livestock quotations are from the Cleveland and Chicago markets. Unfortunately for the Michigan farmers the program starts an hour earlier when Ohio changes to Eastern Daylight Time.

Individuals. Forty-two farmers looked to other people for help in making their decisions. Twenty-two farmers consulted

2. In the second section, the author addresses the challenges of data management in a rapidly changing digital landscape. It highlights the need for secure storage and easy access to information, while also warning against the risks of data breaches and loss. The recommendation is to invest in reliable technology and to train staff on best practices for data security.

3. The third part of the document focuses on the role of communication in organizational success. It argues that clear and consistent communication is vital for ensuring that all team members are aligned with the organization's goals and vision. The text encourages the use of multiple channels to reach different audiences and to foster a culture of open dialogue.

4. The fourth section explores the importance of continuous learning and development. It notes that in a competitive market, organizations must stay current with the latest trends and technologies. This requires a commitment to ongoing education and skill-building for all employees. The author suggests that creating a learning environment where knowledge is shared and growth is encouraged is key to long-term success.

5. Finally, the document concludes with a call to action, urging leaders to take responsibility for the overall health and performance of their organizations. It stresses that while challenges may arise, a proactive and positive mindset is necessary to overcome them. The author ends by expressing confidence in the reader's ability to implement these strategies and achieve their desired outcomes.

with their truckers as to when and where to sell their livestock. Ten farmers consulted with commission men, eight with livestock buyers, five with their neighbors, and one with his County Agricultural Agent. Most farmers indicated individuals of third importance after radio and newspapers.

Special Market Reports. The U.S.D.A. Market News Service, Michigan Crop and Livestock Reporting Service, and private news services were considered as least important by the farmers interviewed. Nine farmers followed market news from their bank newsletter, four received the Michigan Livestock Exchange Bulletin, five received livestock market reports from the U.S.D.A. Market News Service, and five received the livestock reports from the Michigan Crop and Livestock Reporting Service. Most of the latter group were cooperating reporters for the service.

The survey brought out the fact that farmers know little regarding what special market reports are available, the type of information that they contain, or where and how they may be secured.

B. Market Reports Available to Farmers

Price and livestock movement reports received daily by radio and newspapers by farmers may be supplemented

by mail from U.S.D.A. Market News Services located at terminal livestock markets. Two regular reports that some farmers could use advantageously are:

"Detroit Livestock Market Report." Agricultural Marketing Service, Room 204, 6750 Dix Avenue, Detroit 9, Michigan. Reports Monday and Thursday, Free. -- Report of receipts and prices for livestock by classes for Detroit Market, some information on trends and other markets.

"Livestock Market Report from Chicago." Agricultural Marketing Service, Room 301, 999 Exchange Avenue, Chicago 9, Illinois, Free. -- Two reports weekly of receipts and prices by classes of livestock and brief statement on market conditions. Some information on receipts or other markets. Special cattle on feed and pig crop estimates frequently made available on back of this report.

The Agricultural Marketing Service of the United States Department of Agriculture, Washington 25, D.C., releases regular and special reports on production, slaughter, prices, and outlook that are available free to farmers who request them. Information is received from state statisticians, news analysts at the terminal markets, farmers and others.

The State Statistician of the Michigan Crop and Livestock Reporting Service, Lansing 4, Michigan, releases information that applies to the State of Michigan within

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one to three days following the USDA releases. These releases present Michigan conditions as compared to the United States as a whole. The author believes the Michigan releases are of greater value to the farmers covered in this study.

Following are the Michigan livestock, feed and market reports and their approximate release dates.

Commercial Livestock Slaughter, cattle, calves, hogs, and lambs, last day of each month.

Cattle on Feed, middle of the month, January, April, July and October.

Sheep on Feed, middle of the month, January.

Stocker and Feeder Shipments from Public Markets, monthly.

January 1st Number of Livestock and Poultry on Farms, February 14.

Calf Crop Report, middle of month, February.

Wool Production, February 25 and August 4.

Lamb Crop Report, middle of month, March, May, July and November.

Production Shorn Wool, early August.

Pig Crop Report, June 24, December 24.

Summary of Auction Market activities, each Monday.

Other market reports offering information to help farmers decide when, where and how to market their livestock are as follows. The description includes where

the report may be secured, when it is released, how much it costs, and the type of information it contains.

"Livestock Market News - Reviews and Statistics." Live-stock Division, Agricultural Marketing Service, United States Department of Agriculture, Washington 25, D.C. Weekly, Free. -- Current price and supply information for livestock, meat and wool as assembled from all the major markets. Brief articles summarize important factors affecting current market activity.

"The Livestock and Meat Situation." Market Information Division, Agricultural Marketing Service, USDA, Washington, 25, D.C. Published 6 times a year, Free. -- Provides an analysis of supply and demand conditions affecting livestock and meat prices. Forecasts of expected market trends are made.

"Stocker and Feeder Report." Market News Office, 760 Live-stock Exchange Building, Zone 2, Kansas City, Mo. Weekly, Free. -- Provides a summary of local market conditions for the week on stocker and feeder cattle, hogs and sheep, plus statistical tabulations covering State destinations of shipment, numbers and average prices.

"The Wool Situation." Marketing information Division, Agricultural Marketing Service, USDA, Washington 25, D.C., 4 times a year, Free. -- Current information on the wool market, trends and outlook.

the following conditions are satisfied:

- The first condition is that the function f is continuous on the interval $[a, b]$.

The second condition is that the function f is differentiable on the interval (a, b) .

The third condition is that the function f is not constant on the interval $[a, b]$.

- The fourth condition is that the function f is not zero on the interval $[a, b]$.

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The twenty-fourth condition is that the function f is not identically zero on the interval $[a, b]$.

The twenty-fifth condition is that the function f is not identically zero on the interval $[a, b]$.

"The Feed Situation." Market Information Division, Agricultural Marketing Service, USDA, Washington 25, D.C., Monthly, Free. -- Provides an analysis of supply and demand conditions affecting price and utilization of livestock feeds.

"Marketing and Transportation Situation." Market Information Division, Agricultural Marketing Service, USDA, Washington 25, D.C., Monthly, Free. -- Contains tables showing food marketing charges and farmer's share, consumer incomes and expenditures, recent trends in the retail food trade and recent improvements in transportation equipment and services.

"Mid-Month Farm Commodity Prices." Michigan Crop and Livestock Reporting Service, P.O. Box 1020, Lansing 4, Michigan, 1st of each month, Free. -- Average prices of commodities sold by Michigan farmers.

"The Demand and Price Situation." Marketing Information Division, Agricultural Marketing Service, USDA, Washington 25, D.C., Monthly, Free. -- Contains summary of general business conditions, world commodity prices, farm cash receipts, and commodity outlook information.

"Michigan Farm Economics." Agricultural Economics Dept., Room 38, Agriculture Hall, Michigan State University, East Lansing, Michigan, Monthly, Free. -- Provides articles on marketing and other agricultural economics subjects. Reports

2. The second section addresses the challenges of data management in a digital age. It highlights the risks associated with data breaches and the loss of sensitive information. To mitigate these risks, the document recommends the use of secure storage solutions and the implementation of strict access controls. It also stresses the importance of regular data backups and the use of encryption techniques to protect data from unauthorized access.

3. The third part of the document focuses on the role of technology in improving operational efficiency. It discusses how automation can streamline repetitive tasks, reduce human error, and accelerate decision-making processes. The text encourages organizations to invest in modern software and hardware solutions that can integrate with existing systems, creating a cohesive and efficient workflow.

4. The fourth section explores the importance of continuous learning and professional development. It argues that in a rapidly changing environment, employees must stay updated with the latest industry trends and technologies. The document suggests that organizations should provide opportunities for training, workshops, and conferences to foster a culture of learning and innovation.

6. The sixth section addresses the importance of ethical considerations in business operations. It highlights that organizations have a responsibility to act ethically and transparently, adhering to legal and moral standards. The document suggests that organizations should develop a strong ethical framework and implement policies that promote integrity and accountability.

8. The eighth section explores the importance of innovation and creativity in driving growth. It argues that organizations must embrace new ideas and technologies to stay competitive in the market. The document suggests that organizations should encourage a culture of innovation, where employees are empowered to think creatively and propose new solutions to existing problems.

10. The final section of the document provides a summary of the key points discussed and offers concluding thoughts on the importance of a holistic approach to organizational management. It suggests that organizations should focus on building a strong foundation of trust, transparency, and innovation to achieve long-term success.

indexes of prices paid and prices received for Michigan farm products.

"Chicago Daily Drivers Journal." Union Stock Yards, Chicago 9, Illinois. Published daily Monday-Friday, \$7.50 a year. -- Carries livestock market reports and other timely market information on livestock. Also gives market information on grains, feedstuffs, poultry and eggs.

C. Summary

The seventy-six farmers that were interviewed indicated many sources of information were available. Each farmer was asked which radio and television programs he preferred for market information, which newspapers, magazines, and special reports he received, and whether or not he consulted with individuals for marketing advice.

Radio programs were found to be the most important source of livestock market information. The daily newspapers ranked second. Individuals, especially truckers, commission men, livestock buyers, and neighbors, were third in importance. These were followed by magazines, special reports and television.

Farmers expressed preference for the market reports from Radio Stations WJR of Detroit and WABJ of Adrian. The Adrian Daily Telegram and the Hillsdale News were the

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important newspapers in the area. The weekly newspapers were not important as a source of market news.

There are many market reports available to farmers which are not being used. Several could be of value to farmers in their areas of specialized interest. Others might be of more value to the District Marketing Agent in his need to keep up to date in the total marketing field.

• The first step in the process of creating a new product is to identify a market need. This can be done through market research, which involves gathering information about the target market and its needs. Once a market need has been identified, the next step is to develop a product concept. This involves creating a detailed description of the product, including its features, benefits, and target market. The product concept is then used to create a business plan, which outlines the company's strategy for developing and marketing the product. The business plan is then used to secure funding from investors or lenders. Once funding has been secured, the next step is to develop a prototype of the product. This involves creating a small-scale version of the product that can be used to test the market and gather feedback. The prototype is then used to create a full-scale production plan, which outlines the steps for manufacturing and distributing the product. Finally, the product is launched into the market and the company monitors its performance and makes adjustments as needed.

III. WHERE TO MARKET LIVESTOCK

Farmers can market livestock at terminal markets, livestock auctions, packing plants, local butchers, locker plants, country dealers, and to other farmers. They may also slaughter and sell direct to the consumer.

A. Where Farmers Sold Their Livestock

In Hillsdale and Lenawee Counties many of the better-grade cattle were sold through the Detroit Terminal Market or at Lugbill Producers, Inc., of Archbold, Ohio. About one-half of the farmers sold their lower-grade steers and heifers, cows, and calves at local auctions at Archbold, Adrian, Hillsdale, and Coldwater. About 40 per cent of the farmers sold their lower-grade cattle and calves at the Detroit Terminal. Ten per cent of the farmers sold to country dealers. Practically all the deacon calves were sold at auctions, a few were sold to dealers.

Half of the sheep and lambs were sold at Detroit and the other half were sold at local auctions.

About 45 per cent of the farmers sold their hogs at the Detroit Terminal Market, 30 per cent to livestock dealers, 20 per cent to local auctions, and 5 per cent

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to packing plants. Feeder pigs were sold at local auctions and to other farmers.

B. Description of the Markets

The six markets selected for this study were those at which most of the farmers were selling their livestock. One local dealer market was selected to represent all dealers. The author does not in any way want the reader to feel that the packer, butcher, locker plant, and other buyers are not desirable markets for some farmers for some classes of livestock.

Detroit Stockyards. The Detroit Stock Yards were established in 1882. Livestock may arrive by rail and by truck. At the present time, ninety-two per cent of the salable livestock arrives by truck. The Stock Yards also receive and handle livestock shipped direct to packers and for further shipment. When all livestock receipts are considered, 75 per cent arrives by truck. The bulk of the livestock is hauled by truck from a radius of 75 to 80 miles from Detroit.

The Detroit Stock Yards is a posted market. It is owned by the New York Central Railroad System. The United States Department of Agriculture supervises practices and regulates charges. Facilities for buying and selling, feeding and watering, veterinary inspection, sorting

and classifying, receiving and delivery, weighing, recording and accounting for sales, and collecting and remitting proceeds of sales are provided.

The Ridley Commission Company and the Michigan Livestock Exchange are the two registered agencies that represent buyers and sellers on the market. About fifty packer buyers purchase the slaughter livestock on this market.

Livestock are consigned by the farmer, trucker, or Stock Yards Company, to one of the two commission agencies upon arrival. When they are sold, they are weighed, and moved to holding pens for the buyer.

This market is recognized as a good calf and cattle market.

Lugbill Producers, Inc., Archbold, Ohio. This is a corporation auction market owned by Lugbill Brothers. Ten to twenty packer buyers, two to three order buyers, as well as the corporation buy regularly at this market.

Sales are conducted Mondays and Thursdays starting at twelve o'clock noon. The corporation buys directly from farmers daily.

The average weekly volume is 600 to 700 head of cattle, 275 to 300 calves, 850 to 900 hogs, 200 feeder pigs and 500-600 sheep and lambs.

Adrian Livestock Sales. This market is about twenty years old and is privately owned. Sales are conducted each

Tuesday starting about 1:00 p.m. The manager purchases livestock direct from farmers on Mondays and Thursdays.

The average weekly volume of livestock is 250 head of cattle, 200 calves, 700 hogs, 1000 feeder pigs, and 300 sheep and lambs.

The livestock are penned upon arrival, sold, weighed immediately after selling, and put in buyers pens after the sale.

Coldwater Livestock Commission Auction. This market was noted as a good hog market by the farmers interviewed. It is operated as a partnership. Sales are held each Thursday starting at 1:00 p.m.

The auction does not buy livestock at the sale or directly from farmers on other days.

Hillsdale Auction Company. This market is privately owned. It is known as a farmer's market. The buyers are mostly farmers who are looking for dairy cows, feeder cattle, calves, and feeder pigs. The volume of slaughter animals is small.

Sales are held each Saturday starting at 11:30 a.m. No direct buying is done by the management.

This is one of the oldest auctions in Michigan, starting some fifty-five years ago. The auction sells everything from potatoes, hay and rabbits, to furniture and farm equipment.

C. Summary

There were many places available to farmers for marketing the livestock produced in Lenawee and Hillsdale counties. The interviews with farmers indicated that most of the livestock was sold at the Detroit Stockyards and local auctions. Some was sold to country dealers, direct to packing companies, and to other farmers.

The five markets at which most of the livestock was sold were selected for this study. They were the Detroit Stockyards, Lugbill Producers, Inc., at Archbold, Ohio, Adrian Livestock Sales, Coldwater Livestock Commission Auction Company, and the Hillsdale Auction Company. In addition a country dealer near Adrian and one near Hillsdale were also used in the analysis. The country dealer, referred to as the local market in this thesis, would be one within close transportation distance to any farmer with livestock to sell. The five markets plus the one dealer available to the producer comprise the six outlets or markets used in the following parts of this study.

• The first step in the process of creating a new product is to identify a market need. This is often done through market research, which involves gathering information about potential customers and their needs. • Once a market need has been identified, the next step is to develop a concept for a new product that meets that need. This involves brainstorming ideas and selecting the most promising one. • The third step is to create a prototype of the product. This is a physical model of the product that is used to test the concept and gather feedback from potential customers. • The fourth step is to conduct a feasibility study. This involves assessing the technical, financial, and market viability of the product. • The fifth step is to develop a business plan. This is a document that outlines the company's strategy for producing and marketing the product. • The sixth step is to secure funding. This involves raising money from investors or lenders to cover the costs of production and marketing. • The seventh step is to produce the product. This involves manufacturing the product on a large scale. • The eighth step is to market the product. This involves promoting the product to potential customers through various channels, such as advertising and sales. • The ninth step is to distribute the product. This involves getting the product into the hands of customers through retail stores or direct sales. • The tenth step is to evaluate the product's performance. This involves monitoring sales, customer feedback, and other metrics to determine if the product is successful.

IV. WHEN LIVESTOCK SHOULD BE MARKETED

This chapter will be devoted to livestock price movements and the application of this information in making decisions as to when to market livestock. Seasonal price movements, price cycles, and short-time price fluctuations will be discussed.

A. Seasonal Prices

All agricultural commodities are characterized by some seasonality of production and marketing. An index of seasonal price variations over a period of years will show the time of year that prices will generally be higher or lower than the average price for the year. See Table III for an index of livestock prices for the ten year period (1947-56). The index may change over a period of time due to changes in production, feeding, and marketing practices by the farmers. This is shown by a comparison of the seasonal price patterns of the pre-war period (1933-42) and the post-war period (1947-54). See Figures 1 and 2.

The typical seasonal price movement of all beef cattle shows the seasonal peak to be in July during the post-war period. In the pre-war years, May was the month of the seasonal peak. See Figure 1 (C). The difference is not significant for reasons discussed in the next paragraph.

2. The second section addresses the need for regular audits and reviews. It states that periodic assessments are crucial to identify potential issues, errors, or areas for improvement. The document recommends that these audits be conducted by independent parties to ensure objectivity and fairness. Additionally, it highlights the importance of documenting the findings of these reviews and implementing corrective measures where necessary.

3. The third part of the document focuses on the role of technology in modern record-keeping. It notes that digital tools and software can significantly enhance the efficiency and accuracy of data management. The text encourages organizations to invest in reliable technology solutions that can automate routine tasks, reduce the risk of human error, and provide secure storage for sensitive information.

4. The fourth section discusses the legal and regulatory requirements that govern record-keeping practices. It mentions that various laws and regulations, such as the General Data Protection Regulation (GDPR) and the Sarbanes-Oxley Act, impose specific obligations on organizations regarding the collection, storage, and disposal of data. The document advises that organizations must stay informed about these legal developments and ensure that their record-keeping practices are fully compliant with all applicable laws.

5. The fifth part of the document explores the importance of data security and protection. It stresses that organizations must take appropriate measures to safeguard their records from unauthorized access, loss, or destruction. This includes implementing strong security protocols, such as encryption, access controls, and regular backups. The text also mentions the importance of having a disaster recovery plan in place to ensure that data can be restored in the event of an emergency.

6. The sixth section discusses the ethical considerations surrounding record-keeping. It notes that organizations have a responsibility to handle data in a fair, transparent, and ethical manner. This includes being clear about how data is collected and used, obtaining proper consent from individuals, and ensuring that data is not misused or shared without authorization. The document encourages organizations to adopt a data-driven culture that prioritizes ethical practices and respects individual privacy.

7. The seventh part of the document provides some practical tips and best practices for effective record-keeping. It suggests that organizations should establish clear policies and procedures for data management, assign specific roles and responsibilities to staff members, and provide regular training and education on record-keeping practices. The text also recommends that organizations should regularly review and update their record-keeping systems to reflect changes in technology, regulations, and organizational needs.

8. The eighth section of the document discusses the benefits of maintaining accurate and up-to-date records. It notes that proper record-keeping can help organizations make better-informed decisions, improve operational efficiency, and enhance their overall reputation. The text mentions that accurate records can also be useful for legal and regulatory compliance, as well as for financial reporting and analysis.

9. The ninth part of the document provides some concluding thoughts on the importance of record-keeping. It reiterates that maintaining accurate records is a fundamental aspect of good governance and management. The text encourages organizations to take a proactive approach to record-keeping, ensuring that all data is properly managed and protected throughout its lifecycle.

