



An analysis of the market structure for Montana barley and potential outlets  
by Duane L Fedje

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

The purpose of this study is to describe and analyze the present and potential market structure for Montana barley production. This study should offer some leads to other researchers, policy makers, and individual operators.

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

Part II outlines the existing market structure for barley for the crop year 1955 by areas. The producer outlets used in this study were: (1) the barley taken over by the government through CCC loans, (2) the barley sold to grain elevators and feed dealers, (3) the barley fed on the farm where it was produced or sold directly to truckers or feeders and (4) the quantity of barley used for seed for the 1955 barley crop. The implications of the present market outlets to producers were analyzed and a description was made of the movements of "cash barley" based on empirical investigation.

Part III contains an analysis of the potential market outlets for barley. Assumptions were made with respect to the quantity of barley which could be utilized through the expansion of livestock feedings.

The potential production of malting barley was analyzed, based on research by the Montana Agricultural Experiment Station. Other outlets for feed barley were discussed briefly. The future production of barley in Montana was estimated at two levels and budgets were set up to describe the expansions necessary to balance supply and demand.

Part IV is a summary of the research and the conclusions indicate the extent to which the hypothesis was supported. Further research as a result of this study is pointed out in Part IV.

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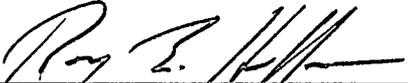
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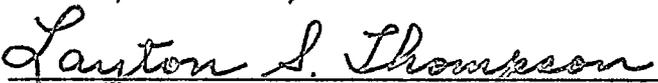
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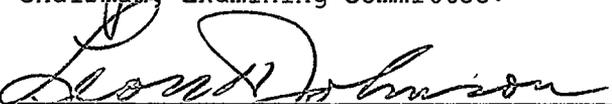
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May, 1957

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

## ABSTRACT

The purpose of this study is to describe and analyze the present and potential market structure for Montana barley production. This study should offer some leads to other researchers, policy makers, and individual operators.

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

Part II outlines the existing market structure for barley for the crop year 1955 by areas. The producer outlets used in this study were: (1) the barley taken over by the government through CCC loans, (2) the barley sold to grain elevators and feed dealers, (3) the barley fed on the farm where it was produced or sold directly to truckers or feeders, and (4) the quantity of barley used for seed for the 1955 barley crop. The implications of the present market outlets to producers were analyzed and a description was made of the movements of "cash barley" based on empirical investigation.

Part III contains an analysis of the potential market outlets for barley. Assumptions were made with respect to the quantity of barley which could be utilized through the expansion of livestock feedings. The potential production of malting barley was analyzed, based on research by the Montana Agricultural Experiment Station. Other outlets for feed barley were discussed briefly. The future production of barley in Montana was estimated at two levels and budgets were set up to describe the expansions necessary to balance supply and demand.

Part IV is a summary of the research and the conclusions indicate the extent to which the hypothesis was supported. Further research as a result of this study is pointed out in Part IV.

## PART I

### INTRODUCTION

#### The Problem

##### Problem Situation

Barley marketing had never posed a serious problem, in Montana, up to the time of government control of wheat production. The markets developed and expanded to meet the needs of the producers prior to government control. In 1954 acreage allotments were introduced in the control of wheat production and over a million acres of Montana cropland was necessarily diverted into other uses.

Farmers are faced with the problem of selecting the alternative crop for diverted acres which will assure a maximum stabilized income. A study was made with reference to these alternatives in Montana in 1948. Sixty wheat farmers and fifty-four wheat-livestock farmers were interviewed. Nearly all of the wheat farmers suggested barley as the cash crop that would be the best alternative crop for wheatland. Some of the wheat-livestock farmers listed barley for sale as the best. Eighty-six percent suggested more feed, grass, and hay for livestock.<sup>1/</sup> Another study in Oregon also confirms the assumption that barley is the best alternative diverted acres. The other alternatives listed in the study were summerfallow, idle land, and establishing a livestock enterprise or expanding a livestock enterprise with facilities available to the farmer.<sup>2/</sup> Four reasons were listed for choosing barley as the best

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<sup>1/</sup> O. L. Mimms, "Diverted Acres in the West," Proceedings of the Western Farm Economics Association, Twenty-third Annual Meeting, June 1950. p. 32.

