



Some size, income, and organization characteristics of the ranches of 46 Montana counties
by Leon C Michaelsen

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the
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Abstract:

This is a study of the size and income of the livestock ranches of 46 Montana counties. The discussion is limited largely to the totals for all counties with brief mention, of significant county and general area relationships, and includes an examination of the different kinds of ranch organization as related to each aspect of size and income included in the analysis. Most of the county data are listed in the appendix. The study includes 9150 livestock ranches of an estimated 10,144, or about 90 per cent of the range livestock producing units in the areas studied.

Considered as a group, the livestock ranches of Montana are smaller than the minimum requirements for an economic unit, and they produce an income which is too small to support a socially desirable level of living under Montana ranching conditions. Fifty-eight per cent of all ranches were smaller than 100 animal units per ranch, and slightly over two-thirds of the ranches received a net annual income of less than \$1000 by the data of this study.

The income and productive capacity was very unequally divided between large and small outfits with half of the ranches maintaining 90 per cent of total livestock numbers and receiving 86 and 82 per cent of the total gross and net income received by all ranches respectively.

Sheep ranches were relatively larger and received a higher income than either combination cattle and sheep ranches or straight, cattle outfits, the latter being smallest in size and receiving a relatively lower income than either of the others.

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OF THE RANCHES OF 46 MONTANA COUNTIES


by


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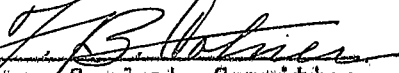
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SOME SIZE, INCOME, AND ORGANIZATION CHARACTERISTICS
OF THE RANCHES OF 46 MONTANA COUNTIES

PART I. ABSTRACT

This is a study of the size and income of the livestock ranches of 46 Montana counties. The discussion is limited largely to the totals for all counties with brief mention of significant county and general area relationships, and includes an examination of the different kinds of ranch organization as related to each aspect of size and income included in the analysis. Most of the county data are listed in the appendix. The study includes 9130 livestock ranches of an estimated 10,144, or about 90 per cent of the range livestock producing units in the areas studied.

Considered as a group, the livestock ranches of Montana are smaller than the minimum requirements for an economic unit, and they produce an income which is too small to support a socially desirable level of living under Montana ranching conditions. Fifty-eight per cent of all ranches were smaller than 100 animal units per ranch, and slightly over two-thirds of the ranches received a net annual income of less than \$1000 by the data of this study.

The income and productive capacity was very unequally divided between large and small outfits with half of the ranches maintaining 90 per cent of total livestock numbers and receiving 86 and 82 per cent of the total gross and net income received by all ranches respectively.

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PART II. INTRODUCTION

Purposes and Objectives

The purpose of this study is two-fold; first, to determine the variation in the size, income, and some features of organization of Montana livestock ranches through an enumeration of them; and, second, to make this information available on a county basis for the different public agencies rendering services to the ranchers of any area, such as extension

workers and the management of public grazing resources to use in formulating their programs and defining their policies.

Specifically the objectives of this study are:

- (1). To determine the importance of livestock ranching to any area through an enumeration of the total gross and net income normally produced by the ranches of that area.
- (2). To determine the approximate welfare of the ranches of any area through discovering the number and proportion of ranches receiving various amounts of gross and net income from ranch enterprises.
- (3). To determine the number of the different sized ranch units in any area and the variation among the different kinds of ranches in this respect.
- (4). To determine the aggregate number of range livestock controlled by various size groups of ranches and through this estimate the relative importance of the different sized ranches.
- (5). To study general size of ranch characteristics and kind of ranch and area variations in this respect.

Sources and Characteristics of the Data

Data for this project were obtained from two sources: (1) The Fifteenth Census of the United States--this material was used for orienting the subject and for comparison with the primary data of the project; and (2) individual farm and ranch schedules prepared by the Montana Experiment Station and Bureau of Agricultural Economics, United States.

Department of Agriculture cooperating.