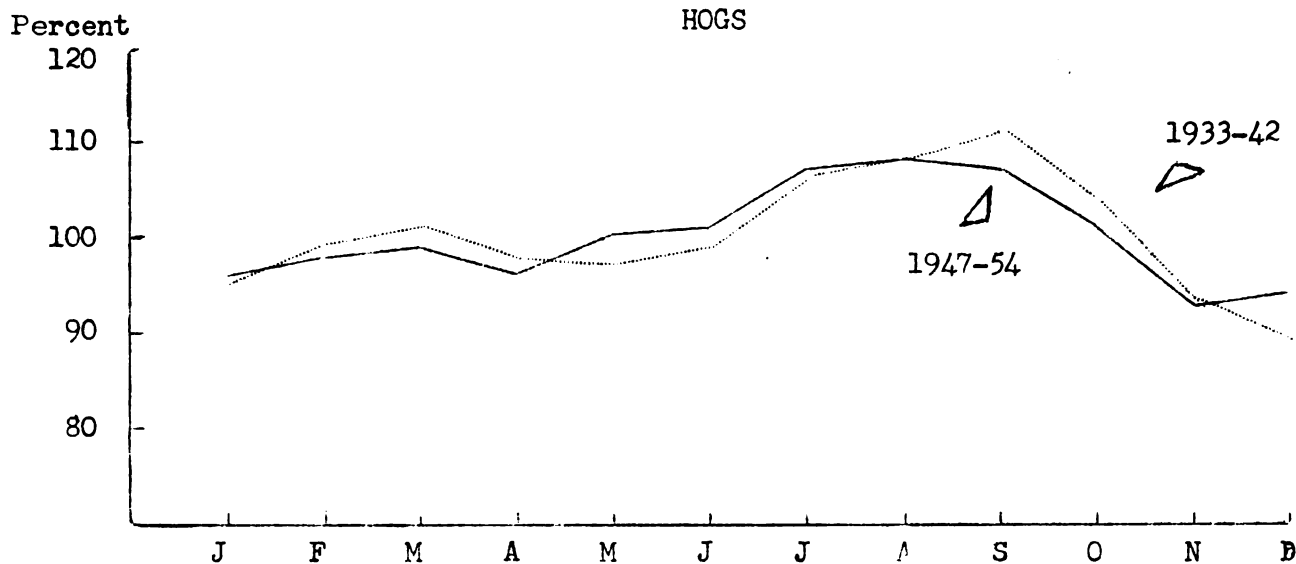
10. The final section of the document provides some additional resources and references for further reading. It lists several books, articles, and websites that provide more detailed information on record-keeping practices, legal requirements, and technology solutions. The text also mentions that organizations can seek professional advice from accountants, lawyers, or IT consultants if they need assistance with implementing or improving their record-keeping systems.

TABLE III. INDEXES OF SEASONAL PRICE VARIATION OF LIVESTOCK
Based on data for the years 1947 to 1956*

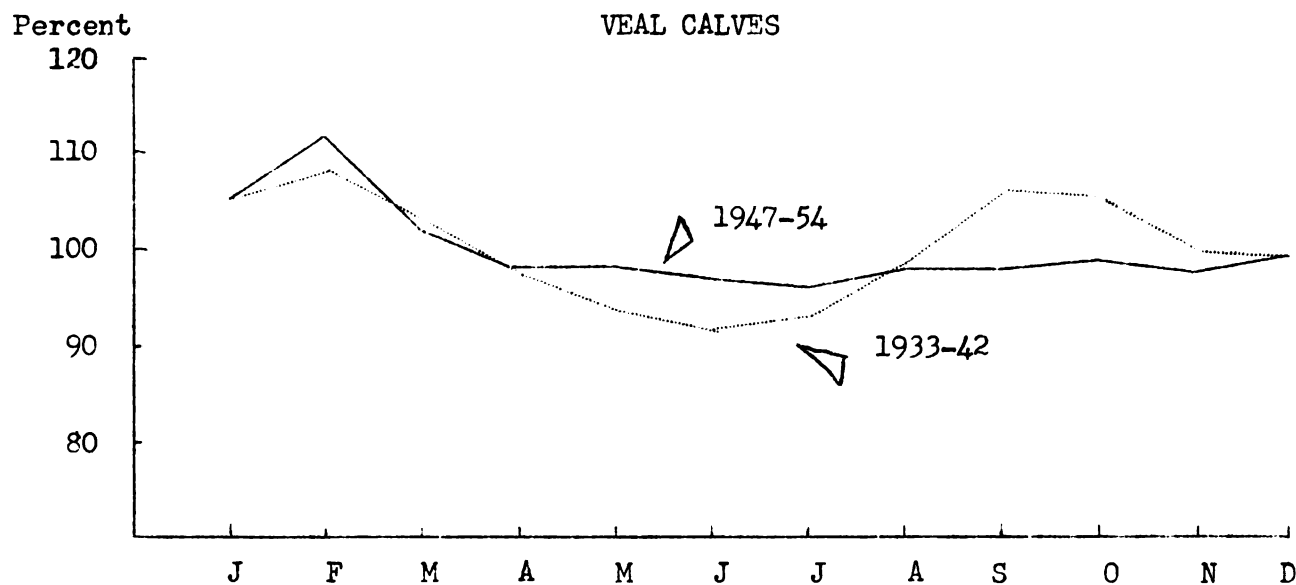
<u>Commodity</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Slaughter Steers, Chicago												
Prime	105	99	97	95	94	94	97	100	104	104	104	104
Choice	100	95	95	96	97	98	102	104	106	105	103	101
Good & Standard	99	96	97	98	101	103	104	103	103	101	100	98
Utility	100	100	103	104	107	105	101	97	98	95	95	94
Veal Calves	107	108	101	98	100	98	97	99	100	99	96	98
Cows, utility, Chicago	98	99	104	107	110	107	102	98	99	95	91	93
Feeder Steers, (500-700#) Chicago	97	97	103	104	106	102	97	97	101	102	100	93
Barrows & Gilts, (200-220#) Chicago	91	93	95	107	115	117	110	105	98	91	87	90
Sows, (360-400#) Chicago	89	94	98	110	114	108	103	105	105	98	89	87
Lambs	98	100	103	104	105	100	103	102	100	97	94	95

* Sources: Chicago Livestock prices were obtained from AMS, USDA. Lamb and veal prices were obtained from the Michigan Cooperative Crop Reporting Service.

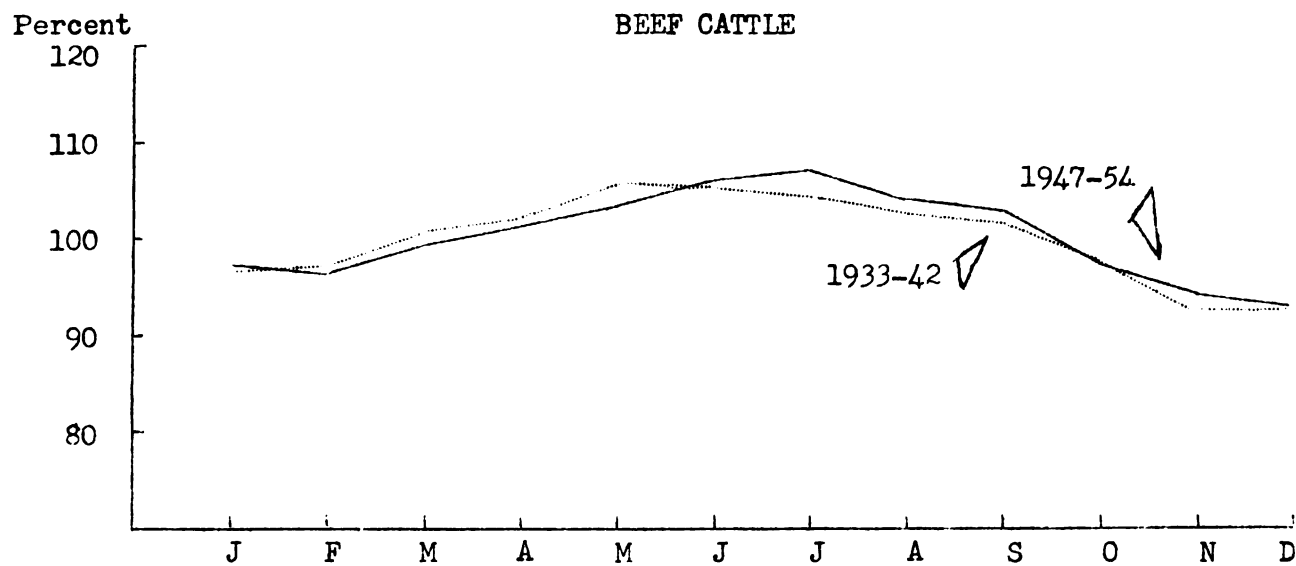
Computation: The index for each month is the mean of the ratios of actual prices to a 12-month moving average. Indexes for Barrows & Gilts and Sows, were adjusted to account for shifting seasonal patterns.



(a)



(b)



(c)

Figure 1. Seasonal prices of Hogs, Veal Calves, and All Beef Cattle in Michigan, pre-war (1933-42) and post-war (1947-54) periods compared.

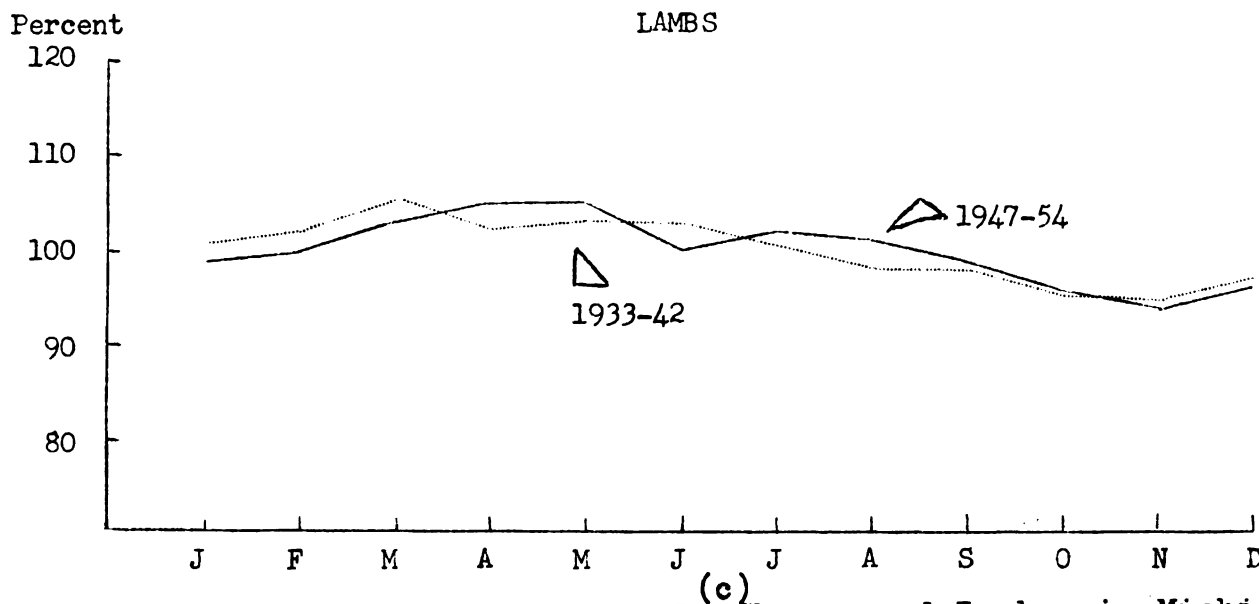
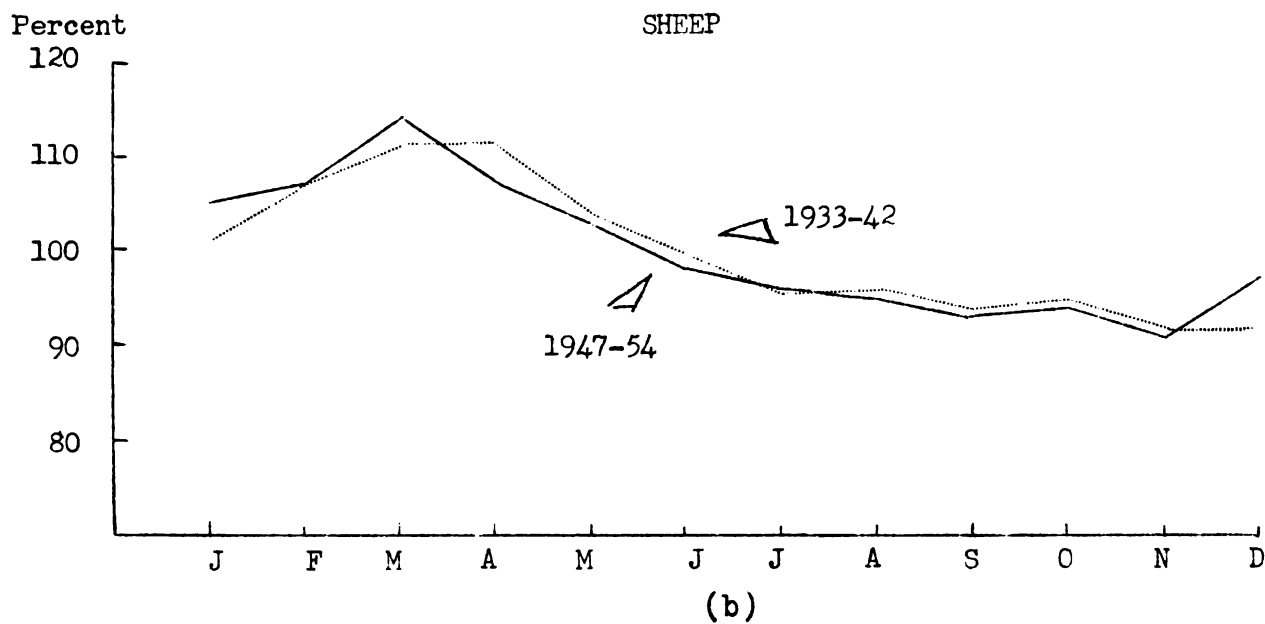
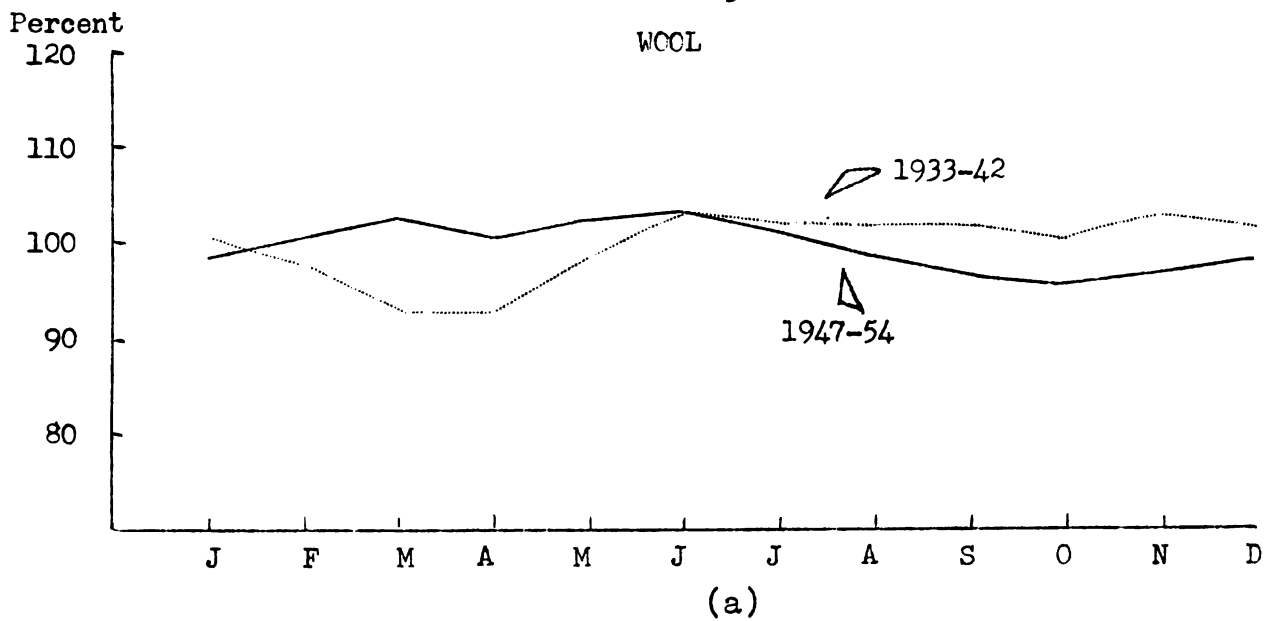


Figure 2. Seasonal prices of Wool, Sheep, and Lambs, in Michigan, pre-war (1933-42) and post-war (1947-54) periods compared.

The seasonal pattern for all slaughter cattle is somewhat complicated because it includes classes of cattle which have seasonal characteristics of their own. Table III shows the seasonality of slaughter steer prices at Chicago. The peak for prime steers was the month of January following a high level period from September to January. The seasonal low was during May and June. The peak for choice steers was in September and the low was in May. The peak for good and standard steers was in July and the low was in February. The peak for utility steers was in May and the low was in December. The peak for utility cows was in May and the low was in November. The peak for feeder steers was in May and the low was in December. See Table III.

The typical seasonal price movement for veal calves has a high in February. The price drops rapidly in March and levels off until prices rise again in January. See Table III. The post-war years (Figure 1 (b) showed another peak in September and October with an extreme low in June. This was due primarily to heavy spring and fall freshening of cattle. The expansion of the fluid milk program in recent years has caused dairymen to adjust or level off their calving program to maintain uniform milk production.

The seasonal movement of hog prices results from

the nature of hog production. The bulk of the pig crop was farrowed in the spring. The seasonal peak was in June following the marketings of the smaller fall pig crop. The seasonal low was in December when the larger spring pig crop arrives most heavily at the markets. The advancement of the peak from September during the pre-war years, (Figure 1 (a) is contributed to the farrowing of the fall pig crop earlier and to improved feeding practices. The spreading of farrowings throughout the late summer and early winter has virtually eliminated the spring peak of February and March that existed in the pre-war years and the early post-war years. This is shown in the most recent index of seasonal prices. See Table III. Farmers who can economically adjust their building facilities, breeding programs, and feeding practices should plan to sell more of their hogs during the months of May, June, and July.

A cost study made by Harold Riley¹² in 1953 showed that it usually paid farmers to feed 200 pound hogs to heavier weights during the months of seasonal price rises especially during May, June, July and August, before the price break in September. The present recent index, Table III, would indicate farmers could profit by feeding to

¹²Harold M. Riley, What Is the Most Profitable Weight to Market Hogs?, Extension Bulletin 321, Michigan State College, East Lansing, Michigan, August, 1953.

heavier weights during the months of April, May, June, and July.

Lamb prices reach a peak in May and a low in November. See Table III.

Three types of lambs influence the lamb prices, spring lambs fattened largely on the ewe's milk, grass lambs that are marketed between August and November, and grain fed lambs marketed in January, February, and March. The higher price of lambs in the spring results from fewer market receipts and also from the fact that a large portion of the lambs carry full fleeces of high quality.

During the pre-war years the typical price movement for sheep showed a peak in March and a low in November. (See Figure 2 (b). In the post-war years the high occurred a month later. This may indicate farmers are shifting their marketing earlier to take advantage of the rising market price.

B. Price Cycles

Recurring movements of prices over a year in length is referred to as a price cycle. Cattle usually have a period of six to nine years of rising prices and a similar number of falling prices. The hog cycle is about five years in length with a two to three years of rising and two to three years of falling prices. The sheep cycle

averages five to seven years from peak to peak or low to low. The length of time required for expansion of production depends upon the length of time required to build up livestock numbers. Hog numbers can be built up very rapidly whereas it takes much longer to build up cattle numbers.

The farmer should know what causes the lengthening and shortening of cycles. Drought can change the feed situation and cause cattle to be marketed earlier, at lighter weights and in greater numbers. A change in the corn supply can result in shortening or extending the hog cycles. War or depression can change the demand for meat and lard and prolong the production and price cycle.

C. Short-time Price Fluctuations

Three factors are mainly responsible for short-time price fluctuations. Variation in receipts at the markets due to weather or farmer reaction to price change have an effect on day-to-day prices. Temporary fluctuations in consumer demand for the available supply will also affect day-to-day prices. The consumer is influenced by weather conditions, the price and availability of substitute products, and the amount of money available to spend for meat. The livestock buyer may be the third factor in that he is engaged in the process of discovery of price and supply-demand

conditions. If the buyer finds he is buying too easily, he will lower his bid.

D. Summary

In a general statement it could be said that farmers should plan to market their livestock when the price is the highest. However, if all farmers planned to do this in any one month of the year based on the previous year's history the price would not be high due to the increased supply.

Many farmers can adjust their livestock feeding programs, improve their feeding efficiency and management, make some adjustments in their housing and breeding programs and still send their livestock to market when the price is stronger at little or no extra cost in production. Use of seasonal price information can aid in making the adjustment decisions.