<sup>2/</sup> W. B. Back and J. Nairn, Alternatives for Using a Half Million Diverted Acres in Columbia Basin Counties of Oregon, Agricultural Experiment Station, Oregon State College, Circular 552, October 1955.

alternative. They were: (1) price relationships, (2) tillage practices are similar to those for wheat, (3) barley is less risky than other alternatives and (4) barley is better adapted to the climate and produces relatively higher yields than other grains.

Wheat farmers in Montana are confronted with a large percentage of total investment in machinery and equipment which gives them a high fixed cost. To enable farmers to utilize this equipment at the least cost per acre it would be most profitable to produce a cash crop. This cash crop logically is barley.

All barley produced in Montana is classified as feed barley. The history or trend of barley production is shown graphically in Figure 1. Total acreages were used rather than bushels because this would be a more definite indication of the intent of producers and would not vary as greatly as total bushels during years of high precipitation or drought. Planted and harvested acres were plotted to indicate the acres which were abandoned or used for hay. The high percentage of abandoned acres during the 1930's is due primarily to the drought. The history of barley production may be broken down into three periods as follows:

1. 1922-1941. During this period there was a gradual increase up to 1926, then a sharp increase until 1929-1930 when production hit its peak during this period. In 1931 and 1932 there was a drop in planted acres, followed by a leveling off in production up to the latter part of the period when there was a slight increase. The peak production during the period from 1927-1930 was due to above normal rainfall and a favorable price