These latter data were compiled from secondary sources and show for the individual farm unit the location, acreage, average production and yield of wheat (1928-35), livestock numbers as of 1933 (this year is considered as an average year for livestock numbers in Montana), feed crops, and gross income from minor agricultural commodities. 1/ After these schedules were completed, they were checked for accuracy wherever possible with existing complimentary statistics and were examined for accuracy and completeness by individuals acquainted with the farmers and farming practices of the different areas. Corrections were made on these bases wherever mistakes were found. Although these data may be slightly inaccurate for some few individual units, it is generally felt that they are highly reliable in the aggregate.

It is estimated by those who compiled these data and use the farm schedules developed that there are records for 90 per cent of the farms and ranches in the dry farming and ranching sections of the state. The objective in developing these card data was to represent average conditions rather than "peak" or "trough" situations. In thus establishing

1/ Sources of data: Livestock numbers were procured from county assessment rolls, 1933, "corrected" statistically for "shortnumbering" by Mendenhall and compared and corrected on the basis of numbers listed by Forest Service, Drought Purchase and other sources. Wheat, flax, rye, potatoes and feed crops were obtained from AAA records and "Supplementary" income (sugar beets, peas, alfalfa seed, beans, turkeys, etc.) were obtained from processors, distributors, or marketing agents who had compiled these data and were willing to cooperate with the Montana Experiment Station and the Bureau of Agricultural Economics in giving access to their records. This information is compiled on the farm and ranch schedules used in this study.

a normal they provide a means for evaluating present conditions and future developments in the light of past experience.

Method of Procedure

The general method employed in this analysis was one of selecting all the ranches from the farm unit data of the Montana Experiment Station and by studying their size, income possibilities, and organization characteristics, determine what actually is the normal situation as regards these items. In other words, it is a partial (or almost complete) enumeration of the ranches in the areas studied in an effort to determine the limits and variation in ranch size and income. This is an important distinction with respect to this study as the statistics developed are in no way biased by attempted sampling, but endeavors rather to determine the characteristics of the ranches of Montana through an enumeration of them.

From the large number of farm unit schedules of the Montana Experiment Station and the Bureau of Agricultural Economics, the ranch records were selected from the farm schedules according to the following criteria which were set up and used in defining a ranch. First, in order to be classed as a ranch the unit must maintain at least 25 animal units of range livestock in excess of ranch requirement. ^{2/} And second, the

^{2/} Since the purpose of this study was to analyze ranch size and income from the data shown on the individual farm schedule, those items included on the schedule which would normally affect neither size nor income were eliminated in the process of tabulation. On this basis a uniform allowance of 3 animal units of meat animals and 6 dairy cows was made for each ranch. Also only horses in excess of uniform allowances per cultivated acre and per 100 animal units of livestock in the individual unit were included in this tabulation.

unit must receive at least two-thirds of its total gross income from range livestock enterprises in order to be classed as a ranching unit.

In selecting the ranches on the basis of these criteria, it was necessary to determine the gross annual income of all the farm and ranch units in the individual counties in order to select on an unbiased basis all the ranches in the county. The gross income for each individual unit was computed from the data shown on the farm and ranch schedules, namely, the livestock numbers, the average annual production of wheat (and some few other crops such as flax and rye), and the total income from other minor agricultural commodities. Different devices were used for each of these three items in computing the gross annual income for the purpose of selecting the ranches and for the subsequent income analysis.

For all classes of livestock it has been determined that long-time gross annual income will approach \$20 per animal unit under normal price relationships. ^{3/} The gross income from the different classes of livestock maintained on the unit was determined by reducing them to an animal unit basis and multiplying by this \$20 figure. For the crops listing average annual production on the ranch card a long-time average farm price was used to determine the total gross receipts from these commodities. The income from minor agricultural commodities was taken directly from the ranch schedules and used in computing the total gross income of the individual farming and ranching units. The ranches were selected on the basis

^{3/} Saunderson, M. H. and Chittenden, D. W., "Cattle Ranching in Montana," Mont. Agr. Expt. Sta. Bul 341, 1937, p. 10.

of a two-third majority of gross income from range livestock enterprises as computed in this way.

The sample selected included 9130 livestock ranch units located in 46 Montana counties. They were analyzed to determine their size, income and some few organization characteristics.