Cost of production must be considered by each farmer before making changes. If he can produce his livestock at lower costs in relationship to the market price, he may receive a greater net return by receiving a lower price. Some of the factors to lower production costs might be to secure feeder stock when the supply is greater and the price is lower; to farrow pigs in late spring or early

summer; to reduce housing and labor costs; and, to use more economical feeding practices.

Farmers who have more than one livestock enterprise may shift emphasis from one species to another when the price-cycle favors doing so. Farmers who specialize can use price cycle information in determining when to expand or contract his volume of livestock production.

Farmers should observe short-time price fluctuations and attempt to market their livestock on a rising or peak market. The price fluctuations and price levels between markets should be observed so that the farmer can get the best price for the grade and class of livestock he has to sell. Sources of market price information were discussed in Chapter II.

V. HOW LIVESTOCK SHOULD BE MARKETING

Livestock should be marketed in a manner that would assure the farmer of receiving the greatest possible net returns. This involves selecting and breeding animals that will produce carcasses that the consumer demands, feeding the animals to the weight and grade to which the animal can be most profitably fed, and handling the animals in such a way to avoid loss of weight due to injury or excessive shrinkage. Some examples are presented to show how livestock should be marketed.

A. Meat Type Hogs

Fox, Wheeler, and Randell¹³ found in a study carried on at two cooperative meat packing plants that meat-type hogs are worth two to three dollars more per hundredweight than other hogs of the same weight. They found difficulties in detecting these values in the live animals and reflecting them back to the producers. In spite of this handicap, they found conclusive evidence that the most valuable hog for the producer is one that

¹³R. L. Fox, A. E. Wheeler, C. G. Randell, Measuring Marketability of Meat-Type Hogs, Bulletin C-152, Farm Credit Administration, U.S. Department of Agriculture, Washington, D.C., May, 1953.

combines high carcass value with high dressing percentage, plus economy of production.

Miller and Turman¹⁴ explained two ways open to farmers for producing the meat-type hog. Limited feeding of the present day hogs gives the quickest results. This method requires more than six months for the hogs to reach the market so it is not the most practical. The better method is through selection and use of a meat-type boar on the present sow herd.

B. Feed Cattle and Lambs to the Optimum Weight for the Grade

At certain markets buyers desire certain weights of finished cattle and lambs. Farmers should set up their feeding programs to have their cattle and lambs finished properly at those weights. Farmers who have good and choice feeders usually should feed them to good and choice finished grades. Greater net returns can often be made by raising the grade; lower grade cattle may not warrant the extra feed. It is usually wise to maintain at least the potential grade that the animals have in their type and breeding.

¹⁴E. C. Miller and E. J. Turman, Shall We Produce A Meat-Type Hog? Economic and Marketing Information for Indiana Farmers, Lafayette, Indiana, November 27, 1953, page 1.

the following conditions are satisfied, then the system is stable.

- The system is linear and time-invariant.

Let $\mathbf{A}$ be the system matrix, $\mathbf{B}$ the input matrix, and $\mathbf{C}$ the output matrix.

- The eigenvalues of $\mathbf{A}$ must have negative real parts.

• The system must be controllable and observable.

• The system must be BIBO stable.

- The system must be asymptotically stable.

• The system must be stable in the sense of Lyapunov.

- The system must be stable in the sense of BIBO.

• The system must be stable in the sense of Lyapunov.

• The system must be stable in the sense of BIBO.

- The system must be stable in the sense of Lyapunov.

• The system must be stable in the sense of BIBO.

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• The system must be stable in the sense of Lyapunov.

- The system must be stable in the sense of BIBO.

It is questionable whether it pays to feed cull dairy cows after they are no longer of value to the dairy herd. Jim McCrum¹⁵ felt that the cost of feed over the feeding period necessary to raise the grade will not prove profitable under normal price conditions.

C. Veal Calves Versus Deacons

The decision of whether or not a farmer should produce and sell veal calves depends upon the comparison of the additional income from the sale of veal calves and the value of the excess milk plus the costs of raising the veal calves. A study made by Vincent and Roberts¹⁶ led them to believe that in 1955 the expected returns from selling excess milk through veal are not enough to allow much for labor, housing, inconvenience and risk. Knowledge of the value of surplus milk at the market place as compared to its value when converted to veal is important for making a decision as to whether or not to sell deacon or veal calves.

D. Handling Livestock

The loss caused by injury and bruises in livestock

¹⁵Jim McCrum, Former Cattle Salesman, Michigan Livestock Exchange, Battle Creek, Michigan, Oral communication.

¹⁶Warren Vincent and Phil Roberts, Feed Excess Milk to Calves, Or Sell It? Michigan Farm Economics, Michigan State University, East Lansing, Michigan, No. 146, March, 1955.

hauling is a marketing cost. It was not considered as a marketing charge in this study. However, it is a serious loss to many individual farmers by receiving a lower price at the market.

Swift and Company¹⁷ reported injuries and bruises amount to one to two per cent of the total cost of marketing. Their survey showed one out of ten hogs came to market with bruises with an average loss of \$1.80 per injured hog and one out of every fifteen cattle marketed was bruised with an average loss of \$6.00 per animal. It showed 62 per cent of the hogs were bruised by canes, whips, clubs, and by kicking and prodding, and 38 per cent by forks, nail punctures, and other causes. Crowding, bumping and rushing caused 66 per cent of the bruising to cattle and the other 34 per cent was caused by trampling, horns, whips, clubs, and other causes. Rough handling, lifting by the wool, inadequate loading and unloading facilities, and poor bedding caused 60 per cent of the injuries to sheep. The other 40 per cent was contributed by crowding, trampling, and suffocating.

Ten ways to reduce losses:¹⁸

1. Outlaw clubs and whips, use canvas slappers.

¹⁷Anon. Easy Does It, Swift and Company, Agricultural Research Department, Chicago 9, Illinois, pages 1-6.

¹⁸Ibid., pages 7-15.

2. Eliminate protruding nails and broken boards in pens, yards, and chutes.
3. Remove machinery from the feedlot.
4. Remove horns.
5. Bed trucks properly, sand for cattle, straw for hogs and sheep. In hot weather use sand for hogs.
6. Check the trucks for nails, broken boards, narrow doors, low rods, low decks, and improper ventilation.
7. Load livestock carefully. Use loading chutes with steps.
8. Load livestock wisely. Don't crowd. Partition off extra space when loading few animals. Consider class of livestock--sex, size, and age, amount of fill, condition of truck, road conditions, distance to market and weather conditions.
9. Protect livestock from weather. Provide proper ventilation in hot weather and cover in cold weather.
10. Drive carefully and avoid sudden stops.

Careful handling, exercising patience, keeping the livestock quiet and unexcited will not only reduce bruising losses but will reduce the amount of shrinkage occurring between the farm and market.

E. Summary

This chapter was devoted to a few specific examples to point out how livestock should be marketed. Care in handling all livestock will reduce losses and net returns.

Farmers should market in a manner that will assure

them the greatest net returns. This starts from the time a farmer selects and breeds the animals until the offspring are sold.

It is most practical to grow meat-type hogs. They will feed-out more rapidly and economically than holding back fat hogs by limited feeding to keep them lean.

Cattle and lambs should be fed to the optimum finish for their grade. The grades of cattle and lambs selected should be of the type that will be finished at the weight and grade best suited to the market at which they will be sold. Calves should be sold as deacons unless the farmer can realize more for his excess milk by producing veal.

VI. SHRINKAGE

Shrinkage is the loss in weight during transit between the point of origin and the destination of livestock. There are two kinds of shrinkage, excretory and tissue.

Excretory shrinkage comes from excretions of feces and urine and is usually referred to as the elimination of fill. It makes up a large percentage of the total. These excretions have little or no commercial value, but may be a source of loss to individual farmers. Research studies have found that excretory shrinkage occurs at a rapid rate during the early part of the transit period and increases at a decreasing rate until the fill is eliminated.

Tissue shrinkage is loss in the body weight resulting in less dressed carcass weight. Tissue loss is a real loss to farmers. Tissue loss has been found to begin early in the transit period and to continue until the animal reaches the plant for slaughter. Where long hauls and delays in marketing occur, tissue loss may be reduced by feed and water.

The amount of shrinkage in hauling animals is determined by many factors. Some of these are the kind

of feeds fed on the farm, the amount of fill, the time the animals are in transit, the weight of the animals, the temperature, the method of hauling the livestock in transit, the type of transportation used, the method of handling during loading and unloading, the kind of handling animals receive at the market, and the class of livestock.

Shrinkage is an important cost of marketing to farmers. The cost is often not known to farmers and may not be given the recognition it should have when considering the price at the market and such marketing costs as transportation and commissions.

A review of some of the research studies applying to shrinkage is cited below to show where the author secured information pertaining to shrinkage losses for use in determining the cost of shrinkage as needed in this problem.

A. Cattle

Studies have shown that the principal shrink takes place in the first 10 to 25 miles of any trip. The conclusion is that a long haul or short haul makes little difference in shipping cattle to market if fed at the market.

Mr. Fitzgerald¹⁹ cited a study of 15 prime steers

¹⁹W. Lyle Fitzgerald, Cattle Values in the Livestock Market, Union Stockyards and Transit Co. of Chicago, 1954, page 9.

hauled 200 miles to the Union Stockyards at Chicago. The cattle started at a weight of 16,091 pounds. At the end of 65 miles they weighed 15,800 pounds. The load shrink was 290 pounds. At the stockyards, after an additional 135 miles, the load weighed 15,590 pounds. Only 210 additional pounds of shrink occurred and the distance was twice as great. The cattle were fed and watered at the yards. By the next day they had regained the 210 pound shrink which occurred during the last 135 miles of the trip. This amounted to a recovery of 15 pounds of shrinkage per steer.

In a conversation with Mr. Fitzgerald, he reported that records kept on 45,000 head of all grades of cattle received at the Stockyards showed an average recovery of 16 pounds of shrink lost in transit, when the cattle were fed and watered on arrival.

A study made by Abbenhaus and Penney²⁰ in 1951 also shows that shrinkage is larger during the first part of the trip. See Table IV.

These figures indicate that almost one half of the shrinkage took place during the first 25 miles of the 200 mile haul. About two thirds of the shrinkage took

²⁰Gerald R. Abbenhaus and Roland C. Penney, Shrink Characteristics of Fat Cattle, Chicago Union Stockyard and Transit Company, Chicago, Illinois, page 7.

Table IV. Per cent of Shrink for 60 Fat Cattle Between Each Check Weighing During a 200 Mile Truck Haul. (Total Animal Weight Equals 100 Per cent)

Weight Classes	Number of head in each class	Average Weight	Miles Traveled Between Weighings				Total Per cent
			0-25 (Per cent)	25-50 (Per cent)	50-100 (Per cent)	100-200 (Per cent)	
Group Average	60	1122	1.8	.7	.8	.6	3.9
Under 1000 pounds	11	954	1.5	.7	.9	.8	3.9
1000-1099 pounds	10	1056	2.1	.9	.8	.3	4.1
1100-1199 pounds	24	1139	1.8	.8	.8	.7	4.1
Over 1200 pounds	15	1263	1.9	.5	.7	.5	3.6

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Source: "Shrink Characteristics of Fat Cattle Transported by Trucks," page 7, Gerald R. Abbenhaus and Roland C. Penney, Chicago Union Stockyards and Transit Company, Chicago, Illinois.

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place by the end of 50 miles, or one fourth of the distance.

"Dry" cows, no longer milking and sold as feeder or slaughter animals were found to shrink an average of 6.4 per cent without feed and 5.9 per cent with feed after arrival. The shrinkage ranged from 3.5 per cent for 4 hours in the yard to 9.5 per cent for 24 hours in the yard. The average transit time was 6.3 hours.²¹ This shrinkage was compared to other classes of cattle as follows: "When shrinkage is computed on the difference between loading and sales weight, cows accumulated the highest shrinkage with an average of 6.4 per cent, next were feeder steers, 4.4 per cent, calves, 4.3 per cent, and feeder heifers, 3.5 per cent."²²

Donald Stark²³ gave the author information on veal calf shrinkage that he secured when he was General Livestock Agent for the New York Central Railroad. When his study was made, the shrinkage of veal calves averaged 5 per cent from farm to market. Veal calves do not usually take feed and water. The 5 per cent shrink was based on arrival one day and being sold the next.

²¹Glen R. Purnell, Economic Analysis of Cattle Shrinkage. Unpublished thesis, Montana State College, November, 1953, pages 33-36.

²²Ibid., page 42.

²³Donald Stark, Extension Specialist in Agricultural Economics, Michigan State University, East Lansing, Michigan.

• The second part of the document provides a detailed overview of the audit process, including the planning stage, the execution of the audit, and the final reporting stage. It also discusses the various types of audit opinions that can be issued and the implications of each.

• The third part of the document focuses on the ethical considerations that auditors must take into account when performing their duties. It discusses the importance of independence, objectivity, and integrity, and provides guidance on how to handle potential conflicts of interest.

• The fourth part of the document discusses the role of the auditor in the context of the broader business environment. It highlights the importance of communication and collaboration with management and the board of directors, and discusses the impact of external factors such as regulatory changes and market conditions on the audit process.

• The fifth part of the document provides a summary of the key points discussed in the document and offers some final thoughts on the importance of the audit process in ensuring the integrity of the financial statements.

• The document concludes with a list of references and a glossary of key terms.

Table V was developed from estimates by the author to show the relationship of the per cent of shrinkage to length of haul from the farm to market. The purpose of this information was to secure comparable data on the amount of shrinkage between species and classes of livestock hauled to market for use in this thesis to determine a marketing charge for shrinkage.

The shrinkage of choice steers not fed on arrival at the market was estimated to average 3.0 per cent of the farm weight between 50 and 100 miles, 2.0 per cent or two-thirds of the total shrinkage between 25 and 50 miles, and 1.5 per cent or one-half of the total shrinkage between 0 and 25 miles. The shrinkage on cows was estimated to be 4.5 per cent of the farm weight for distances between 50 and 100 miles, 3.0 per cent for distances between 25 and 50 miles and 2.3 per cent between 0 and 25 miles on the same basis. The shrinkage on veal calves was estimated to be 5.0 per cent between 50 and 100 miles, 3.3 per cent between 25 and 50 miles, and 2.3 per cent between 0 and 25 miles.

Because of a lack of shrink information, it was estimated that approximately one-half of the shrinkage would be regained when the livestock was fed upon arrival at the market.

Table V. Per cent of Shrink for Choice Steers, Hogs, Lambs, Veal Calves, and "Dry" Cows Related to Length of Haul.

Miles Traveled	Choice Steers		"Dry" Cows		Veal Calves		Choice Lambs		U.S. No. 1 Hogs	
	Fed %	Not Fed %	Fed %	Not Fed %	Not Fed %	Fed %	Fed %	Not Fed %	Fed %	Not Fed %
0-25	.8	1.5	1.2	2.3	2.5	1.3	2.5	1.2	1.5	
26-50	1.0	2.0	1.5	3.0	3.3	1.7	3.3	1.5	2.0	
51-100	1.5	3.0	2.3	4.5	5.0	2.5	5.0	2.3	3.0	

Source: Data presented in this study.

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B. Hogs

The length of haul has a definite effect on the amount of shrinkage of hogs. The rate of shrinkage is greatest in the first few miles of the trip. Wiley and Cox²⁴ showed this in their farm-to-market study of 38,303 hogs.

Table VI shows the results of this study of shrinkage for hogs fed and not fed at the market as it relates to length of haul. The shrinkage averaged 1.06 per cent of the farm weight at the end of the first 5 miles. Thus 40 per cent of the shrinkage took place during the first 5 miles. For hauls 66 to 75 miles, shrinkage averaged 2.76 per cent of the farm weight of hogs not fed at the market.

For hauls up to about 45 miles the data indicate that it is not economical to feed at market if the hogs are to be weighed to the buyer soon after arrival. These conditions can usually be met for hauls to local markets and for some nearby hauls to the larger posted markets. But for nearby hauls to the larger posted markets, when hogs arrive several hours before they can be weighed to

²⁴James R. Wiley and Clifton Cox, Economics and Marketing Information for Indiana Farmers, Purdue University, Lafayette, Indiana, February 26, 1955, page 1.

the buyer, and for the hauls 40 miles and longer it seems to be sound practice to feed hogs at market.²⁵

In this study the author used estimates of 3.0 per cent shrink for hauls between 50 and 100 miles, 2.0 per cent shrink between 25 and 50 miles, and 1.5 per cent shrink between 0 and 25 miles. For the hogs fed upon arrival at the market, the estimates were based on the assumption that one-fourth of the shrinkage would be recovered. See Table V.

Table VI. Relationship of the Length of Haul to Shrinkage of Hogs. 1,132 Lots - 38,303 Hogs

Miles Hauled	Shrinkage	
	Not Fed At Market	Fed At Market
	Per cent	Per cent
0-5	1.06	*
6-15	1.12	1.03
16-25	1.39	1.24
26-35	1.75	1.51
36-45	2.06	1.79
46-55	2.50	1.99
56-65	2.68	2.03
66-75	2.76	2.08
76-85	*	2.14
86-95	*	2.16

* Sufficient data not available.

Source: "Economics and Marketing Information for Indiana Farmers," James R. Wiley and Clifton Cox, Purdue University, Lafayette, Indiana, February 26, 1955.

²⁵Ibid., page 2.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861. It is a very important document, as it sets out the President's policy for the new year. The President states that he is pleased to see the Congress assembled, and that he is confident that the country is in a good position to meet the challenges of the future. He also mentions the recent election of Abraham Lincoln as President, and expresses his confidence in the new administration.

2. The second part of the document is a letter from the Secretary of the Treasury to the Congress, dated January 1, 1861. It is a very important document, as it sets out the Secretary's policy for the new year. The Secretary states that he is pleased to see the Congress assembled, and that he is confident that the country is in a good position to meet the challenges of the future. He also mentions the recent election of Abraham Lincoln as President, and expresses his confidence in the new administration.

3. The third part of the document is a letter from the Secretary of the Interior to the Congress, dated January 1, 1861. It is a very important document, as it sets out the Secretary's policy for the new year. The Secretary states that he is pleased to see the Congress assembled, and that he is confident that the country is in a good position to meet the challenges of the future. He also mentions the recent election of Abraham Lincoln as President, and expresses his confidence in the new administration.

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5. The fifth part of the document is a letter from the Secretary of the War to the Congress, dated January 1, 1861. It is a very important document, as it sets out the Secretary's policy for the new year. The Secretary states that he is pleased to see the Congress assembled, and that he is confident that the country is in a good position to meet the challenges of the future. He also mentions the recent election of Abraham Lincoln as President, and expresses his confidence in the new administration.

C. Sheep

Research studies show that shrinkage in sheep takes place at higher rates than for either cattle or hogs. A study made by the Bureau of Agricultural Economics,²⁶ U.S.D.A., based on data from 19 packing plants located in the Middle West and in the East for the years 1929 and 1930, show that for distances of less than 100 miles, the shrinkage of 6,300,000 sheep averaged 8.9 per cent of the weight shipped. There was little change in shrinkage between 100 miles and 450 miles indicating that feed, water, and rest replaced the loss in weight after the first 100 miles.

In a study made in the North Central Region²⁷ of six shipments of lambs between Montana ranches and Chicago, Illinois, shrinkage averages ranged from 5.1 per cent to 7.5 per cent. Differences were attributed to method of handling at the ranches or origin and the time of weaning. There was an additional trail shrink of 1.99 per cent to 2.5 per cent to the loading points. This study does not differ greatly from the early study if we assume that most of, or all of, the shrink occurred during the first

²⁶A. A. Dowell and K. Bjorka, Livestock Marketing, McGraw-Hill Book Company, Inc., London and New York, 1941, page 243.

²⁷V. John Brensike, Marketing Feeder Cattle and Sheep in the North Central Region, Station Bulletin 410, North Central Regional Publication 25, University of Nebraska, College of Agriculture, Lincoln, May, 1952, pages 52-53.

100 miles and that feed, water, and rest replaced the loss in weight after the first 100 miles.

Kammlade²⁸ stated "The percentage of shrink on lambs shipped under good conditions a distance of 250 miles will approximate 5 per cent."

In this thesis the author used estimates of a 5 per cent shrink for hauls between 50 and 100 miles, a 3.3 per cent shrink between 25 and 50 miles, and a 2.5 per cent shrink between 0 and 25 miles. For the lambs fed on arrival at market the estimates considered that one-half of the shrinkage would be recovered. See Table V.