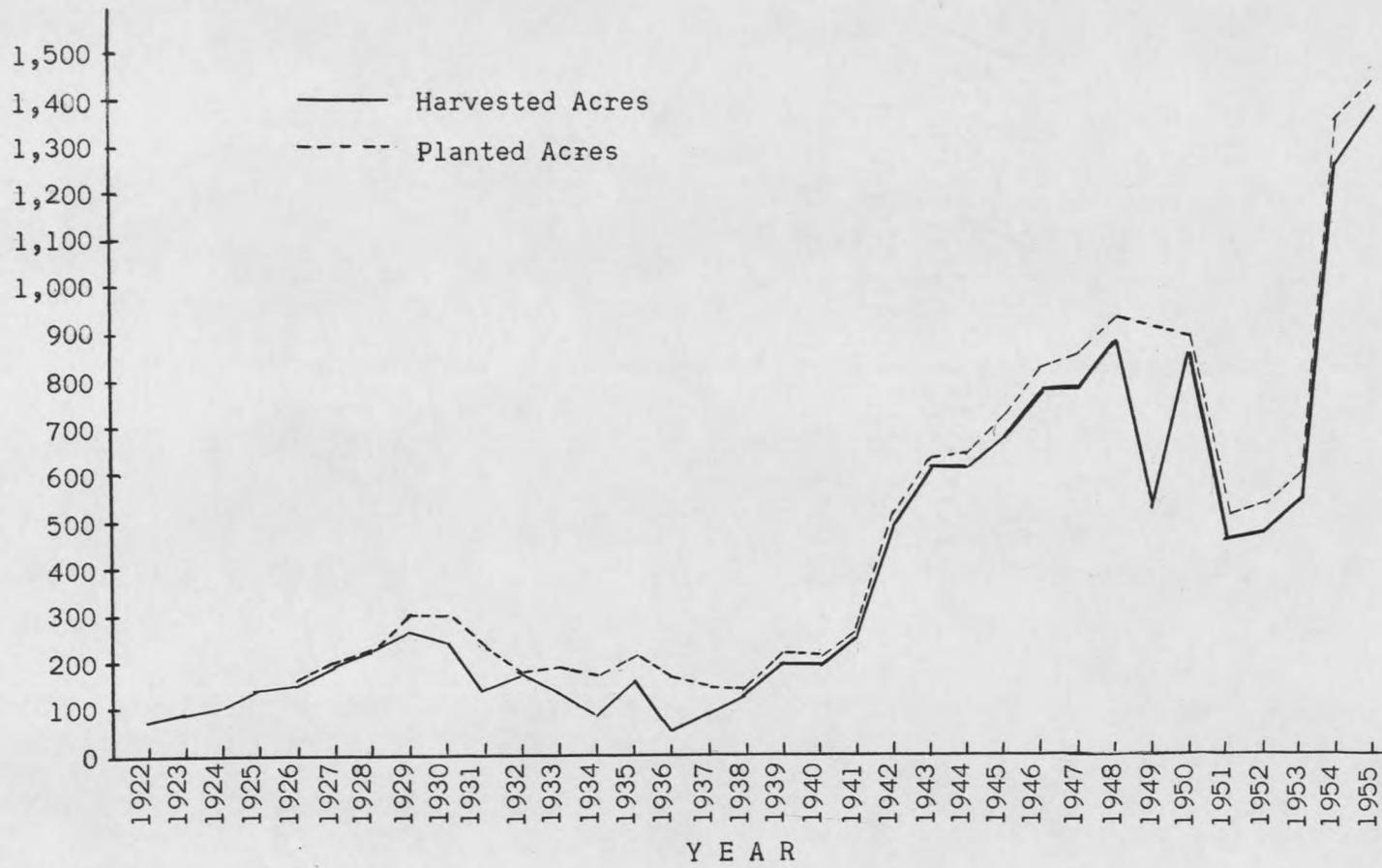


Figure 1. History of Barley Production in Montana

ratio for barley to wheat. The drop in harvested acres in the 1930's may be attributed to the drought and depression.

2. 1942-1953. In 1942 the barley acreage more than doubled the 1941 acreage and continued to increase until 1948 when it hit its peak for this period. The increase in production of barley in the early 1940's may be credited largely to two factors:<sup>3/</sup>
  - (a) the development of the new variety of barley, Compana,
  - (b) the "moral suasion" of the War Food Administration for increased production of barley as a feed grain. Another factor which has some effect on production of barley was that this period of increased demand was also accompanied by years of relatively high precipitation, and many farmers would recrop land by planting barley on land which would otherwise have been summerfallowed following a wheat crop.
3. 1954-1955. In 1954 there was an increase over 1953 of 233 percent in barley production and a continuing increase in 1955 but not as great. This was the increase which gives rise to the present situation and is due largely to the acreage restrictions on wheat production.

Montana is presently confronted with the problem of inadequate market outlets for barley, because of this rapid shift to the production of feed barley as a cash crop in 1954. Because the production of barley expanded slowly except in response to an increased demand, such as the

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<sup>3/</sup> S. C. Litzenberger, Compana and Glacier Barley, Agricultural Experiment Station, Montana State College, Bulletin 422, April 1944, p. 3.

moral suasion during the war, the market for barley expanded to meet the needs of producers. Demand called forth production, thus outlets were established before the physical production. In 1954, demand did not induce production, but rather the diverted acres which would otherwise lay idle if not put to use in the production of a cash crop.

Data were obtained from the State Agricultural Stabilization and Conservation office, which further substantiates the assumption that market outlets prior to 1954, were adequate to handle the supply (Figure 2). The data only cover the period of years from 1948-1955. They are incomplete because they are only for those loans granted by the Commodity Credit Corporation for barley and do not indicate the amount of barley which was redeemed by the producers. The figures are only approximate, but show the trend of the market.