The size of ranch analysis was made on the basis of the number of animal units of range livestock comprising the ranch unit. The ranches were classified into twelve different size groups according to the number of animal units of range livestock maintained on the ranch unit and were analyzed and summarized on this basis. From this analysis has been determined the number of the different kinds of ranches and the number of the different kinds of range livestock in each of these twelve size groups, and the aggregate gross and net income produced by the ranches in each one of these size classes. This gives the size distribution of ranches, livestock, gross and net income and facilitates comparison of each.

For the purpose of differentiating between different types of ranch organizations with respect to their size and income, the ranches were classified as cattle, sheep, and combination (cattle and sheep) ranches on the basis of an 80 per cent majority (in animal units) of either cattle or sheep. ^{4/}

The income analysis was carried out on both a gross and net income basis. The gross income to study the total productive capacity and the net income to study the level of living of the ranches. Both gross

^{4/} See definitions page 16.

and net income were computed from the data shown on the farm schedules through the use of statistically computed income figures and average prices. Each was summarized by five different sources; namely, beef cattle, sheep, horses, other livestock and crops. The method of procedure will be discussed in greater detail under a discussion of each in the text following.

The size, gross income, and net income of the livestock ranches was analyzed by each of cattle, sheep and combination ranches to determine the principal differences in each of these respects between the different kinds of ranch units. Also each was summarized by counties, types of farming areas and state (46 counties). The data in the manuscript following shall attempt to indicate salient differences between the different kinds of ranches of each of the items discussed, pointing out significant county and area relationships and presenting charts and tables to indicate general trends and tendencies. Some data which would be cumbersome to present in the text on a county basis are shown in the form of type of farming area summaries and the county data listed in the appendix.

Limitations of Data and Procedure

For the purpose of showing normal size, income and some organization characteristics these data are regarded as adequate. However, it is recognized that there are certain limitations to the data and to the method employed in the analysis. Both are the best it was possible to obtain with the facilities at command for this study.

Though the data on these ranch schedules represent all the major agricultural enterprises of the state, the possibility that the information for some minor commodities may not have been obtained in some individual cases would limit the authenticity of this information somewhat. However, it is felt that the amount of error due to this possibility is not great because of the fact that every effort was made to procure this information, and because the ranches of the state in general have little income from minor agricultural enterprises.

Another possible source of error in the income figures is the use of statistically computed constants in their derivation (for income from livestock). However, they were developed from averages to represent averages and the figures evolved will have to be weighed in terms of the constants used in their derivation.

Definition of Terms and Areas Studied

Before proceeding further into this study, certain terms need to be defined and explained since they will be used frequently and an understanding of them will make both reading and explanation more effective.

An animal unit (A.U.) as used in this study is a unit for purposes of comparison and represents an average cow or the equivalent in other livestock as determined by appropriate conversion factors. ^{5/} The animal unit (A.U.) herein refers only to the range livestock maintained on the ranch that could probably enter into producing income (as explained

^{5/} Animal Unit equivalents = 1 beef cow = 1 A.U.; 1 dairy cow = 3 A.U.; 1 horse = 1/3 A.U.; 1 hog = 1/3 A.U.; 1 sheep = 1/5 A.U.

previously, page 11, footnote 2, allowances were made for home consumption of meat and milk and ranch requirements for horses).

A ranch as used in this study is a range livestock producing unit which has a minimum of 25 animal units of range livestock in excess of requirements for home consumption and work stock, and on which two-thirds or more of the total gross income is from range livestock enterprises.

A cattle ranch herein refers to that ranch on which at least 80 per cent of the livestock (in A.U.) are cattle or horses.

A sheep ranch refers to that ranch on which at least 80 per cent of the total number of livestock (in A.U.) are sheep or horses.

A combination ranch refers to that ranch where neither cattle nor sheep is in an 80 per cent majority.

Type of farming area. This study will frequently resort to presenting data which would be cumbersome on a county basis and which can be adequately illustrated by general types of farming areas, of which there are 9 included in this study, designated and outlined as shown in figure 1. The different types of farming areas embrace a number of counties having many similar characteristics. The physical environment of the area, the prevailing type of farming, and the problems involved in agricultural readjustment are approximately alike. They are however, too extensive to exhibit a high degree of uniformity in the organization of farms and ranches. Figure 1 shows also the 46 counties included in this study.