D. Summary

Two kinds of shrinkage occur when marketing livestock. Excretory shrinkage comes from elimination of feces and urine. Tissue shrinkage is loss in body weight resulting in less dressed carcass weight.

Some of the factors affecting the amount of shrinkage that occurs when moving livestock are the kind of feeds fed, the amount of fill, the length of time in transit, method of hauling, the type of transportation used, the

²⁸Wm. G. Kammlade, Sheep Science, J. B. Lippincott Company, Chicago, Philadelphia, New York, 1947, page 243.

method of handling during loading and unloading, the kind of handling at the market, the temperature, the weight of the animal, and the class of livestock.

The research on shrinkage was reviewed. There was a decided lack of uniformity of information due to the many factors influencing shrink. Very little information was available within the 5-100 mile range, especially regarding cattle and sheep.

Shrinkage is an important cost to farmers. The author believes that it should be recognized as one of the costs of marketing.

By use of the information available and some assumptions, shrinkage losses were determined on a percentage of live weight basis for short hauls in the 0-25, 26-50, and the 51-100 mile ranges. Research data show the average shrinkage of 1000 pound steers to be about five per cent at 100 miles. About half of the shrinkage occurred in the first 25 miles. Veal calves averaged five per cent from farm to market. Dry cows were about twice that of calves. Lambs averaged five per cent at 250 miles. Half of the lamb shrinkage was recovered on long hauls when fed at the market. Hogs averaged about 3.0 per cent shrinkage at the end of 100 miles, 1.5 per cent at the end of 50 miles and 1.2 per cent at the end of 25 miles. When fed at the market they recovered about one-fourth of the loss.

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The author assumed that veal calves, dry cows, and lambs would take one-half of their shrink in the first 25 miles. He also assumed that two-thirds of the total shrinkage would occur in the next 25 miles and the remaining one-third during the next 50 miles. It was also assumed that steers and dry cows would recover one-half of the shrinkage if fed at the market.

VII. MARKETING CHARGES

This chapter will be devoted to the direct charges or costs involved in the marketing of livestock. The author will point out which of the charges apply to the six markets considered in this study and explain how the charges were determined and used in this study.

A. Transportation

Livestock of the area is generally hauled to market by truck. The author found that about 15 per cent of the farmers hauled their own livestock to market, another 5 to 10 per cent hauled some of their livestock and 75 per cent to 80 per cent hired all of their livestock hauled to market.

Many truckers are available in the area. The trucking charges are predominately on a hundredweight basis. The truckers will haul livestock by the load, by the head, or by the hundredweight, whichever the farmer prefers. Trucking costs to the farmer figured out about the same for a particular lot of livestock to be hauled a certain distance regardless of the trucker hired. Truckers feel they must have a minimum of \$4.00 per farm stop in picking

• The first step in the process of creating a new product is to identify a market need. This involves conducting market research to determine what consumers want and what problems they are trying to solve. Once a need is identified, the next step is to develop a concept that addresses the need. This is often done through brainstorming and sketching ideas.

• The next step is to create a prototype. A prototype is a preliminary model of the product that allows designers to test and refine their ideas. This can be done using various materials and techniques, such as 3D printing, CNC machining, or hand-building. The prototype is used to evaluate the feasibility of the design and to make any necessary adjustments before moving forward with production.

• Once the prototype is complete, the next step is to conduct a feasibility study. This involves assessing the technical, financial, and market viability of the product. Technical feasibility involves determining whether the product can be manufactured using current technology. Financial feasibility involves estimating the costs of production and determining whether the product can be sold at a profit. Market feasibility involves determining whether there is a sufficient market for the product. Once the feasibility study is complete, the next step is to create a business plan. A business plan is a document that outlines the company's goals, strategies, and financial projections. It is used to attract investors and to guide the company's operations.

up a mixed load. Individual veal calves, hogs, and lambs are hauled for \$1.50 or \$2.00, depending upon the distance to market and the ease of loading. Rates per hundredweight vary from 25 cents to 50 cents depending upon the distance from the market. Some truckers will take a full load at one farm to local markets for \$10.00 and \$15.00 and to Detroit for \$30.00. Full semi-trailer loads are quoted from \$35.00 to \$65.00.

All truckers hauling for hire must be licensed through the Michigan Public Service Commission. Most truckers carry transit insurance on animals carried from the time they are loaded until 48 hours after they are unloaded. This protects the truckers and the farmers against loss due to injury or death of livestock other than by natural causes. Some truckers were found not to carry this insurance. The commission firms at the Detroit Stockyards make a charge to all consignors for transit insurance. This was a decision of the Detroit Stockyards Company, the truckers and the commission firms.

Table VII was prepared from information received after talking with farmers and truckers. The table shows the most common charges used by truckers for various species of livestock, considering the distance to market, size of the load, and the minimum charge for a farm stop pick-up.

1. The first step in the process of the formation of a new species is the isolation of a population from the rest of the species. This can be achieved by geographical isolation, such as the formation of a new island, or by reproductive isolation, such as the development of a new mating system.
2. Once a population is isolated, it may undergo genetic drift, which is a random change in the frequency of alleles in a population. This can lead to the fixation of a particular allele, which may then lead to the formation of a new species.
3. Another mechanism for the formation of a new species is natural selection. This occurs when a particular trait is favored by the environment, leading to the survival and reproduction of individuals with that trait. Over time, this can lead to the development of a new species.
4. A third mechanism for the formation of a new species is hybridization. This occurs when two different species interbreed, leading to the formation of a new hybrid species. This can happen in a variety of ways, such as through the formation of a new hybrid population or through the development of a new hybrid mating system.
5. The formation of a new species is a complex process that can involve a combination of these mechanisms. It is important to note that the formation of a new species is not always a linear process, and it can take a long time for a new species to form.
6. The formation of a new species is a key part of the process of evolution. It allows for the development of new traits and the adaptation of species to their environment. This is why the study of the formation of new species is so important in biology.
7. The formation of a new species is a process that can be observed in nature. For example, the formation of a new species of cichlid fish in a lake in Africa has been well-documented. This shows that the formation of new species is not just a theoretical concept, but a real process that can be observed in the natural world.
8. The formation of a new species is a process that can be studied in the laboratory. For example, scientists have been able to create new species of fruit flies in the lab. This allows them to study the process of speciation in a controlled environment.
9. The formation of a new species is a process that can be studied using a variety of techniques. These include genetic analysis, fossil analysis, and comparative anatomy. By using these techniques, scientists can learn more about the process of speciation and how it has shaped the diversity of life on Earth.
10. The formation of a new species is a process that is still being studied today. There are many questions that remain about how and why new species form. By continuing to study this process, scientists can gain a better understanding of the evolution of life on Earth.

Table VII. Truck Transportation Charges for Hauling Individual, Medium and Large Lots of Cattle, Calves, Hogs, and Sheep to Markets of Various Distances

Class of Livestock	Distance (Miles)	Charges			
		Single Animal	2-10 Head		11 Head & Above
		(Per Head)	(Per Head)	(Minimum Per Farm Stop)	(Cwt)
Cattle	0-25	3.00	2.50-1.00	5.00	.25
"	26-50	4.00	2.50-1.00	5.00	.25
"	51-75	4.00	2.50-1.00	5.00	.25
"	76-100	(.50 _{cwt})	2.50-1.00	5.00	.30
Calves	0-25	2.00	1.50-1.00	3.00	.30
"	26-50	2.00	2.00-1.00	4.00	.30
"	51-75	2.00	2.00-1.00	4.00	.30
"	76-100	2.00	2.00-1.00	4.00	.30
Hogs	0-25	2.00	1.00- .50	3.00	.30
"	26-50	2.00	1.00- .50	4.00	.30
"	51-75	2.00	1.00- .50	4.00	.30
"	76-100	2.00	1.00- .50	4.00	.30
Sheep	0-25	2.00	1.00- .50	3.00	.35
"	26-50	2.00	1.00- .50	4.00	.35
"	51-75	2.00	1.00- .50	4.00	.35
"	76-100	2.00	1.00- .50	4.00	.35

Source of Data: Interviews with truckers at the markets.

B. Yardage

The livestock auctions do not charge for yardage in this area. The Detroit Stockyards Company charges a yardage rate on a per head basis. The current rates were made effective December 1, 1959.

Bulls (900 pounds or over)	\$1.50
Cattle	.95
Calves (300 pounds or under)	.46
Hogs	.35
Sheep	.20
Horses and Mules	1.25

C. Feed

Livestock sold at auctions, to packers, local dealers, and others, except for the Detroit Stockyards, are not usually fed. The farmer may order them to be fed or not fed at the Detroit Stockyards. The commission company assigned to handle the livestock will use its own judgment regarding feeding the livestock if the farmer does not give instructions.

The current schedule of feed charges which includes handling charges were made effective September 2, 1958, as follows:

Hay	\$2.00 per cwt.
Corn	2.23 per bu.
Straw	1.35 per cwt.

Feed charges used in this problem were computed at fifteen pounds of hay for each steer and cow, four pounds

of corn for each hog, and three pounds of corn for each lamb. No feed charge was assessed against the veal calves.

D. Weighing

No markets in this area have a weighing charge for weighing livestock to be sold at the market. Weighing service is absorbed in other charges.

E. Insurance

All markets reported having insurance to protect owners of livestock against loss due to fire, windstorm, cyclone, and tornado. Lugbill Producers, Inc., charged five cents per each head of livestock sold. The Detroit Stockyards Company charged one cent for each two head of cattle, each three head of calves or hogs, and each five head of sheep or lambs, or fraction of these numbers.

Coldwater Livestock Commission Company and Adrian Livestock Sales reported insurance as included in their service charge. Hillsdale Auction Company reported insurance was included in the sales commission.

All livestock consigned for sale at the Detroit Stockyards Company is covered by transit insurance. This charge is deducted from the consignor's sale by the commission firms and forwarded to the insurance company.

The schedule of charges is as follows:

Number	Cattle and Calves	Hogs	Sheep and Lambs
0-50	\$.15	\$.12	\$.08
51-75	.18	.14	.10
76-100	.21	.16	.11
101-125	.24	.18	.12
126-175	.27	.20	.13
176-250	.30	.22	.15
251-350	.33	.26	.17

Some truckers reported that they carried no transit insurance. No transit insurance charge was made by the Auction Markets or by the truckers delivering livestock to the auction markets.

F. National Livestock and Meat Board

A collection is made at the Detroit Stockyards for the National Livestock and Meat Board. The charge is a two-third cent for each hog or calf, two-fifth cent for each sheep or lamb, and two cent for each head of cattle. The collection is entirely voluntary and will be refunded if the shipper requests it be done. Livestock auction markets in some areas of the United States are cooperating with farmers and the National Livestock and Meat Board to make collections. None were doing so in this area.

G. Commissions

Livestock buyers who bought directly from farmers

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did not charge farmer commissions. Agents selling live-stock for the farmers did charge for the service of selling. Following are the commission charges made by the markets studied in this problem.

Detroit Stockyards

Cattle:

One head only	\$1.70
Two head only	2.80 for the pair
Three or more head	1.40 each

Calves: (300 pounds or less)

One head only	\$.80
Two head only	1.30 for the pair
Three or more head	.65 each

Hogs:

One head only	\$.60
Two head only	.94 for the pair
Three or more head	.47 each

Sheep and Lambs:

One head only	\$.55
First 50 head	.38 each
Next 50 head	.33 each
Next 50 head	.28 each
Each head over 150	.23 each

Lugbill Producers, Inc., Archbold, Ohio

Cattle, Calves, Sheep, and Lambs:

2 1/2 per cent of the gross sales of \$1,000 or less plus one per cent of sales above \$1,000.

Hogs:

2 1/2 per cent of the gross sales of \$500 or less plus one per cent of sales above \$500.

There was a fifty cents minimum charge per sale.

Coldwater Livestock Commission

Cattle:

\$2.25 each for first ten head
1.50 each for all above ten head

Calves:

\$1.25 each for first eight head
1.00 each for all over eight head

Hogs:

\$.40 per head

Sheep and Lambs:

\$.50 each in a lot of 39 head or less
.45 each in a lot of 40 or more

Adrian Livestock Sales

Cattle:

\$2.00 each for first five head
1.50 each for second five head
1.00 each for all above ten head

Calves:

\$1.00 per head

Hogs:

\$.35 per head

Sheep and Lambs:

\$.25 per head

Hillsdale Auction Company

The commission was five per cent of the total gross sales with no minimum or maximum.

H. Service Charges

Two auctions had a service charge to cover insurance and other services such as yarding, sorting, tagging, weighing, incidental to the handling of livestock at the sales. Coldwater Livestock Commission charged three-fourths of one per cent of the gross sales. Adrian Livestock Sales charged one per cent of the gross sale on a single animal and one-half of one per cent on the gross sales of two animals or more.

I. Summary

There was no uniform charge for hauling livestock to market. Truckers charge by the load, by the head, and by the hundredweight. Individual animals are assessed charges from \$1.50 to \$5.00 each, depending upon the class of livestock and the distance from the market. Charges for truck-load lots are usually figured by weight with a range of thirty-five cents to fifty cents per hundredweight, depending upon the distance from the market. Partial load charges range from fifty cents to two dollars a head to provide \$3.00 to \$5.00 for each stop in making up a load. Table VII was prepared to show the charges most often used by truckers.

There was no uniformity in the selling and the

service charges at the markets. Lugbill Producers, Inc., and Hillsdale Auction Company based all charges as a percentage of gross sales. Detroit Stockyards Company, Adrian Livestock Sales, and Coldwater Livestock Commission based their charges on a per head basis. Lower per head charges were established for some or all classes of livestock as the consignment size increased at each market. Per head charges on cattle changed for the second animal at Detroit, for the sixth and eleventh at Adrian, and for the eleventh at Coldwater. Per head charges on calves changed for the second at Detroit and for the ninth at Coldwater. Per head charges on hogs changed for the second at Detroit. Per head charges on sheep and lambs changed for the second, fifty-first, one hundred first, and the one hundred fifty-first head at Detroit and for the fortieth at Coldwater.

Adrian Livestock Sales and Coldwater Livestock Commission had a percentage charge on the gross sales to cover costs incidental to the handling of livestock but not included in the selling commission.

Detroit Stockyards Company was the only market to provide for the feeding of livestock. It was also the only one to make collections for the National Livestock and Meat Board and for transit insurance. At the other markets some livestock is not protected for loss during transit.

VIII. NET RETURNS TO FARMERS

Prices at alternative markets and marketing charges must be considered in arriving at the net returns a farmer might expect to receive for his livestock. The amount of shrinkage, as discussed earlier in this paper, is very difficult to determine. Likewise, the marketing costs due to shrinkage are difficult to determine.

The author believes that farmers can use a budget analysis to determine which market they should use. This budget analysis would test the markets and avoid disappointments and financial losses. It is much cheaper to make mistakes on paper.

Hypothetical examples, using prices and marketing charges as they existed at the time of this study and under conditions that the author found in Hillsdale and Lenawee Counties, may be illustrated as follows. First, however, the reader should keep in mind these comments. (1) Truckers were discretionary, and often arbitrary, in determining their transportation charges. This has been discussed. (2) The prices used in these examples are those quoted by the U.S.D.A. Livestock Market News Service for the Detroit Stockyards. The prices at the other markets were given the author by managers of the markets. In some

cases the author believes these prices are high averages based on the personal observations he made at two of the auctions. (3) The best information available to the author was used to determine the cost due to shrinkage. There are many factors which have been discussed that could increase or decrease this cost in the examples presented.

In this problem all livestock except veal calves was considered as fed upon arrival at the Detroit Stockyards to recover part of the shrinkage loss. The livestock taken to the other markets were not fed. See Table VI.

These examples were limited to large and small producers marketing five classes of livestock. The large producers were assumed to sell in lots of twenty choice steers, two cutter cows, three choice veal calves, thirty No. 1 hogs, or twenty choice lambs. The small producers were assumed to sell in lots of five choice steers, one cutter cow, one choice veal calf, six No. 1 hogs, or six choice lambs.

The problem required that the distance to the markets be considered in order to compute transportation and shrinkage costs. The producers of these examples were selected near Hillsdale and Adrian, the center of each county included in the study.

The author prepared Table VIII to show comparative distances to the six markets selected. The local

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buyer represents dealers, order buyers, local packers, butchers, or locker plant operators within a radius of 5 miles of the producers.

Finally it was necessary to establish a price that farmers would receive when the livestock was sold. In computing gross returns, the prices used were the average prices being paid by buyers at the Detroit Stockyards as quoted by the United States Market News Service at Detroit for the week of May 16-22, 1960, and the prices reported by auction managers and local dealers for the week of May 16-22, 1960. They are summarized in Table IX.

Table VIII. Transportation Distance to Market Livestock for Two Producers Living Near Hillsdale and Adrian.

Market	Miles to Market	
	Producer from Adrian	Producer from Hillsdale
Detroit Stockyards	70	95
Lugbill Producers, Inc.	40	40
Coldwater Livestock Com. Auction	55	25
Adrian Livestock Sales	5	35
Hillsdale Auction Company	35	5
Local Buyer	5	5

Table IX. Price Per Hundredweight for Five Classes of Livestock at Six Markets, Week of May 16-22, 1960.

Class of Livestock	Market					
	Detroit	Archbold	Coldwater	Adrian	Hillsdale	Local
Ch. Steers	27.50	24.50	26.00	25.00	24.00	24.00
Cutters	16.50	17.50	17.00	17.00	15.00	15.00
Ch. Veal	32.50	35.00	37.00	35.00	31.00	31.00
Ch. Lambs	24.00	23.00	24.50	24.00	22.00	22.00
No. 1 Hogs	17.40	17.25	17.50	17.25	17.00	16.75

A. Net Returns from Choice Steers for Farmers in the Vicinity of Adrian

Detroit Stockyards. The average price for choice steers at the Detroit Stockyards was found to be \$27.50 per hundredweight. Assuming the average shrinkage is 1.5 per cent, Table VI, and the distance is 70 miles, Table VIII, the total marketing charges for a lot of 20 choice steers would be \$186.15 or 93 cents per hundredweight. See Table X. The next returns would be \$5,313.85 or \$26.57 per hundredweight. See Table XI.

For the small producer selling a lot of five choice steers, the marketing charges would be \$46.66 or 93 cents per hundredweight. The net returns would be \$1,328.34 or \$26.57 per hundredweight.

1. *What is the purpose of the study?* The purpose of the study is to investigate the effect of a 12-week intervention on the physical and psychological health of young adults with a history of trauma.

[illegible][illegible]

TABLE X. Marketing Charges for 1000 Pound Choice Steers from Large and Small Producers in the Vicinity of Adrian,

Week of May 16-22, 1960*

CHARGES	Market Place No. of Head	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		20	5	20	5	20	5	20	5	20	5	20	5
Transportation ¹		50.00	12.50	50.00	12.50	50.00	12.50	50.00	12.50	50.00	12.50	50.00	12.50
	Lbs. 300	82.50	20.63	98.00	24.50	156.00	39.00	75.00	18.75	96.00	24.00	72.00	18.00
Shrinkage		19.00	4.75										
Yardage		6.00	1.50										
Feed		.25	.18	1.00	.25								
Insurance		.40	.10										
NLS and MB ²		28.00	7.00	64.00	27.25	37.50	11.25	27.50	10.00	240.00	60.00		
Commission						39.00	9.75	25.00	6.25				
Service Charge		186.15	46.66	213.00	64.50	282.50	72.50	177.50	47.50	386.00	96.50	122.00	30.50
Total Charges		.93	.93	1.07	1.29	1.41	1.45	.89	.95	1.93	1.93	.61	.61
Charge Per Cwt.		0	0	1.14	1.36	1.48	1.52	-.64	1.02	1.00	1.00	-.32	-.32
Differential Per Cwt. Above or Below Detroit													

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

* Source: Data presented in this table are approximate.

** Major types of aircraft are listed below.

† The number of aircraft are listed in the column on the right.