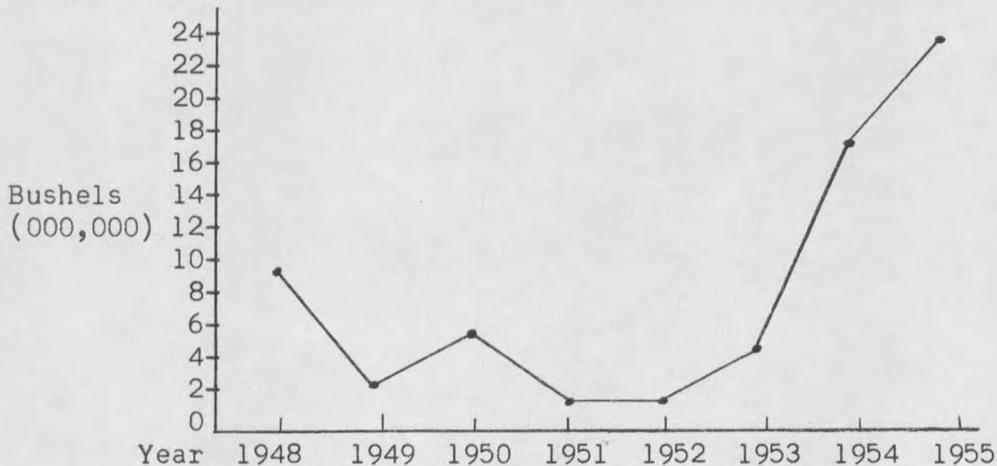


Figure 2. Total CCC Loans for Barley in Montana

It is estimated that the greater portion of the loans made by CCC to producers prior to 1954 were redeemed by producer and the barley moved

through normal channels. At the present time data are not available on the quantity of barley that has been redeemed by producers, but it is expected to be a substantially smaller share of the total placed under loan, than was the case before 1954.

#### Research Problem

This study is concerned with the economic implications involved in the present and potential market and market structure for Montana barley. Factors which affect the operation of the present market will be described and analyzed. Assumptions will be made in regard to the potential market for barley.

#### Objectives of the Study

1. To describe and analyze the functions of existing marketing mechanisms and economic implications involved. Analysis of producer and elevator outlets will be based on both primary and secondary data.
2. To estimate and analyze the potential market for Montana barley and economic implications involved.
  - a. Potential market for barley through increased feeding of livestock.
  - b. Potential market for malting barley production in Montana.
  - c. Other market outlets.

#### Hypothesis

The present market for Montana barley is undeveloped. The existing market outlets can be expanded to handle this increase in production

through: (1) increased livestock feeding, (2) increased production of malting barley and (3) new and expanded market outlets.

### Area and Limitations of the Study

#### The Area

The area under consideration will be the entire State of Montana. It has been divided into two areas on the basis of the type of agriculture (Figure 3). Area I will include the Yellowstone Valley and the territory to the south of it. It will continue west to include Gallatin County and the boundary line will continue northwest to include the counties Lewis and Clark and Flathead and all the area to their south and west. The area is characterized by livestock feeding, ranching and irrigated crops. Area II will include the central, north central, and north-eastern districts of the State. It is predominantly a cash grain area with a smaller portion of livestock grazing. It is a dryland farming area with some irrigation in the western part and along the Missouri and Milk Rivers.

#### The Limitations

This study will be concerned with the movements of barley and market structure for barley in Montana. It becomes necessary to point out the following limitations when working with a broad study of this nature: (1) the time available for the research, (2) the numerous assumptions in regard to the factors of the market and inaccuracies of personal estimates in addition to the errors of random sampling, (3) the analysis will be made on the basis of an average of expectations and not in terms