Type of Aircraft		Number of Aircraft		Total Number of Aircraft	
Category	Sub-category	Number of Aircraft	Percentage of Total	Total Number of Aircraft	Percentage of Total
Fixed-wing	Single-engine	1,200	15.0%	1,200	15.0%
	Multi-engine	800	10.0%	800	10.0%
	Jet	1,000	12.5%	1,000	12.5%
	Propeller	1,000	12.5%	1,000	12.5%
Rotor-wing	Single-engine	1,000	12.5%	1,000	12.5%
	Multi-engine	800	10.0%	800	10.0%
	Jet	1,000	12.5%	1,000	12.5%
	Propeller	1,000	12.5%	1,000	12.5%
Other	Single-engine	1,000	12.5%	1,000	12.5%
	Multi-engine	800	10.0%	800	10.0%
	Jet	1,000	12.5%	1,000	12.5%
	Propeller	1,000	12.5%	1,000	12.5%
Total		8,000	100.0%	8,000	100.0%

TABLE XI. Net Returns from Marketing 1000 Pound Choice Steers for Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head										
Gross Returns	27.50	20	24.50	5	26.00	20	25.00	20	24.00	20	24.00	5
Marketing Charges												
Net Returns	5500.00	1375.00	4900.00	1225.00	5200.00	1300.00	5000.00	1250.00	4800.00	1200.00	4800.00	1200.00
Net Returns Per Cwt.	186.15	46.66	213.00	64.50	282.50	72.50	177.50	47.50	386.00	96.50	122.00	30.50
Differential	5313.85	1328.34	4687.00	1160.50	4917.50	1227.50	4822.50	1202.50	4414.00	1103.50	4678.00	1169.50
Per Cwt. Above or Below Detroit	26.57	26.57	23.43	23.21	24.59	24.55	24.11	24.05	22.07	22.07	23.39	23.39
	0	0	-3.17	-3.35	-2.01	-2.01	-2.49	-2.51	-4.53	-4.53	-3.21	-3.21

* Source: Data presented in this marketing study.

[illegible]

Lugbill Producers, Inc. The average price for choice steers was found to be \$24.50 per hundredweight. Assuming an average shrinkage of 2.0 per cent, Table VI, and the trucking distance to be 40 miles, Table VIII, the total marketing charges for a lot of 20 would be \$213.00 or \$1.07 per hundredweight. See Table X. The net returns would be \$4,687.00 or \$23.43 per hundredweight. See Table XI.

For the producer of five choice steers, the marketing charges would be \$64.50 or \$1.29 per hundredweight. See Table X. The net returns would be \$1,160.50 or \$23.21 per hundredweight. See Table XI.

Compared to the Detroit Stockyards, the marketing charges for the large producer would be 14 cents per hundredweight greater and the net returns would be \$3.17 per hundredweight less. For the small producer the marketing charges would be 36 cents per hundredweight greater and the net returns \$3.35 per hundredweight less.

Coldwater Livestock Commission Company. The average price for choice steers was found to be \$26.00 per hundredweight. Assuming an average shrinkage of 3.0 per cent, Table VI, and the trucking distance 55 miles, Table VIII, the total marketing charges for a lot of 20 choice steers would be \$282.50 or \$1.41 per hundredweight. See Table X. The net returns would be \$4,917.05 or \$24.59 per hundredweight. See Table XI.



For the producer of five choice steers the marketing charges would be \$72.50 or \$1.45 per hundredweight. See Table X. The net returns would be \$1,227.50 or \$24.55 per hundredweight. See Table XI.

Compared to the Detroit Stockyards, the marketing charges for the large producer would be 48 cents per hundredweight greater and the net returns would be \$2.01 per hundredweight less. For the small producer, the marketing charges would be 52 cents per hundredweight greater and the net returns \$2.01 per hundredweight less.

Adrian Livestock Sales. The average price for choice steers was found to be \$25.00 per hundredweight. Assuming an average shrinkage of 1.5 per cent, Table VI, and a trucking distance of 5 miles, Table VIII, the total marketing charges for the lot of 20 choice steers would be \$177.50 or 89 cents per hundredweight. See Table X. The net returns would be \$4,828.50 or \$24.11 per hundredweight.

For the producer of five choice steers the marketing charges would be \$47.50 or 95 cents per hundredweight. See Table X. The net returns would be \$1,202.50 or \$24.05 per hundredweight. See Table XI.

Compared to the Detroit Stockyards, the marketing charges for the large producer would be four cents per hundredweight less and the net returns \$2.49 per hundredweight less. For the small producer, the marketing charges

would be two cents per hundredweight more and the net returns \$2.51 per hundredweight less.

Hillsdale Auction Company. The average price for choice steers was estimated at \$24.00 per hundredweight although none were sold through this market. Assuming an average shrinkage of 2.0 per cent, Table VI and a trucking distance of 35 miles, Table VIII, the total marketing charges for a lot of 20 choice steers would be \$386.00 or \$1.93 per hundredweight. See Table X. The net returns would be \$4,414.00 or \$22.07 per hundredweight. See Table XI.

For the producer of five choice steers, the marketing charges would be \$96.50 or \$1.93 per hundredweight. See Table X. The net returns would be \$1,103.50 or \$22.07 per hundredweight. See Table XI.

Compared to the Detroit Stockyards, the marketing charges for both the large and the small producer would be \$1.00 per hundredweight greater and the net returns \$4.53 per hundredweight less.

Local Buyer. The average price for choice steers was estimated to be \$24.00 per hundredweight. Assuming an average shrinkage of 1.5 per cent, Table VI, and a trucking distance of 5 miles, Table VIII, the marketing charges for a lot of 20 choice steers would be \$122.00 or 61 cents per hundredweight. See Table X. The net returns would be

\$4,678.00 or \$23.39 per hundredweight. See Table XI.

For the producer of five choice steers the marketing charges would be \$30.50 or 61 cents per hundredweight. See Table X. The net returns would be \$4,678.00 or \$23.39 per hundredweight. The marketing charges were all based on weight.

Compared to the Detroit Stockyards, the marketing charges for the large and the small producer would be 32 cents per hundredweight less and the net returns would be \$3.21 per hundredweight less.

Summary. The marketing charges were greater per hundredweight for small lots as compared to large lots at Archbold, Coldwater, and Adrian. They were the same per hundredweight at Detroit, Hillsdale and the local buyer market. At these latter markets the charges were made on a per head, or a per hundredweight, or a per cent of gross sales, or combinations of these methods. The differences in the National Livestock and Meat Board and the insurance charges at Detroit were too small to affect the total charges and returns. See Table X.

The net returns for the large and small producers were greater at the Detroit Stockyards. See Table XI.

B. Net Returns from Choice Steers from the Vicinity of Hillsdale

The analysis of marketing charges and the net

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returns from steers marketed from the vicinity of Hillsdale was made in the same way as from the vicinity of Adrian. Assumptions regarding the amount of shrinkage of choice steers fed and not fed are those estimated and reproduced in Table VI. Assumptions regarding the distance to the various markets are those reproduced in Table VIII. The estimates of price at the markets are the same as those used in the previous section.

Marketing charges were least when selling to the local buyer. See Table XII. The charges were 37 cents per hundredweight less than those at the Detroit Stockyards for the large and small producers. The marketing charges were the greatest at the Hillsdale, \$1.81 per hundredweight for both large and small producers. The charges were 83 cents per hundredweight above those at the Detroit Stockyards for both the large and the small producers.

The marketing charges were the same per hundredweight for the large and the small producer at the Detroit, Hillsdale, and the local buyer markets. The marketing charges were 22 cents more per hundredweight for the small lot at Archbold than for the large lots. The difference was four cents at Coldwater and seven cents at Adrian. See Table XII.

At the assumed prices prevailing at the alternative markets, both the large and small producer received

greater net returns at the Detroit Stockyards. The large producer would receive \$4.33 per hundredweight less at Hillsdale, \$3.13 less at the local market, \$3.09 less at Archbold, \$2.53 less at Adrian, and \$1.54 less at Coldwater. The small producer would receive \$4.33 per hundredweight less at Hillsdale, \$3.31 less at Archbold, \$3.13 less at the local market and \$2.60 less at Adrian, and \$1.58 less at Coldwater. See Table XIII.

C. Net Returns from Cutter Cows from the Vicinity of Adrian

It cost 95 cents per hundredweight for large producers to market cutter cows at Detroit. Compared to Detroit, the charges were 50 cents more at Hillsdale, 42 cents more at Coldwater and 23 cents more at Archbold, all because of greater shrinkage and higher commissions. The cost was the same at Adrian. The local market cost was 35 cents less due to less shrinkage, less transportation, and no selling charges.

The cost of marketing cutter cows for the small producer was \$1.20 at Detroit. It costs 40 cents more at Hillsdale, 32 cents more at Coldwater, and 17 cents more at Archbold due to greater shrinkage and higher commissions. The cost was 22 cents less at Adrian mostly due to a lower trucking cost. A lower trucking cost, less shrinkage and no commission resulted in a 45 cent lower cost at the local

TABLE XII. Marketing Charges for 1000 Pound Choice Steers from Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

CHARGES	Market Place No. of Head	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		20	5	20	5	20	5	20	5	20	5	20	5
Transportation ¹		60.00	15.00	50.00	12.50	50.00	12.50	50.00	12.50	50.00	12.50	50.00	12.50
Shrinkage	Lbs.	300	75	400	100	300	75	400	100	300	75	300	75
		82.50	20.63	98.00	24.50	78.00	19.50	100.00	25.00	72.00	18.00	72.00	18.00
Yardage		19.00	4.75										
Feed		6.00	1.50										
Insurance		.25	.18	1.00	.25								
NLS and MB ²		.40	.10										
Commission		28.00	7.00	64.00	27.25	37.50	11.25	27.50	10.00	240.00	60.00		
Service Charge						39.00	9.75	25.00	6.25				
Total Charges		196.15	49.16	213.00	64.50	204.50	53.00	202.50	53.75	362.00	90.50	122.00	30.50
Charge Per Cwt.		.98	.98	1.07	1.29	1.02	1.06	1.01	1.08	1.81	1.81	.61	.61
Differential Per Cwt. Above or Below Detroit		0	0	+.09	+.31	+.04	+.08	+.03	+.10	+.83	+.83	-.37	-.37

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

1. To determine the effect of the following factors on the rate of reaction:

1. Temperature
2. Concentration
3. Surface area
4. Catalyst

2. To determine the order of reaction

3. To determine the activation energy

4. To determine the rate constant

5. To determine the half-life

6. To determine the rate of reaction

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TABLE XIII. Net Returns from Marketing 1000 Pound Choice Steers for Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
Price Per Cwt.	27.50		24.50		26.00		25.00		24.00		24.00	
No. of Head	20	5	20	5	20	5	20	5	20	5	20	5
Gross Returns	5500.00	1375.00	4900.00	1225.00	5200.00	1300.00	5000.00	1250.00	4800.00	1200.00	4800.00	1200.00
Marketing Charges	196.15	49.16	213.00	64.50	204.50	53.00	202.50	53.75	362.00	90.50	122.00	30.50
Net Returns	5303.85	1325.84	4687.00	1160.50	4995.50	1247.00	4797.50	1196.25	4438.00	1109.50	4678.00	1169.50
Net Returns Per Cwt.	26.52	26.52	23.43	23.21	24.98	24.94	23.99	23.92	22.19	22.19	23.39	23.39
Differential Per Cwt., Above or Below Detroit	0	0	-3.09	-3.31	-1.54	-1.58	-2.53	-2.60	-4.33	-4.33	-3.13	-3.13

* Source: Data presented in this marketing study.

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market. See Table XIV.

The net returns for the large producer was \$15.55 per hundredweight at Detroit. The higher price was the primary reason for receiving 73 cents more at Archbold, 52 cents more at Adrian and 8 cents more at Coldwater. Net returns were less by \$1.15 at the local market, and \$2.00 less at Hillsdale because the price was lower.

The small producer's net returns per hundredweight at Detroit was \$15.30. For the same reasons presented for the large producers, the net returns were \$1.00 more at Archbold, 72 cents more at Adrian, 18 cents more at Coldwater, \$1.05 less at the local market and \$1.90 less at Hillsdale. See Table XV.

D. Net Returns from Cutter Cows from the Vicinity of Hillsdale

The large producer's marketing cost was 95 cents per hundredweight at Detroit. It was 40 cents more at Hillsdale because of a higher selling cost. The cost was 35 cents more at Adrian and 27 cents more at Archbold because of a higher selling cost and a greater shrinkage. The cost was about the same at Coldwater. It was 35 cents lower at the local market where there was no commission charge, yardage, or insurance.

It cost 20 cents more per hundredweight for the small producer at Hillsdale due mostly to the higher commission. Greater shrinkage accounted for most of the 25 cent

TABLE XIV. Marketing Charges for 1000 Pound Cutter Cows from Large and Small Producers in the Vicinity of Adrian,

Week of May 16-22, 1960*

CHARGES	Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		2	1	2	1	2	1	2	1	2	1	2	1
Transportation ¹		6.00	5.00	5.00	4.00	5.00	4.00	5.00	3.00	5.00	4.00	5.00	3.00
Shrinkage	lbs.	46	23	60	30	90	45	46	23	60	30	46	23
		7.59	3.80	10.50	5.25	15.30	7.65	7.82	3.91	9.00	4.50	6.90	4.50
Yardage		1.90	.95										
Feed		.60	.30										
Insurance		.16	.16	.10	.05								
NLS and MB ²		.04	.02										
Commission		2.80	1.70	8.75	4.38	4.50	2.25	4.00	2.00	15.00	7.50		
Service Charge						2.55	1.28	1.70	.85				
Total Charges		19.09	11.93	24.35	13.68	27.35	15.18	18.52	9.76	29.00	16.00	11.90	7.50
Charge Per Cwt.		.95	1.20	1.22	1.37	1.37	1.52	.93	.98	1.45	1.60	.60	.75
Differential Per Cwt. Above or Below Detroit		0	0	4.23	4.17	4.42	4.32	-.02	-.22	4.50	4.40	-.35	-.45

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

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TABLE XV. Net Returns from Marketing 1000 Pound Cutter Cows for Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head										
	16.50	2	1	2	17.00	2	17.00	2	15.00	2	15.00	1
Gross Returns	330.00	165.00	175.00	350.00	170.00	340.00	170.00	340.00	300.00	300.00	300.00	150.00
Marketing Charges	19.09	11.93	13.68	24.35	27.35	312.65	18.52	321.48	29.00	271.00	11.90	7.50
Net Returns	310.91	153.07	161.32	325.65	154.82	312.65	160.24	321.48	271.00	288.10	288.10	142.50
Net Returns Per Cwt.	15.55	15.30	16.13	16.28	15.63	15.63	16.07	16.02	13.55	13.40	14.40	14.25
Differential Per Cwt. Above or Below Detroit	0	0	+.73	+.73	+.08	+.08	+.52	+.72	-2.00	-1.90	-1.15	-1.05

* Source: Data presented in this marketing study.

greater cost at Adrian. It cost 16 cents more at Archbold due mostly to the higher commissions. Service charges and commission at Coldwater increased the cost over Detroit by 17 cents. The cost was 45 cents lower at the local market because there was no selling charge and less trucking costs. See Table XVI.

The net returns for the large producer were \$15.55 per hundredweight at Detroit. The higher prices received at Archbold, Coldwater, and Adrian were primarily responsible for 73 cents, 46 cents, and 15 cents greater net returns. The net returns were \$1.15 and \$1.90 less respectively at the local buyer market and at Hillsdale due to the lower price.

The small producer received \$15.30 net returns at Detroit. They were 73 cents more at Archbold, 66 cents more at Coldwater and 25 cents more at Adrian, mostly due to receiving a higher price at these markets. Lower prices were mostly responsible for receiving \$1.05 less at the local buyer market and \$1.70 less at Hillsdale. See Table XVII.

E. Net Returns from Choice Veal Calves in the Vicinity of Adrian

The large producer marketing choice veal calves had a marketing cost of \$2.86 per hundredweight at Detroit. It was 86 cents more at Hillsdale and 53 cents more at

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TABLE XVI. Marketing Charges for 1000 Pound Cutter Cows from Large and Small Producers in the Vicinity of

Hillsdale, Week of May 16-22, 1960*

CHARGES	Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		2	1	2	1	2	1	2	1	2	1	2	1
Transportation ¹	No. of Head	6.00	5.00	5.00	4.00	5.00	3.00	5.00	4.00	5.00	3.00	5.00	3.00
Shrinkage	Lbs.	46	23	60	30	46	23	60	30	46	23	46	23
		7.59	3.80	10.50	5.25	7.82	3.91	15.30	7.65	6.90	3.45	6.90	4.50
Yardage		1.90	.95										
Feed		.60	.30										
Insurance		.16	.16	.10	.05								
NLS and MB ²		.04	.02										
Commission		2.80	1.70	8.75	4.38	4.50	2.25	4.00	2.00	15.00	7.50		
Service Charge						2.55	1.28	1.70	.85				
Total Charges		19.09	11.93	24.35	13.68	19.87	10.44	26.00	14.50	26.90	13.95	11.90	7.50
Charge Per Cwt.		.95	1.20	1.22	1.37	.99	1.04	1.30	1.45	1.35	1.40	.60	.75
Differential Per Cwt. Above or Below Detroit		0	0	4.27	4.17	4.04	4.16	4.35	4.25	4.40	4.20	-4.35	-4.45

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

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TABLE XVII. Net Returns from Marketing 1000 Pound Cutter Cows for Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head										
Gross Returns	16.50	2	17.50	1	17.00	2	17.00	1	15.00	2	15.00	1
Marketing Charges	19.09	11.93	24.35	13.68	19.87	10.44	26.00	14.50	26.90	13.95	11.90	7.50
Net Returns	310.91	153.07	325.65	161.32	320.13	159.56	314.00	155.50	273.10	136.05	288.10	142.50
Net Returns Per Cwt.	15.55	15.30	16.28	16.13	16.01	15.96	15.70	15.55	13.65	13.60	14.40	14.25
Differential Per Cwt. Above or Below Detroit.			4.73	4.73	4.46	4.66	4.15	4.25	-1.90	-1.70	-1.15	-1.05

* Source: Data presented in this marketing study.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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Coldwater, due to higher commissions charges. It was 15 cents less at Archbold because of less shrinkage. A lower transportation cost and less shrinkage lowered the cost by 71 cents at Adrian and \$1.52 at the local market.

Marketing costs per hundredweight for the small producer at Detroit was \$3.35. It was 72 cents more at Hillsdale and 39 cents more at Coldwater because of higher commission charges. Less shrinkage reduced the cost by 29 cents at Archbold and 50 cents at Adrian. The cost was \$1.48 less at the local market. See Table XVIII.

The net returns were \$29.64 per hundredweight for the large producer. A higher price brought \$3.97 more at Coldwater. A higher price and a lower marketing cost brought \$3.21 more at Adrian and \$2.65 more at Archbold. Net returns were \$2.36 less at Hillsdale due to higher marketing costs and the lower price. Returns were about the same at the local market.

For the small producer the net returns were \$29.15 at Detroit. They were \$4.11 more at Coldwater due to the higher price. Lower marketing costs and a higher price brought \$3.00 more at Adrian and \$2.79 more at Archbold. Net returns were \$2.22 less at Hillsdale due to higher marketing costs and a lower price. It was about the same at the local market. See Table XIX.

TABLE XVIII. Marketing Charges for 190 Pound Choice Veal Calves from Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

CHARGES	Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		3	1	3	1	3	1	3	1	3	1	3	1
Transportation ¹	No. of Head												
		4.00	2.00	4.00	2.00	4.00	2.00	3.00	2.00	4.00	2.00	3.00	2.00
Shrinkage	Ibs.	27	9	18	6	27	9	15	5	27	9	15	5
		8.78	2.93	6.30	2.10	9.99	3.33	5.25	1.75	8.37	2.79	4.65	1.55
Yardage		1.38	.46										
Feed													
Insurance		.17	.17	.15	.05								
NLS and MB ²		.02	.01										
Commission		1.95	.80	4.99	1.66	3.75	1.25	3.00	1.00	8.84	2.95		
Service Charge						1.58	.53	1.00	.67				
Total Charges		16.30	6.37	15.44	5.81	19.32	7.11	12.25	5.42	21.21	7.74	7.65	3.55
Charge Per Cwt.		2.86	3.35	2.71	3.06	3.39	3.74	2.15	2.85	3.72	4.07	1.34	1.87
Differential Per Cwt.													
Above or Below Detroit		0	0	-.15	-.29	4.53	4.39	-.71	-.50	4.86	4.72	-1.52	-1.48

1. No charge was made for injury or death loss.
2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

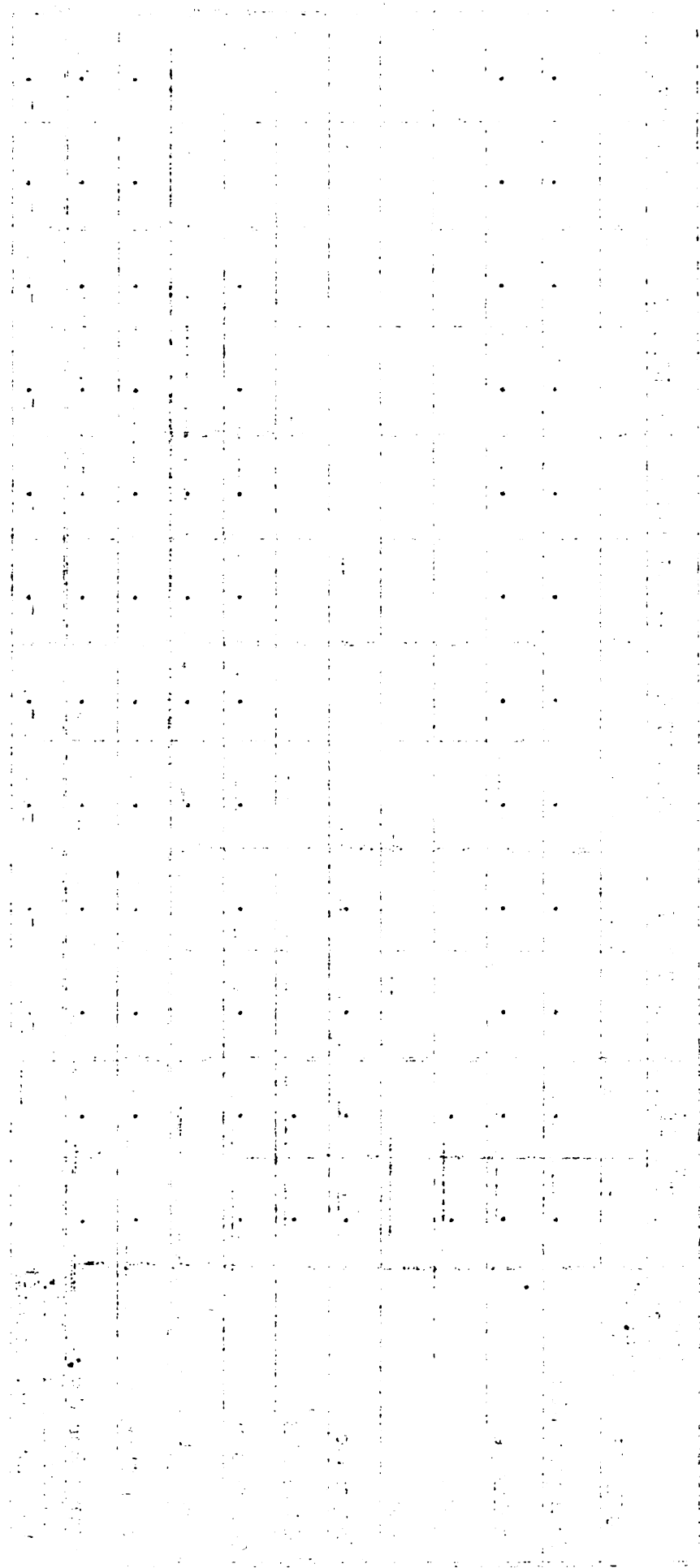


TABLE XIX. Net Returns from Marketing 190 Pound Choice Veal Calves from Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head										
	32.50	3	35.00	3	37.00	3	35.00	3	31.00	3	31.00	
Gross Returns	185.25	61.75	199.50	66.50	210.90	70.30	199.50	66.50	176.70	58.90	176.70	58.90
Marketing Charges	16.30	6.37	15.44	5.81	19.32	7.16	12.25	5.42	21.21	7.74	7.65	3.55
Net Returns	168.95	55.38	184.06	60.69	191.58	63.14	187.25	61.08	155.49	51.16	169.05	55.35
Net Returns Per Cwt.	29.64	29.15	32.29	31.94	33.61	33.26	32.85	32.15	27.28	26.93	29.66	29.13
Differential Per Cwt. Above or Below Detroit	0	0	\$2.65	\$2.79	\$3.97	\$4.11	\$3.21	\$3.00	-2.36	-2.22	\$.02	- .02

* Source: Data presented in this marketing study.

2. 1000 ft. below surface of water

1000 ft.

2

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to

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1000 ft.

1000 ft.

**F. Net Returns from Marketing Choice Veal Calves in the
Vicinity of Hillsdale**

The cost of marketing choice veal calves by the large producer was \$2.86 per hundredweight at Detroit. It was about the same at Hillsdale; it was 15 cents less at Archbold, 35 cents less at Adrian and 42 cents less at Coldwater due to less shrinkage. Because there was less shrinkage and transportation charges and no commission charge it was \$1.52 less at the local market.

The marketing cost to the small producer was \$3.35 per hundredweight at Detroit. A higher commission charge made it seven cents more at Hillsdale. It was 31 cents less at Adrian, 29 cents less at Archbold and 39 cents less at Coldwater due to less shrinkage. Because there was no commission charge, less shrinkage and a lower transportation cost, it was \$1.52 less at the local market. See Table XX.

The net returns for the large producer at Detroit was \$29.64 per hundredweight. It was about the same at the local market. It was \$4.92 more at Coldwater, \$2.85 more at Adrian and \$2.65 more at Archbold due to a higher market price and a lower marketing charge. It was \$1.53 less at Hillsdale due to a lower market price.

The small producer received net returns of \$29.15 per hundredweight at Detroit. It was about the same at the local market. Due to a higher market price and a lower

marketing charge it was \$4.89 more at Coldwater, \$2.81 more at Adrian and \$2.79 more at Archbold. Net returns were \$1.57 less at Hillsdale due to a lower market price. See Table XXI.

G. Net Returns from Choice Lambs from the Vicinity of
Adrian

It cost \$1.73 per hundredweight for the large producer to market choice lambs at Detroit. The cost was 75 cents more at Coldwater and 45 cents more at Hillsdale because of greater shrinkage and a higher commission charge. The cost was 38 cents less at Adrian due to a lower commission charge, no yardage, insurance, or feed charge. The cost at the local market was 83 cents less than at Detroit due to less shrinkage and no charges for yardage, insurance, and commission. The cost was the same at Archbold. Yardage and feed charges at Detroit balanced out the greater shrinkage and higher commission at Archbold.

It cost \$2.13 per hundredweight for the small producer to market at Detroit. The cost was 58 cents more at Coldwater, 44 cents more at Hillsdale, 55 cents less at Adrian, \$1.00 less at the local market and the same at Archbold for the same reasons affecting the larger producer's costs. The charges for the small producer were higher per hundredweight due to the higher transportation cost per lamb marketed. See Table XXII.

• The second part of the document describes the various methods used to collect and analyze data, including the use of statistical techniques and the importance of ensuring the validity and reliability of the data.

• The fourth part of the document describes the various methods used to collect and analyze data, including the use of statistical techniques and the importance of ensuring the validity and reliability of the data.

• The sixth part of the document describes the various methods used to collect and analyze data, including the use of statistical techniques and the importance of ensuring the validity and reliability of the data.

TABLE XX. Marketing Charges for 190 Pound Choice Veal Calves from Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

CHARGES	Market Place No. of Head	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		3	1	3	1	3	1	3	1	3	1	3	1
Transportation ¹		4.00	2.00	4.00	2.00	3.00	2.00	4.00	2.00	3.00	2.00	3.00	2.00
Shrinkage	Lbs.	27	9	18	6	15	5	18	6	15	5	15	5
		8.78	2.93	6.30	2.10	5.55	1.85	6.30	2.10	4.65	1.55	4.65	1.55
Yardage		1.38	.46										
Feed													
Insurance		.17	.17	.15	.05								
NLS and MB ²		.02	.01										
Commission		1.95	.80	4.99	1.66	3.75	1.25	3.00	1.00	8.84	2.95		
Service Charge						1.58	.53	1.00	.67				
Total Charges		16.30	6.37	15.44	5.81	13.88	5.63	14.30	5.77	16.49	6.50	7.65	3.55
Charge Per Cwt.		2.86	3.35	2.71	3.06	2.44	2.96	2.51	3.04	2.89	3.42	1.34	1.87
Differential Per Cwt. Above or Below Detroit		0	0	-.15	-.29	-.42	-.39	-.35	-.31	4.03	4.07	-1.52	-1.48

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

TABLE XXI. Net Returns from Marketing 190 Pound Choice Veal Calves from Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head										
	32.50	3	35.00	3	37.00	3	35.00	3	31.00	3	31.00	
Gross Returns	185.25	61.75	199.50	66.50	210.90	70.30	199.50	66.50	176.70	58.90	176.70	58.90
Marketing Charges	16.30	6.37	15.44	5.81	13.88	5.63	14.30	5.77	16.49	6.50	7.65	3.55
Net Returns	168.95	55.38	184.06	60.69	196.72	64.67	185.20	60.73	160.21	52.40	169.05	55.35
Net Returns Per Cwt.	29.64	29.15	32.29	31.94	34.56	34.04	32.49	31.96	28.11	27.58	29.66	29.13
Differential Per Cwt. Above or Below Detroit	0	0	42.65	42.79	44.92	44.89	42.85	42.81	-1.53	-1.57	4.02	-.02

* Source: Data presented in this marketing study.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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The net returns for the large producer were \$22.27 at Detroit. They were 38 cents more at Adrian because of the lower marketing costs. Net returns were 25 cents less at Coldwater due to the higher marketing charges. They were lower at Archbold by \$1.01 due to a lower market price. The local market brought \$1.17 less because the lower market price was greater than the lower marketing charges. The net returns were \$2.45 less at Hillsdale due to higher marketing costs and a lower market price.

The small producer received \$21.87 per hundredweight at Detroit. Net returns were 55 cents less at Adrian, eight cents less at Coldwater, \$1.00 lower at Archbold and at the local market, and \$2.44 less at Hillsdale. See Table XXIII.

H. Net Returns from Choice Lambs from the Vicinity of Hillsdale

The cost of marketing choice lambs for the large producer at Detroit was \$1.73 per hundredweight. It was about the same at Archbold and Coldwater. It was 19 cents less at Adrian due to a lower commission and 83 cents less at the local market because there were no selling charges. It was 27 cents more at Adrian due to the higher commission.

For the small producer at Detroit and at Archbold the cost was \$2.13 per hundredweight. Due to lower transportation and commission charges it was 19 cents less at

TABLE XXII. Marketing Charges for 90 Pound Choice Lambs from Large and Small Producers in the Vicinity of Adrian,

Week of May 16-22, 1960*

CHARGES	Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		20	6	20	6	20	6	20	6	20	6	20	6
Transportation ¹	lbs.	6.30	4.00	6.30	4.00	6.30	4.00	6.30	3.15	6.30	4.00	6.30	3.15
Shrinkage		10.80	3.24	13.66	4.09	90	27	40	135	10.80	3.24	13.07	3.92
Yardage		4.00	1.20										
Feed		2.23	.67										
Insurance		.12	.10	1.00	.30								
NLS and MB ²		.08	.03										
Commission		7.60	2.28	10.35	3.11	10.00	3.00	5.00	1.50	19.80	5.94		
Service Charge						3.31	.99	2.16	.65				
Total Charges		31.13	11.52	31.31	11.50	44.66	14.61	24.26	8.54	39.17	13.86	16.20	6.12
Charge Per Cwt.		1.73	2.13	1.74	2.13	2.48	2.71	1.35	1.58	2.18	2.57	.90	1.13
Differential Per Cwt. Above or Below Detroit		0	0	1.01	0	1.75	1.58	-.38	-.55	1.45	1.44	-.83	-1.00

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

1. The first part of the paper is devoted to a review of the literature.

2. The second part of the paper is devoted to a review of the literature.

3. The third part of the paper is devoted to a review of the literature.

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TABLE XXIII. Net Returns from Marketing 90 Pound Choice Lambs from Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
Price Per Cwt.	24.00		23.00		24.50		24.00		22.00		22.00	
No. of Head	20	6	20	6	20	6	20	6	20	6	20	6
Gross Returns	432.00	129.60	414.00	124.20	441.00	132.30	432.00	129.60	396.00	118.80	396.00	118.80
Marketing Charges	31.13	11.52	31.31	11.50	44.66	14.61	24.26	8.54	39.17	13.86	16.20	6.12
Net Returns	400.87	118.08	382.69	112.70	396.34	117.69	407.74	121.06	356.83	104.94	379.80	112.68
Net Returns Per Cwt.	22.27	21.87	21.26	20.87	22.02	21.79	22.65	22.42	19.82	19.43	21.10	20.87
Differential Per Cwt. Above or Below Detroit.	0	0	-1.01	-1.00	- .25	- .08	/.38	/.55	-2.45	-2.44	-1.17	-1.00

* Source: Data presented in this marketing study.

Coldwater. A lower commission charge resulted in 20 cents less at Adrian. It cost \$1.00 less at the local market because there were no selling charges. It was 10 cents more at Hillsdale due to the higher commission. See Table XXIV.

The net returns for the large producer at Detroit were \$22.27. It was 53 cents more at Coldwater and 19 cents more at Adrian because the price per hundredweight was higher. Due mostly to a lower price, the net returns were \$1.01 less at Archbold and \$1.17 less at the local market. At Hillsdale a combination of lower price and higher marketing costs netted \$2.27 less.

For the small producer net returns were \$21.87. They were 69 cents more at Coldwater because of a higher price and 20 cents more at Adrian because of lower marketing costs. They were \$1.00 lower at Archbold and at the local market and \$2.10 lower at Hillsdale due to lower market prices. See Table XXV.

I. Net Returns from No. 1 Hogs Weighing 200 Pounds for Farmers in the Vicinity of Adrian

The marketing cost was \$1.19 per hundredweight for the large producer at Detroit. It was 30 cents more at Hillsdale due to the higher commission charge. It was about the same at Coldwater. Due to less shrinkage the cost was 37 cents lower at Adrian and 22 cents lower at Archbold.

TABLE XXIV. Marketing Charges for 90 Pound Choice Lambs from Large and Small Producers in the Vicinity of

Hillsdale, Week of May 16-22, 1960*

CHARGES	Market Place No. of Head	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		20	6	20	6	20	6	20	6	20	6	20	6
Transportation ¹		6.30	4.00	6.30	4.00	6.30	3.15	6.30	4.00	6.30	3.15	6.30	3.15
Shrinkage	Lbs.	45	135	594	178	45	135	14.26	4.27	9.90	2.97	9.90	2.97
		10.80	3.24	13.66	4.09	11.03	3.31						
Yardage		4.00	1.20										
Feed		2.23	.67										
Insurance		.12	.10	1.00	.30								
NLS and MB ²		.08	.03										
Commission		7.60	2.28	10.35	3.11	10.00	3.00	5.00	1.50	19.80	5.94		
Service Charge						3.31	.99	2.16	.65				
Total Charges		31.13	11.52	31.31	11.50	30.64	10.45	27.72	10.42	36.00	12.06	16.20	6.12
Charge Per Cwt.		1.73	2.13	1.74	2.13	1.70	1.94	1.54	1.93	2.00	2.23	.90	1.13
Differential Per Cwt. Above or Below Detroit		0	0	4.01	0	-.03	-.19	-.19	-.20	4.27	4.10	-.83	-1.00

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

• 1904 and 1905, the first two years of the

• 1906 and 1907, the first two years of the

1904		1905		1906		1907		1908		1909		1910		1911		1912		1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		1923		1924		1925		1926		1927		1928		1929		1930		1931		1932		1933		1934		1935		1936		1937		1938		1939		1940		1941		1942		1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953		1954		1955		1956		1957		1958		1959		1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252		2253		2254		2255		2256		2257		2258		2259		2260		2261		2262		2263		2264		2265		2266		2267		2268		2269		2270		2271		2272		2273		2274		2275		2276		2277		2278		2279		2280		2281		2282		2283		2284		2285		2286		2287		2288		2289		2290		2291		2292		2293		2294		2295		2296		2297		2298		2299		2300		2301		2302		2303		2304		2305		2306		2307		2308		2309		2310		2311		2312		2313		2314		2315		2316		2317		2318		2319		2320		2321		2322		2323		2324		2325		2326		2327		2328		2329		2330		2331		2332		2333		2334		2335		2336		2337		2338		2339		2340		2341		2342		2343		2344		2345		2346		2347		2348		2349		2350		2351		2352		2353		2354		2355		2356		2357	
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It was 64 cents less at the local market because of less shrinkage, and no commission charge.

The small producer had a cost of \$1.24 per hundredweight at Detroit. It was about the same at Coldwater. Due to the higher commission charge it was 28 cents more at Hillsdale. Due to less shrinkage it was 42 cents less at Adrian and 10 cents less at Archbold. The local market was 69 cents lower. See Table XXVI.

The net returns were \$16.21 per hundredweight at Detroit for the large producer. They were about the same at the local market. They were 22 cents more at Adrian and seven cents more at Archbold due to lower marketing charges. A combination of a higher market price and lower marketing charges netted 13 cents more at Coldwater. Net returns were 70 cents less at Hillsdale because the market price was lower and the marketing charges were higher.

The small producer had net returns of \$16.16 per hundredweight at Detroit. Due to the lower marketing charges they were 27 cents more at Adrian and four cents more at the local market. A higher market price and the lower marketing charges netted 15 cents more at Coldwater. They were five cents less at Archbold due to a lower market price and 68 cents less at Hillsdale because of both a lower market price and the higher marketing charges. See Table XXVII.

TABLE XVI. Marketing Charges for 200 Pound No. 1 Hogs from Large and Small Producers in the Vicinity of Adrian,

Week of May 16-22, 1960*

CHARGES	Market Place No. of Head	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		30	6	30	6	30	6	30	6	30	6	30	6
Transportation ¹		18.00	4.00	18.00	4.00	18.00	4.00	18.00	3.60	18.00	4.00	18.00	3.60
Shrinkage		24.01	4.87	20.70	4.14	31.50	6.30	15.53	3.10	20.40	4.08	15.08	3.02
Yardage		10.50	2.10										
Feed		4.46	.89										
Insurance		.22	.14	1.50	.30								
NLS and MB ²		.20	.04										
Commission		14.10	2.82	17.85	5.18	12.00	2.40	10.50	2.10	51.00	10.20		
Service Charge						7.88	1.58	5.18	1.04				
Total Charges		71.49	14.86	58.05	13.62	69.38	14.28	49.21	9.84	89.40	18.28	33.08	6.62
Charge Per Cwt.		1.19	1.24	.97	1.14	1.16	1.19	.82	.82	1.49	1.52	.55	.55
Differential Per Cwt. Above or Below Detroit		0	0	-.22	-.10	-.03	-.05	-.37	-.42	4.30	4.28	-.64	-.69

1. No charge was made for injury or death loss.

2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

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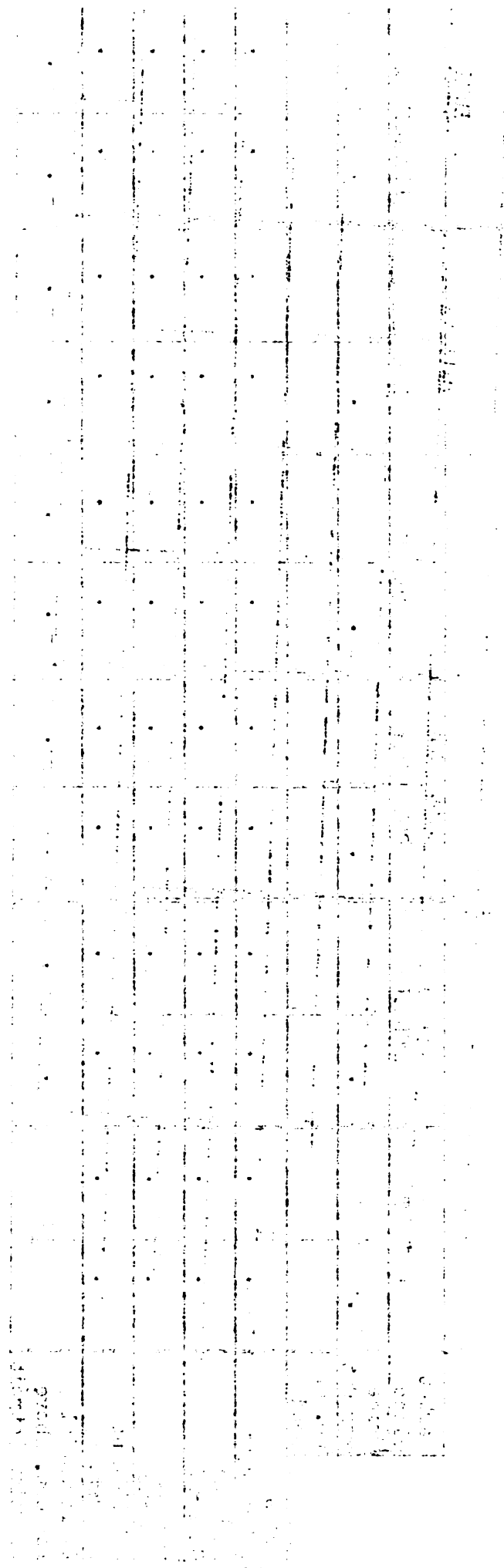
• **Explain** that the *Arctic* is the region around the North Pole.