# MONTANA

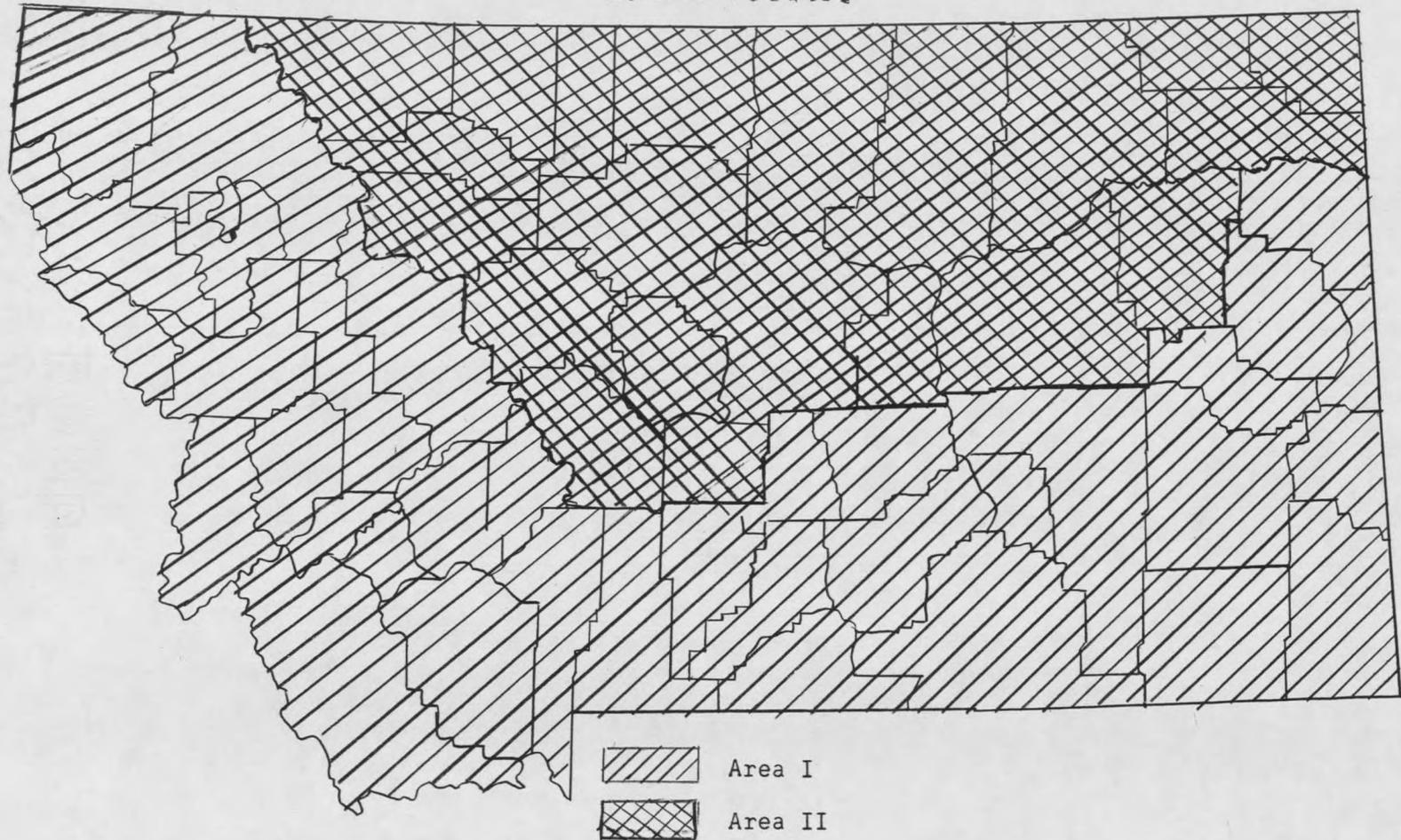


Figure 3. Location of Area I and Area II

of certainty and (4) the lack of literature presently available dealing with marketing Montana barley.

Procedure<sup>4/</sup>

The Sample

A list of all elevators and feed dealers was obtained from the State Department of Agriculture. A county or counties were selected randomly as sample units and the actual sample was also selected randomly from the sample units. Twenty-eight elevators were selected from Area I and 52 elevators were selected from Area II. The questionnaire used was designed to gather data for all feed grains, mixed feeds and hay, but only the barley is treated in this study. The data were obtained by personal interview with the elevator operator or feed dealer. The data were analyzed in tabular form from the sample and related back to the universe. The data obtained concerned the marketing of the 1955 crop.

Secondary data obtained from Commodity Credit Corporation, and the State Agricultural Statistician, were used in the analysis of the disappearance of the 1955 production. The analysis of the present market structure for Montana barley will be based on inductive reasoning from the empirical investigation and secondary data.

Part III of the study will consider the potential market structure. The increased feeding aspect will rest upon assumptions derived from secondary data. It will be the goal of this section to give the farmer

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<sup>4/</sup> The study of Montana barley marketing is part of a regional research project on the economics of marketing hay and feed in the West.

and feeder a picture of the feasibility of finishing livestock. Barley will be compared to corn on a feed value basis. Assumptions will be made in regard to the factors involved, such as cost of transportation and prices.

The second section of Part III deals with the potential market for malting barley in the State. It will also be based on secondary data and will include the history, area of production, estimates of expected price and needed price.

Other new and expanded outlets will be presented briefly from secondary data. A theoretical market structure will be developed for Montana from the above analysis which will properly handle expected production of barley in Montana.

## PART II

### THE PRESENT MARKET STRUCTURE

#### Producer Outlets

##### Marketing Structure

Barley producers in Montana disposed of their 1955 production through four major outlets: (1) CCC (Commodity Credit Corporation), (2) grain elevators and feed dealers, (3) used as feed on the farm or interfarm sales and (4) seed for 1956 crop. These outlets represent the existing market for Montana barley producers.

The total production for Montana in 1955 was 40,620,000 bushels. The relative importance of different producer outlets for the 1955 crop is depicted in Figure 4. The CCC is the largest outlet for barley with producers placing well over one-half of their crop under loan. The volume of barley moving to grain elevators and feed dealers, commonly called "cash barley", and the quantity used at home for feed or interfarm sales was approximately the same. State averages hide wide differences in market practices found in various parts of the State. Figure 5 demonstrates differences found between an area primarily dryland (Area II) and an area with considerable irrigation farming (Area I).

##### Area I

Area I has a total production of 9,678,000 bushels. The major outlet for barley producers in this area as indicated in Figure 5 is the classification of "fed barley" (65%). "Fed barley" will be used in this study to represent the barley which is fed on the farm or ranch where it was produced, or the barley that is sold directly from the farm to feeders

or other farmers (interfarm sales). As was stated in Part I, a high percentage of the cattle finished in Montana are found in this area. Little accurate data can be found on "fed barley". The figure used represents a residual of the production within the area minus the outlets: "cash barley", "CCC" and "seed".

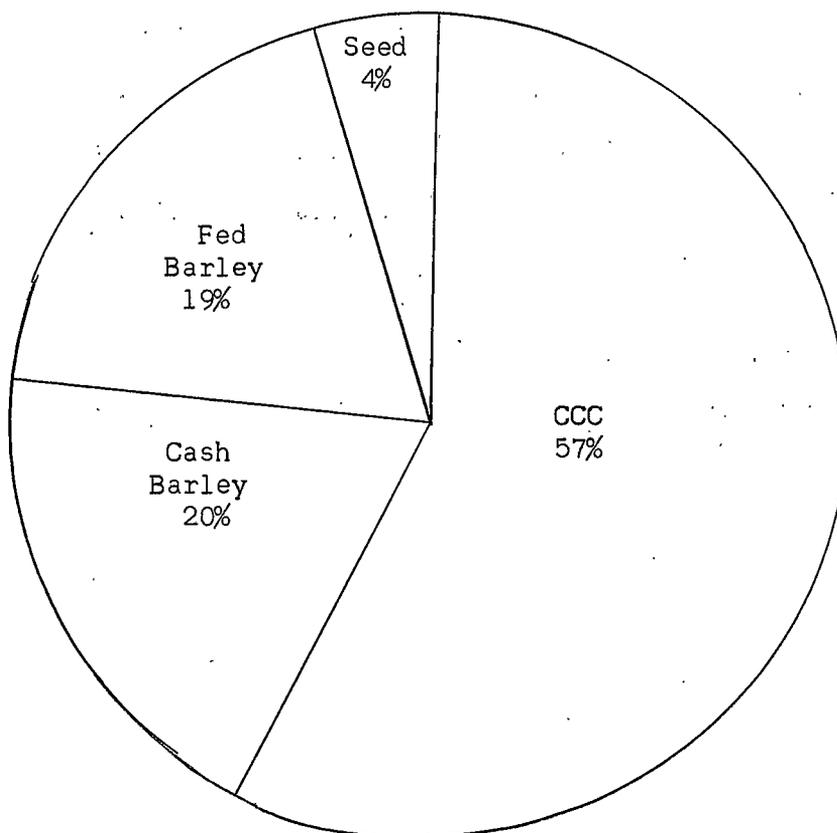


Figure 4. Producer Outlets for Barley in Montana, 1955.

The majority of "fed barley" is estimated to be fed on the farm where it was produced. Barley producers are aware of feeding livestock as a supplementary enterprise and the possibility of realizing greater profits by marketing their barley through finished livestock. Interfarm sales or direct sales by producers to feeders are also becoming more common.









































































