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TABLE XXVII. Net Returns from Marketing 200 Pound No. 1 Hogs from Large and Small Producers in the Vicinity of Adrian, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
Price Per Cwt.	17.40		17.25		17.50		17.25		17.00		16.75	
No. of Head	30	6	30	6	30	6	30	6	30	6	30	6
Gross Returns	1044.00	208.80	1035.00	207.00	1050.00	210.00	1035.00	207.00	1020.00	204.00	1005.00	201.00
Marketing Charges	71.49	14.86	58.05	13.62	69.38	14.28	49.21	9.84	89.40	18.28	33.08	6.62
Net Returns	972.51	193.94	976.95	193.38	980.62	195.72	985.79	197.16	930.60	185.72	971.92	194.38
Net Returns Per Cwt.	16.21	16.16	16.28	16.11	16.34	16.31	16.43	16.43	15.51	15.48	16.20	16.20
Differential Per Cwt. Above or Below Detroit	0	0	+.07	-.05	+.13	+.15	+.22	+.27	-.70	-.68	-.01	+.04

* Source: Data presented in this marketing study.



J. Net Returns from 200 Pound No. 1 Hogs for Farmers in
the Vicinity of Hillsdale

The larger producer had a marketing cost of \$1.19 per hundredweight at Detroit. It was 17 cents more at Hillsdale due to a higher commission charge. Due to lower shrinkage it was 30 cents less at Coldwater and 33 cents at Adrian. It was 22 cents less at Archbold due to a higher commission charge and less shrinkage. It was 64 cents less at the local market because of less shrinkage and no commission charge.

The marketing cost for the small producer was \$1.24 per hundredweight. It was 17 cents more at Hillsdale because of the higher commission charge. Due to lower shrinkage the net returns were 31 cents less at Coldwater and 30 cents less at Adrian. It was 10 cents less at Archbold due to a combination of less shrinkage and a higher commission charge. The local market was 69 cents lower because of lower shrinkage and transportation costs and no commission. See Table XXVIII.

The large producer received a net return of \$16.21 at Detroit. It was about the same at the local market. It was 45 cents more at Coldwater due to the lower marketing charges and a higher market price. Because of the lower marketing charges, it was 13 cents more at Adrian and seven cents more at Archbold. It was 62 cents less at Hillsdale due to higher marketing charges and a lower market price.

The second part of the document provides a detailed breakdown of the accounting process. It outlines the steps involved in recording transactions, from identifying the event to posting it to the appropriate ledger account. It also discusses the importance of double-checking entries to avoid errors and the need for regular reconciliation of accounts.

The third part of the document focuses on the preparation of financial statements. It explains how the data from the ledger is used to create the balance sheet, income statement, and cash flow statement. It also discusses the importance of these statements for management decision-making and for external stakeholders.

The fourth part of the document discusses the role of the accountant in the business. It highlights the need for the accountant to be a proactive participant in the business, providing advice on financial matters and ensuring that the business complies with all relevant laws and regulations.

The sixth part of the document provides a detailed breakdown of the accounting process. It outlines the steps involved in recording transactions, from identifying the event to posting it to the appropriate ledger account. It also discusses the importance of double-checking entries to avoid errors and the need for regular reconciliation of accounts.

The seventh part of the document focuses on the preparation of financial statements. It explains how the data from the ledger is used to create the balance sheet, income statement, and cash flow statement. It also discusses the importance of these statements for management decision-making and for external stakeholders.

The eighth part of the document discusses the role of the accountant in the business. It highlights the need for the accountant to be a proactive participant in the business, providing advice on financial matters and ensuring that the business complies with all relevant laws and regulations.

The tenth part of the document provides a detailed breakdown of the accounting process. It outlines the steps involved in recording transactions, from identifying the event to posting it to the appropriate ledger account. It also discusses the importance of double-checking entries to avoid errors and the need for regular reconciliation of accounts.

The net returns were \$16.16 per hundredweight at Detroit for the small producer. Due to a higher market price and the lower marketing charges they were 41 cents more at Coldwater. They were 15 cents more at Adrian and four cents more at the local market because of the lower marketing charges. They were five cents lower at Archbold due to a lower market price and 57 cents lower at Hillsdale due to both the lower market price and the higher marketing charges. See Table XXIX.

K. Summary

The net returns that a large or small farmer might expect for his livestock were determined by a budget analysis of the prevailing marketing charges and market prices for the week of May 16-22, 1960.

The writer selected what he thought would be typical examples from the many livestock producers and classes of livestock. A large producer would be one selling 20 1000-pound choice steers, two 1000-pound cutter cows, three 190-pound choice veal calves, 20 90-pound lambs, and 30 200-pound No. 1 hogs. A small producer would market five 1000-pound choice steers, one 1000-pound cutter cow, one 190-pound choice veal calf, six 90-pound lambs, and six 200-pound No. 1 hogs.

A charge was made for shrinkage, a cost often overlooked by farmers. It was based on assumptions explained

TABLE XVIII. Marketing Charges for 200 Pound No. 1 Hogs from Large and Small Producers in the Vicinity of

Hillsdale, Week of May 16-22, 1960*

CHARGES	Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
		30	6	30	6	30	6	30	6	30	6	30	6
Transportation ¹													
		18.00	4.00	18.00	4.00	18.00	4.00	18.00	4.00	18.00	3.60	18.00	3.60
Shrinkage		24.01	4.87	20.70	4.14	15.75	3.15	20.70	4.08	15.30	3.06	15.08	3.02
Yardage		10.50	2.10										
Feed		4.46	.89										
Insurance		.22	.14	1.50	.30								
NLS and MB ²		.20	.04										
Commission		14.10	2.82	17.85	5.18	12.00	2.40	10.50	2.10	51.00	10.20		
Service Charge						7.88	1.58	5.18	1.04				
Total Charges		71.49	14.86	58.05	13.62	53.63	11.13	54.38	11.22	84.30	16.86	33.08	6.62
Charge Per Cwt.		1.19	1.24	.97	1.14	.89	.93	.91	.94	1.41	1.41	.55	.55
Differential Per Cwt. Above or Below Detroit		0	0	-.22	-.10	-.30	-.31	-.33	-.30	1.17	1.17	-.64	-.69

1. No charge was made for injury or death loss.

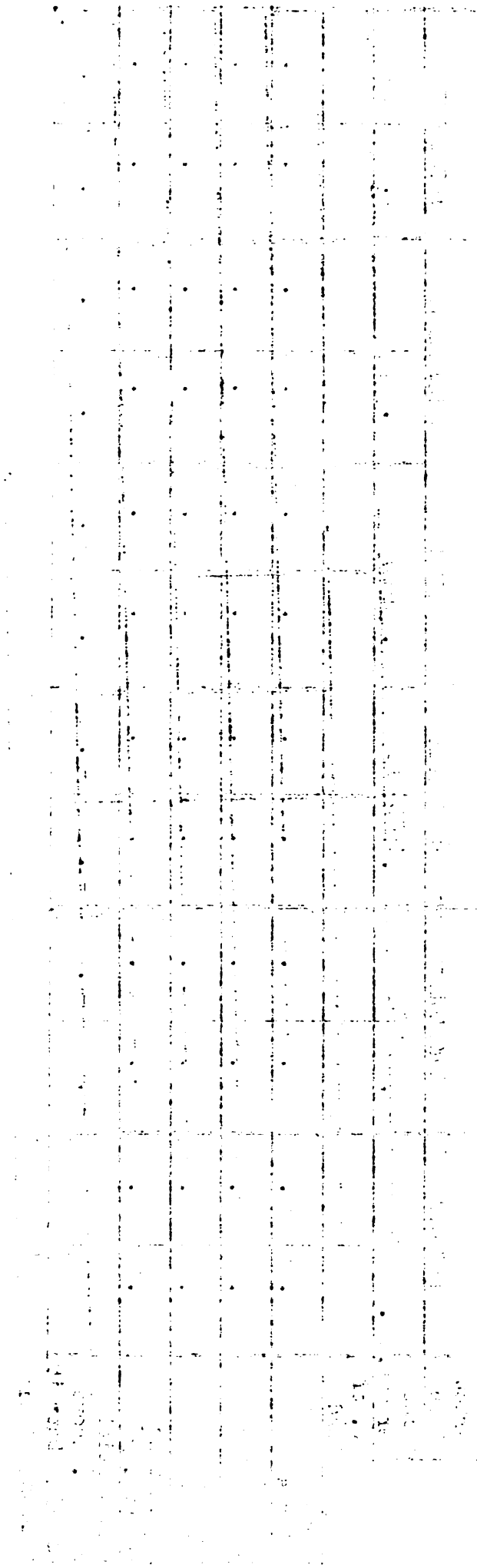
2. National Livestock and Meat Board.

* Source: Data presented in this marketing study.

TABLE XXIX. Net Returns from Marketing 200 Pound No. 1 Hogs for Large and Small Producers in the Vicinity of Hillsdale, Week of May 16-22, 1960*

Market Place	DETROIT		ARCHBOLD		COLDWATER		ADRIAN		HILLSDALE		LOCAL BUYER	
	Price Per Cwt.	No. of Head	17.25	30	17.50	30	17.25	30	17.00	30	16.75	
Gross Returns	1044.00	208.80	1035.00	207.00	1050.00	210.00	1035.00	207.00	1020.00	204.00	1005.00	201.00
Marketing Charges	71.49	14.86	58.05	13.62	53.63	11.13	54.38	11.22	84.30	16.86	33.08	6.62
Net Returns	972.51	193.94	976.95	193.38	996.37	198.87	980.62	195.78	935.70	187.14	971.92	194.38
Net Returns Per Cwt.	16.21	16.16	16.28	16.11	16.61	16.57	16.34	16.31	15.59	15.59	16.20	16.20
Differential Per Cwt. Above or Below Detroit.	0	0	+.07	-.05	+.45	+.41	+.13	+.15	-.62	-.57	-.01	+.04

* Source: Data presented in this marketing study.

[illegible]

in Chapter VI. Another assumption was made regarding the distance the livestock must be transported to the market. This was necessary to determine the cost of transportation and the amount of shrinkage for each lot of livestock sold. See Table VIII.

The direct marketing charges were those being used at the present time at the markets and presented in Chapter VII. The market prices for each class of livestock sold were the averages paid to farmers the week of May 16-22, 1960, as reported by the markets. See Table IX.

Marketing charges were found to be the highest at Hillsdale for all classes of livestock marketed by the large and the small producers with just two exceptions. It cost more at Coldwater to market 20 choice lambs from the vicinity of Adrian due to the greater shrinkage and a relatively high commission charge. See Table XXII. It cost more to market a cutter cow at Adrian from the vicinity of Hillsdale because the shrinkage was greater than if the cow had been taken to Detroit and fed. See Table XVI. Marketing charges were the lowest in all examples at the local dealer market because there were no charges for selling the livestock.

Marketing charges per hundredweight for the large and small producers from any one vicinity were the same for all the classes of livestock at Detroit, the local dealer

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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market, and Archbold, except for the choice steers sold at Archbold because all the charges were based on a combination of a weight, per head, or a percentage of gross sales. Archbold has a reduced commission charge on sales over \$1000 on cattle, calves, sheep and lambs and over \$500 on hogs. Only the sales from the large producer of choice steers and of No. 1 hogs exceeded these gross amounts. By coincidence the lower commission on the 30 hogs sold at Archbold from the large producer offset the larger transportation charge for the six hogs from the small producer. The marketing charges were less per hundredweight at Coldwater, Adrian, and Hillsdale for all classes of livestock for the large producer than for the small producer from any one vicinity due to combinations of lower transportation charges, commission rates, and service charges.

With two exceptions the market having the highest market price for the class of livestock being marketed gave the highest net returns to both the large and small producer from the vicinities of Adrian and Hillsdale. The net returns were higher at Adrian for the large and small producer of choice lambs from the vicinity of Adrian due to the lower marketing cost even though the market price was 50 cents per hundredweight higher at Coldwater. The net returns for No. 1 hogs were higher at Adrian for both large and the small producer from the vicinity of Adrian due to

the lower marketing charges that more than offset the 25 cents higher market price at Coldwater. The highest market price and net returns for choice steers were at Detroit, at Archbold for cutter cows, and at Coldwater for choice veal calves.

By the use of the budget analysis of marketing costs and net returns to livestock producers in the vicinity of Adrian or of Hillsdale, it has been shown: (1) that the market with the lowest marketing costs did not give livestock producers the highest net income, (2) that the market with the highest market price did not always give livestock producers the highest net income, and (3) that the highest net returns for all classes of livestock were not at the same market. An examination of market prices and marketing costs is necessary to determine where to market livestock for the greatest net returns.

The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. This is crucial for developing effective interventions and policies.

The second part of the paper presents a detailed analysis of the data collected from the study. The results show a clear trend towards the expected outcome.

The third part of the paper discusses the implications of the findings for future research and practice. It highlights the need for further investigation into the underlying mechanisms.

The fourth part of the paper concludes the study and provides a summary of the key findings. The results suggest that the intervention was effective in achieving the desired outcome.

The fifth part of the paper discusses the limitations of the study and the need for further research. It also provides recommendations for future studies.

The sixth part of the paper provides a final summary of the study and its contributions to the field. It emphasizes the importance of understanding the underlying mechanisms of the observed phenomena.

IX. SUMMARY AND CONCLUSIONS

This thesis was devised to provide information about livestock marketing to assist the livestock and grain District Marketing Agent in the Lenawee-Hillsdale district. The Michigan Cooperative Extension Service employed its first District Marketing Agent in 1954. There are now eight. District Marketing Agents are pioneers in the field and must answer questions and help farmers solve problems pertaining to the marketing of their products.

The Lenawee-Hillsdale district is the most concentrated livestock production area of Michigan. On January 1, 1959, it had 4.9% of Michigan's cattle and calves of all ages, 4.5% of the milk cows, 7.7% of the stock sheep, and 9.1% of all the sows farrowing. Lenawee county ranks 1st in the number of sows farrowing, 3rd in the number of stock sheep, 4th in the number of all cattle and calves, and 17th in the number of milk cows. Hillsdale county ranks 6th in the number of sows farrowing, 10th in the number of stock sheep, 12th in the number of all cattle and calves, and 11th in the number of milk cows.

A survey of seventy-six farmers was conducted to determine where farmers secured their livestock marketing information. Radio programs ranked first in importance.

Farmers expressed preference for market news reports from radio station WJR of Detroit and WABJ of Adrian. The daily newspapers ranked second. The Adrian Daily Telegram and the Hillsdale News were the most important newspapers. The third most important source of marketing information was from individuals--especially truckers, commission men, livestock buyers and neighbors. These were followed by magazines, special market reports, and television.

One of the duties of the District Marketing Agent will be to gather and disseminate marketing information. Sources of marketing information that might be used by the District Marketing Agent were gathered and described by the writer. The agent will need to evaluate and localize much of the information available. He will need to disseminate information through the media farmers are now using. This can be augmented by developing a following through personalized contact, such as the newsletter, public meetings, and newspaper columns. The successful history of Cooperative Extension Service programs in this area will be of help.

The survey of farmers indicated there were many places available to market their livestock. Most farmers indicated that they sold their livestock at the Detroit Stockyards and at local auctions. The auctions most often mentioned were at Archbold, Adrian, Coldwater, and Hillsdale. Some farmers sold direct to packers, to country dealers, and to other farmers.

The second part of the document focuses on the implementation of internal controls to prevent fraud and ensure the accuracy of financial data. It outlines the key components of a robust internal control system, including segregation of duties, authorization procedures, and regular monitoring.

The third part of the document addresses the challenges of managing financial risk and the role of the treasury department in mitigating these risks. It discusses the use of derivatives and other financial instruments to hedge against currency fluctuations and interest rate changes.

The fourth part of the document explores the impact of tax regulations on the company's financial performance and the role of the tax department in ensuring compliance. It also discusses the importance of tax planning and the use of tax incentives to optimize the company's tax position.

The fifth part of the document discusses the role of the accounting department in providing financial information to management and the importance of timely and accurate reporting. It also highlights the need for the accounting department to stay up-to-date on changes in accounting standards and regulations.

The seventh part of the document focuses on the implementation of internal controls to prevent fraud and ensure the accuracy of financial data. It outlines the key components of a robust internal control system, including segregation of duties, authorization procedures, and regular monitoring.

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The tenth part of the document discusses the role of the accounting department in providing financial information to management and the importance of timely and accurate reporting. It also highlights the need for the accounting department to stay up-to-date on changes in accounting standards and regulations.

Two chapters were devoted to when and how to market livestock. Long and short-time observations should be made to take advantage of price fluctuations and seasonability of livestock production. Production of the meat-type and the efficient growing livestock is important for greater returns. Selling at the optimum weight and grade for the type and class of livestock being marketed should be a goal of each farmer. Careful handling, exercising patience, and keeping livestock quiet and unexcited will reduce shrinkage and bruising losses.

Shrinkage was found to be one of the larger costs of marketing livestock. It is an indirect but an important cost to farmers. It should be included as one of the costs of marketing livestock. Research on shrinkage was summarized. Some assumptions were made by the author to determine the marketing costs due to shrinkage since there was a lack of sufficient information, especially on the short hauls of livestock.

Many direct charges were found in the process of marketing livestock. There was little uniformity in the charges. Transportation charges were by the load, by the head, or by the hundredweight. Truckers usually charged by the hundredweight, except for individual animals. They usually had a minimum charge of \$4.00 per farm stop if two or more animals were picked up. The Detroit Stockyards Company was the only market in the area to have a yardage

charge. It was the only one to make collections for truckers' transit insurance and the National Livestock and Meat Board. It was also the only market to provide feed for livestock to be held for later sale.

The Detroit Stockyards and Lugbill Producers, Inc., were the only markets that had a direct charge for livestock insurance. The other markets included the insurance in their commission or service charges.

There was no uniformity in the commission charges. Lugbill Producers, Inc., and Hillsdale Auction Company charged a percentage of the total gross sales. Detroit Stockyards Company, Adrian Livestock Sales, and Coldwater Livestock Commission Auction, based their charges on a per head basis. All except Hillsdale had lower commission charges on larger lots for some or all classes of livestock sold.

Adrian Livestock Sales and Coldwater Livestock Commission Auction deducted a percentage of the gross sales as a service charge to cover costs incidental to the handling of livestock.

A budget analysis was used to determine the net returns for a large and a small producer from the vicinity of Adrian or Hillsdale. The market prices and the marketing charges that prevailed during the week of May 16-22, 1960, were used. The analysis was limited to five classes of livestock sold at the six markets reported by farmers as receiving most of the livestock sold from the area.

• The first step in the process of creating a new product is to identify a market need. This can be done through market research, which involves gathering information about the target market and its needs.

• Once a market need has been identified, the next step is to develop a product concept.

• This concept should be based on the market need and should be unique and innovative.

• The next step is to develop a business plan for the new product. This plan should outline the marketing strategy, the production process, and the financial projections.

• Once the business plan has been developed, the next step is to secure financing for the new product.

• This can be done through a variety of methods, including bank loans, venture capital, and crowdfunding.

• Once financing has been secured, the next step is to develop a prototype of the new product.

• This prototype should be used to test the product concept and to gather feedback from potential customers.

• Once the prototype has been tested, the next step is to develop a final product design.

• This design should be based on the feedback from the prototype testing and should be unique and innovative.

• The next step is to develop a marketing plan for the new product. This plan should outline the marketing strategy, the production process, and the financial projections.

• Once the marketing plan has been developed, the next step is to launch the new product.

• This can be done through a variety of methods, including direct sales, retail, and online.

• Once the new product has been launched, the next step is to monitor its performance.

• This can be done through a variety of methods, including sales data, customer feedback, and market research.

• Once the performance of the new product has been monitored, the next step is to make any necessary adjustments.

• This can be done through a variety of methods, including product improvements, marketing changes, and pricing adjustments.

• Once the new product has been successfully launched and its performance has been monitored, the next step is to evaluate the overall success of the new product.

• This can be done through a variety of methods, including sales data, customer feedback, and market research.

• Once the overall success of the new product has been evaluated, the next step is to decide whether to continue to produce the new product.

• This decision should be based on the overall success of the new product and the market need.

• Once the decision has been made to continue to produce the new product, the next step is to develop a long-term marketing plan.

• This plan should outline the marketing strategy, the production process, and the financial projections.

• Once the long-term marketing plan has been developed, the next step is to launch the new product.

• This can be done through a variety of methods, including direct sales, retail, and online.

The budget analysis revealed some important information regarding where a farmer might expect to receive the highest possible net returns from the marketing of livestock. The highest net returns for all classes of livestock was not at the same market. The market with the lowest marketing charges did not give livestock producers the highest net returns. The market with the highest market price did not always result in the highest net income for livestock producers. Within the assumptions presented, and with a knowledge of the prevailing marketing charges and the market prices at various markets, it is possible for a producer to determine which market is most likely to give him the highest net returns for a particular class and grade of livestock.

Where to market livestock for the greatest net returns will require much diplomacy on the part of the District Marketing Agent. He should not tell any farmer where to market his livestock. Cooperation and support from the marketing agencies would be impossible were he to do this. He should explain to the livestock producer how to determine his best market by analyzing the marketing charges and his probable market price. He should tell him where the markets are located, and either supply him with or tell him where to secure the necessary information on marketing charges and market prices.

The purpose of this study was to provide livestock marketing information in the Lenawee-Hillsdale county area that a District Marketing Agent might use.

The study has shown the importance of livestock in the area and the production trends. It has described the markets of the area, the marketing charges, and how one might determine the possible net returns from the marketing of livestock at the several markets. It has given the sources and kinds of livestock marketing information that farmers receive and use. The author sincerely hopes that this study will be of much value in its intended use.

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2. The second section focuses on the role of communication in the organization. It highlights that effective communication is crucial for coordinating efforts and ensuring that all team members are aligned with the organization's goals. The text provides guidelines for both internal and external communication, including the use of meetings, reports, and public relations. It stresses the importance of clear, concise, and timely communication to avoid misunderstandings and delays.

3. The third part of the document addresses the issue of resource management. It discusses how to allocate resources efficiently to maximize the organization's impact. This includes identifying the needs of different departments and projects, and then distributing resources accordingly. The text also touches on the importance of monitoring resource usage and making adjustments as needed. It suggests that a flexible and proactive approach to resource management is key to success.

4. The fourth section deals with the legal and regulatory aspects of the organization's operations. It provides an overview of the relevant laws and regulations that the organization must comply with. This includes tax laws, labor laws, and industry-specific regulations. The text offers advice on how to stay up-to-date with changes in the legal landscape and how to implement compliance measures. It also mentions the importance of seeking legal counsel when necessary.

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• The first step in the process of creating a new product is to identify a market need. This involves conducting market research to determine what consumers want and need. Once a need is identified, the next step is to develop a concept for a product that meets that need.

• The second step is to develop a business plan. This involves determining the costs of production, the pricing strategy, and the marketing strategy. The business plan also includes a financial forecast and a break-even analysis.

• The third step is to create a prototype. This involves building a small-scale model of the product to test its design and functionality. The prototype is used to gather feedback from potential customers and to make any necessary adjustments to the design.

• The fourth step is to manufacture the product. This involves setting up a production line and hiring workers to assemble the product. The manufacturer must also ensure that the product meets all relevant safety and quality standards.

• The fifth step is to market the product. This involves developing a marketing strategy and implementing it through various channels, such as advertising, sales, and public relations. The goal is to create awareness of the product and generate sales.

• The sixth step is to evaluate the product's performance. This involves monitoring sales, customer feedback, and other key performance indicators. The goal is to determine if the product is meeting its intended purpose and to make any necessary adjustments.

• The seventh step is to plan for the future. This involves identifying potential opportunities for growth and expansion, as well as any challenges that may arise. The goal is to ensure the long-term success of the product.

• The eighth step is to maintain the product. This involves ensuring that the product continues to meet the needs of the market and making any necessary updates or improvements. The goal is to keep the product relevant and competitive.

• The ninth step is to discontinue the product. This involves deciding when to stop production and distribution of the product. The goal is to ensure that the product is no longer profitable or relevant.

• The tenth step is to evaluate the overall success of the product. This involves comparing the product's performance to the original goals and objectives. The goal is to determine if the product was a successful venture.

• The final step is to learn from the experience. This involves reflecting on the process of creating and marketing the product and identifying any lessons learned. The goal is to improve the process for future product development.

• The process of creating a new product is a complex and multi-step process. It involves identifying a market need, developing a business plan, creating a prototype, manufacturing the product, marketing the product, evaluating the product's performance, planning for the future, maintaining the product, discontinuing the product, and evaluating the overall success of the product.

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APPENDICES

Auction _____

Centreville, Michigan
May 23, 1955

Dear Sir:

I am working on a thesis at Michigan State to help farmers in the marketing of their livestock. It would help me know more about the auction markets available to farmers of Hillsdale and Lenawee counties. Your cooperation for the following information will be appreciated.

I. Ownership: Ownership _____; Partnership _____; Corporation _____

II. Sale Days: _____ Starting Time: _____

III. Charges:

	Commission			Yardage	Service Charges		
	By Head	Gross Sales	Max.		By Head	Gross Sales	Max.
Cattle							
Calves							
Feeder Calves							
Hogs							
Feeder Pigs							
Sheep							
Lambs							
Feeder Lambs							

IV. Gross Sales in numbers for 1954. (If actual figures are not available, use your best estimate.)

	Total	From Hillsdale & Lenawee Counties
Cattle		
Calves		
Feeder Calves		
Hogs		
Feeder Pigs		
Sheep		
Lambs		
Feeder Lambs		

Harvey J. Elliott
Co. Agricultural Agent

Radio Station _____

Centreville, Michigan
May 28, 1955

Dear Sir:

I am working on a thesis problem at Michigan State College to help farmers make more profit from marketing of grain and livestock. A part of the problem involves market news. We would appreciate the following information from you.

1. Do you broadcast grain market reports? Yes _____ No _____
2. Do you broadcast livestock market reports? Yes _____ No _____

3. Description of programs:

A. Time _____ to _____.

Check days: Mon ___, Tues ___, Wed ___, Thurs ___, Fri ___,
Sat ___, Sun ___.

Grain _____ Livestock _____ Both _____

Sources of quotations _____

Commentator _____

Sponsor _____

Other Comments:

B. Time _____ to _____.

Check days: Mon ___, Tues ___, Wed ___, Thurs ___, Fri ___,
Sat ___, Sun ___.

Grain _____ Livestock _____ Both _____

Sources of quotations _____

Commentator _____

Sponsor _____

Other Comments:

Thank you.

Harvey J. Elliott
Co. Agricultural Agent

LENAMEE-HILLSDALE MARKETING QUESTIONNAIRE 1955

Name _____ Address _____

1. A. To what newspapers do you subscribe? (Mark with A)
- B. Which of these are a source of market quotations or other market information to you? (Mark with B)

Daily papers

1. Adrian Daily Telegram
2. Hillsdale News
3. Toledo Blade
4. Detroit Free Press
5. Detroit Times
6. Chicago Daily Drivers Journal
7. Jackson Citizen Patriot

Weekly papers

1. Litchfield Gazette
2. North Adams Advocate
3. Reading Farmers Advance
4. Reading Hustler
5. Addison Courier
6. Blissfield Advance
7. Clinton Local
8. Hudson Post Gazette
9. Morenci Observer
10. Tecumseh Herald

2. A. What farm magazines do you receive? (Mark with A)
- B. Which of these are a source of marketing information to you? (Mark with B)

- | | | |
|--------------------|----------------------------|---------------------------|
| 1. Michigan Farmer | 4. Michigan Farm Economics | 7. Prairie Farmer |
| 2. Cappers Farmer | 5. Hoards Dairymen | 8. Better Farming |
| 3. Farm Journal | 6. Successful Farming | 9. Indiana Farmer's Guide |

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3. A. What radio programs do you find of value in securing Livestock Marketing Information? Mark A.
- B. What radio programs do you find of value in securing Grain Marketing Information? Mark B.

- | | |
|-------------------------|----------------------------|
| 1. WJR Detroit _____ | 8. WOWO Fort Wayne _____ |
| 2. WTVB Coldwater _____ | 9. WKAR East Lansing _____ |
| 3. WJOE Hillsdale _____ | 10. WMAQ Chicago _____ |
| 4. WABJ Adrian _____ | 11. WLS Chicago _____ |
| 5. WIBH Jackson _____ | 12. WKZO Kalamazoo _____ |
| 6. WPAG Ann Arbor _____ | 13. WSPD Toledo _____ |
| 7. WWJ Detroit _____ | 14. WTOD Toledo _____ |
-

4. A. Do you receive market reports on television? YES ____ NO ____.

Station _____ Program _____ Time _____

- B. Do you have a television set? YES ____ NO ____

5. Do you look to other sources of information regarding when to sell?
(L1, 2, 3, - Livestock; G1, 2, 3, - Grains)

Individuals

1. Neighbors _____
2. Truckers _____
3. Elevator managers _____
4. County Agr'l Agents _____
5. Livestock buyers _____
6. Commission men _____
7. Others _____

Special Market Reports

1. U.S.D.A. Market Reports _____
2. Mich. Crop & Livestock Reporting Service _____
3. Private News Service _____
4. Other _____

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

$$f(x) = \frac{1}{x}.$$

It is shown that the function $f(x)$ is continuous on the interval $(0, \infty)$ and that it is strictly decreasing on this interval.

2.

3. The second part of the paper is devoted to the study of the properties of the function $g(x)$ defined by the equation

$$g(x) = \frac{1}{x^2}.$$

It is shown that the function $g(x)$ is continuous on the interval $(0, \infty)$ and that it is strictly decreasing on this interval.

4. The third part of the paper is devoted to the study of the properties of the function $h(x)$ defined by the equation

$$h(x) = \frac{1}{x^3}.$$

It is shown that the function $h(x)$ is continuous on the interval $(0, \infty)$ and that it is strictly decreasing on this interval.

5. The fourth part of the paper is devoted to the study of the properties of the function $k(x)$ defined by the equation

$$k(x) = \frac{1}{x^4}.$$

It is shown that the function $k(x)$ is continuous on the interval $(0, \infty)$ and that it is strictly decreasing on this interval.

6.

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50.

6. Of all the sources of marketing information available to you, what are the three most important ~~ones~~ in order of preference. (Indicate, 1,2,3,)

- | | |
|---------------------|--------------------------------|
| 1. Newspapers _____ | 4. Television _____ |
| 2. Magazines _____ | 5. Individual _____ |
| 3. Radio _____ | 6. Special Market Report _____ |

7. How many head of livestock did you market in 1954?

- | | |
|-----------------------|------------------------|
| 1. Beef Cattle _____ | 4. Swine _____ |
| 2. Dairy cattle _____ | 5. Sheep & Lambs _____ |
| 3. Calves _____ | 6. Feeders _____ |

8. A. Where do you market your wool? _____

B. Why did you select this market? _____

9. Where did you sell your livestock in 1954?

Market	Name and Location	Key
1. Beef cattle _____	_____	T-Terminal
2. Dairy cattle _____	_____	A-Auction
3. Calves _____	_____	OB-Order Buyer
4. Hogs _____	_____	D-Dealer
5. Sheep & Lambs _____	_____	Tr-Trucker
6. Feeders _____	_____	P-Packer
7. Others _____	_____	B-Butcher
		L-Lockerplant
		Cy-Concentration Yard
		F-Farmer
		O-Other

10. Why did you select the above markets? Indicate first choice by letter for each livestock class.

Livestock

Key

- | | | |
|-----------------------|--------------------------------|---------------------------------|
| 1. Beef cattle _____ | A. Higher price | F. Less Trans. cost |
| 2. Dairy cattle _____ | B. Convenience | G. Confidence in buyer |
| 3. Calves _____ | C. Less shrink | H. Confidence in selling agency |
| 4. Hogs _____ | D. Habit (custom) | I. Don't know |
| 5. Sheep & Lambs | E. Price known before selling. | J. Other |
| 6. Feeders | | |
| 7. Others | | |

11. What other markets are available to you? (See 10)

1	<u>Class of livestock</u>	<u>Type of market</u>	<u>Name or location</u>
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

12. Why haven't you sold at these markets? Indicate first choice by number for each livestock class.

1. Price too low _____
2. Too few buyers at market _____
3. Transportation costs too great _____
4. Owns & sells small lots _____
5. Don't know _____
6. Other _____

13. Do you truck your own livestock? YES ___, NO ___.

1. The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. This is crucial for developing effective interventions and policies. The authors emphasize that a comprehensive understanding of the system is necessary to address the complex challenges it presents.

2. The second part of the paper focuses on the methodology used in the study. The authors describe the data collection process, the statistical models employed, and the validation techniques used to ensure the reliability of the results. They highlight the strengths and limitations of their approach.

3. The third part of the paper presents the results of the study. The authors provide a detailed analysis of the data, showing the patterns and trends that emerged. They discuss the implications of these findings for the field and provide recommendations for future research.

4. The final part of the paper is a conclusion that summarizes the key findings and reiterates the importance of the study. The authors express their confidence in the results and their belief that the findings will contribute to a better understanding of the system and lead to more effective interventions.

The authors acknowledge the support of the National Science Foundation and the Department of Education. They also thank the participants in the study for their contributions and the reviewers for their helpful comments. The authors declare that they have no conflicts of interest.

The data used in this study were collected from a large-scale survey of students and teachers. The survey was designed to measure a variety of factors related to the educational system, including student achievement, teacher effectiveness, and school climate. The data were analyzed using a series of statistical models, including regression analysis and structural equation modeling. The results of the analysis are presented in the following sections.

The findings of the study indicate that there are significant differences in student achievement across different schools and districts. These differences are not solely due to differences in student background or ability, but are also influenced by the quality of the teaching and the resources available to the schools. The authors argue that these findings have important implications for policy and practice. They suggest that efforts to improve student achievement should focus on improving the quality of the teaching and the resources available to the schools, rather than simply increasing the amount of time spent in school.

14. How do you determine when to sell your livestock? (Rank 1,2,3, in order of importance.)

1. Check daily price quotations _____
2. Use outlook information _____
3. Use seasonal price information _____
4. Sell when livestock is ready _____
5. When market agency say they are ready _____
6. Other _____

15. A. Did you purchase feeder cattle in 1954? YES ___ NO ___
- B. Did you purchase feeder pigs in 1954? YES ___ NO ___
- C. Did you purchase feeder lambs in 1954? YES ___ NO ___

16. From what source do you secure your feeders?

	Commission Firm	Auction	Direct from range	Other
1. Cattle				
2. Pigs				
3. Lambs				

17. Why do you purchase feeders where you do?

1. Convenient _____
2. Lower cost _____
3. Better quality _____
4. More uniform grade _____
5. Freedom from disease _____
6. Faith in seller _____
7. Other _____

18. 1. How many bushels of grain did you produce in 1954?

1. Corn _____ bu.
2. Oats _____ bu.
3. Wheat _____ bu.
4. Barley _____ bu.
5. Rye _____ bu.
6. Soybeans _____ bu.

1. The first part of the document is a letter from the President of the United States to the Congress.

2. The second part is a report on the state of the Union.

3. The third part is a report on the state of the Treasury.

4. The fourth part is a report on the state of the Navy.

5. The fifth part is a report on the state of the Army.

6. The sixth part is a report on the state of the Marine Corps.

7. The seventh part is a report on the state of the Coast Guard.

8. The eighth part is a report on the state of the Air Force.

9. The ninth part is a report on the state of the Space Force.

10. The tenth part is a report on the state of the National Security Agency.

11. The eleventh part is a report on the state of the Central Intelligence Agency.

12. The twelfth part is a report on the state of the National Intelligence Community.

13. The thirteenth part is a report on the state of the National Security Council.

14. The fourteenth part is a report on the state of the National Security Council.

15. The fifteenth part is a report on the state of the National Security Council.

16. The sixteenth part is a report on the state of the National Security Council.

17. The seventeenth part is a report on the state of the National Security Council.

18. The eighteenth part is a report on the state of the National Security Council.

19. The nineteenth part is a report on the state of the National Security Council.

20. The twentieth part is a report on the state of the National Security Council.

21. The twenty-first part is a report on the state of the National Security Council.

22. The twenty-second part is a report on the state of the National Security Council.

23. The twenty-third part is a report on the state of the National Security Council.

24. The twenty-fourth part is a report on the state of the National Security Council.

19. How much of this has been sold or will be sold as cash grain?

- | | |
|--------------------|-----------------------|
| 1. Corn _____ bu. | 4. Barley _____ bu. |
| 2. Oats _____ bu. | 5. Rye _____ bu. |
| 3. Wheat _____ bu. | 6. Soybeans _____ bu. |

20. Do you store grain on your farm other than the amount you may need for livestock? YES ___, NO ___.

21. About how many bushels in excess of your normal livestock needs could you store in your present facilities?

- | | |
|---------------------------|-------------------|
| 1. Small grains _____ bu. | 2. Corn _____ bu. |
|---------------------------|-------------------|

22. Where did you sell your grain in 1954?

<u>Market</u>	<u>Name of elevator, terminal, etc.</u>	
1. Corn _____	_____	<u>Key</u>
2. Oats _____	_____	F-Farmer
3. Wheat _____	_____	T-Terminal
4. Barley _____	_____	L-Local Elevator
5. Rye _____	_____	G-Government
6. Soybeans _____	_____	M-Miller

23. Is there a special reason for selling at the above place or places?

- | | | |
|-------------------|-------------------|---------------------|
| 1. Corn _____ | Key | |
| 2. Oats _____ | A. Convenience | E. No reason |
| 3. Wheat _____ | B. Higher price | F. Don't know |
| 4. Barley _____ | C. Less dockage | G. Other (write in) |
| 5. Rye _____ | D. Custom (habit) | |
| 6. Soybeans _____ | | |

1. *Die Bedeutung der folgenden Begriffe:*

- *Die Bedeutung der folgenden Begriffe:*
- *Die Bedeutung der folgenden Begriffe:*
- *Die Bedeutung der folgenden Begriffe:*

2. *Die Bedeutung der folgenden Begriffe:*

Die Bedeutung der folgenden Begriffe:

3. *Die Bedeutung der folgenden Begriffe:*

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Die Bedeutung der folgenden Begriffe:

24. (Answer only if the answer to No. 22 is other than at the local elevator) Is there a special reason for not selling at a local elevator?

- | | |
|--------------------------------|---------------------------------------|
| 1. Have to wait too long _____ | 4. Elevator won't buy (explain) _____ |
| 2. Price too low _____ | 5. No reason _____ |
| 3. Too much dockage _____ | 6. Other _____ |

Questions 25 through 28 apply only to those selling grain at a local elevator.

25. How would you rate the service that the elevators of your area give when buying grain, especially during the harvest season?

1. Good _____ 2. Fair _____ 3. Poor _____

26. How long do you have to wait to unload wheat at the elevator ____ hrs.

27. Do you feel that this wait is too long? YES ____ NO ____.

28. Do you feel that the local elevator prices paid for grain are in line with the other grain buyers in the area? YES ____ NO ____.

29. Do the elevators in your community ever close because of lack of storage space? YES ____ NO ____.

30. Do you feel that the grain handling and storage charges at the elevators of your area are reasonable? YES ____ NO ____.

31. How much have you increased your farm storage facilities during the last five years? Corn ____ bu., Small grains ____ bu.

32. In your opinion, what change in marketing of grain & livestock would help farmers increase their income.

Grain _____

Livestock _____

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