



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

PROCEEDINGS
of the
WESTERN FARM ECONOMICS ASSOCIATION

Twenty-Fifth Annual Meeting

July 23-25, 1952

Flagstaff, Arizona

RESULTS OF FARM MANAGEMENT STUDIES
FAMILY SIZE LIVESTOCK RANCHES

H. R. Hochmuth
Bureau of Agricultural Economics

For a number of years the Bureau of Agricultural Economics has developed aggregate estimates of gross farm income for the United States. These estimates, although necessary and useful, have not solved the problem of estimating farm income for specific types of farming areas. There is additional need for data by specific types and sizes of farms showing annual variations, trends and changes in organization, costs and returns. The present studies on organization, costs and returns have been developed to fill this need.

Current studies have developed farm costs and returns estimates on 20 types of commercial family-operated farms in 10 major farming regions. ^{1/} Emphasis has been placed on family size farms because over 70 percent of the farms in the United States are commercial family-operated farms.

Census data aids the classification of farms into various economic sizes or classes so that bonafide commercial family-operated units can be studied. Census data aids in the determination of the universe so that over-all estimates are obtained in detail. In this way, it is known in advance what to expect in a sample, and data obtained from various sources can be properly weighted. The size of the farm or ranch unit to be studied is determined from frequency distribution of acreage, income, number of livestock and other criteria.

Characteristics of family-operated farms

The principle criteria of size of ranch in the range region is number of livestock. Acreage criteria has little validity in a region having much public lands. Criteria of type of ranch is obtained by classifying the principle source of income. For cattle ranches, more than 50 percent of cash receipts must come from beef. There is, however, considerable variation in source of income depending on size. For sheep ranches, more than 50 percent of cash receipts must derive from sale of sheep and wool.

Once the criteria for selection of individual farm schedules is determined, a random sample can be extracted for all of the necessary items contained in the census. This data is comparable to data which might be obtained from an enumeration survey. Accordingly these primary data were obtained and summarized from the 1930, 1935, 1940, 1945, and 1950 censuses and were used as benchmarks to determine basic ranch organization for cattle and sheep ranches.

^{1/} Statistical summaries for all of the study areas completed through 1945 were published by the Bureau of Agricultural Economics in F.M. 55, "Typical Family-Operated Farms, 1930-45, Adjustments, Costs and Returns." Like data for cattle ranches in the Intermountain Region was published in F.M. 71, "Commercial Family Operated Cattle Ranches in the Intermountain Region 1930-47." Data for sheep ranches in the Intermountain Region was published in Agriculture Information Bulletin No. 85, "Commercial Family Operated Sheep Ranches, Intermountain Region 1930-50. Organization, Costs and Returns." Data for the Northern Great Plains Ranching area is published in Montana State Agricultural Experiment Station Bulletin No. 478, "Commercial Family-Operated Sheep Ranches Range Livestock Area. Northern Great Plains 1930-50." Organization Production Practices, Costs and Returns." A similar bulletin for cattle ranches is now in press for the Northern Great Plains. The latest publication on farm costs and returns in several farming areas is published by the Bureau of Agricultural Economics, as F.M. 93, "Farm Costs and Returns 1951 with Comparisons, 20 Types of Commercial Family-Operated Farms in 10 Major Farming Regions."

Sources of data

With a detailed knowledge of the universe, secondary data can be extracted, classified and applied to its segment of the universe. Principle sources of secondary data available for these types of studies are records of state offices of the Division of Agricultural Estimates, Bureau of Agricultural Economics, local records of the Production and Marketing Administration, the Farm Credit Administration, state and county tax bodies, and state agricultural experiment stations. In addition, in the range livestock region, commensurate property and licensing records of the public land agencies are necessary sources of secondary information on land resources.

The above sources of data are supplemented with field surveys so that direct checks can be made, new data uncovered, and new procedures developed. Enumeration surveys of appropriate sized cattle ranches and sheep ranches are made. Schedules contain questions designed to get information on ranch organization, investment, and the many production inputs and cost rates. In addition, information is obtained on disposition of crops, livestock, and livestock products. In general, direct questions about income are not obtained. If sufficient production data is secured, ranch income can be calculated with accuracy.

These methods used to obtain and analyze the data constitute an extremely low cost procedure for conducting broad farm organization, costs and return studies. An additional feature is the development of results consistent and comparable between differing type of farming areas. The data can be compared over the years on the same group of farms and year to year comparisons can be drawn between farms.

The development of the basic farm organization, and the estimates of costs and returns is accomplished by budgets. All quantity items are on an individual farm basis. Prices used may be state prices, prices by crop reporting districts, or other sources where applicable.

Types of analysis made

Various analysis can be made from the studies of family-operated type of farms. These studies provide a basis for a continuing analysis of farm costs and returns by types. They can annually test the effects of changes in prices, organization, costs, technology, etc. In each item of physical input and output, weights are obtained. Physical data are emphasized so a physical and financial budget is made. This means that any price or production level can be substituted and forecasts obtained.

Results of the present studies of family size livestock ranches have been used to compare stock ranching with similar size organizations in other type of farming areas. This data is used by public agencies, loan agencies, rural banks, legislative bodies, livestock organizations, ranchers and various state experiment stations. The by-product research necessary to develop final cost and return data finds many other uses particularly among the public land agencies.

An important part of the studies is the construction and development of several series of index numbers to give summary measures of changes in various items and to permit and facilitate direct comparisons of production, prices, costs and income. These comparisons can be made between years in the type of farming area for which the study is developed and between various types of farming areas. Important factors in explaining, measuring and comparing incomes are changes in production and changes in amounts of land, labor and capital that are employed and the manner and efficiency in which they are used.

Additionally there are the changes that occur in the price and cost relationships. All items of expense and income are assigned weights and are combined in a series of index numbers to provide a direct means of measuring the effect of production, farm practices, mechanization, prices, costs, and the many related factors

upon ranch income and organization. Prices received and prices paid by ranchers are each weighted respectively by the quantity of that particular item sold or purchased during the year.

Problems encountered

Although comparable results are obtained, the detail of obtaining some of the data may differ by type of farming areas because data may be more available in one farming area than in another. For instance, less physical input data and less data on farm management and organization practices are available in the range livestock region and in the regions of more intensive cropping.

In most cropping areas, accurate information on yields is available for a lengthy series of years. This is not so true in the range livestock region although accurate yields of feed crops can be obtained. This does not apply to the yields from range and pasture.

A perplexing problem which faces the ranch management investigator in the range livestock region is the determination of the forage and feed resources of the ranch and an accurate balancing of the forage and feed account. In many instances acreages of range and pasture are not available. Where data on animal unit months of forage are present it may represent a time basis only. Forage production fluctuates widely between years and even between seasons. Maintenance rations of hay and concentrates may vary widely between years owing to climatic variations. An attempt has been made to vary these differences in forage and feed production by statistical application of the range feed condition index published by the Bureau of Agricultural Economics.

Another problem encountered in the range livestock region is the accurate determination of average sale weights of livestock by age, and class for an area, a state, or a region for a particular year. Differences exist in sale weights of livestock each year owing to differences in age at sale and in the forage and feed available from range and pasture for that year. Some success has been obtained in correlating lamb weights with the Bureau of Agricultural Economics spring and summer seasons index of range feed condition.

In addition to the above problems, frequent revision of data may become desirable in the initial phases of a budget preparation. The original estimates may be untested, but they afford a starting point from which to build accurate data relating to the ranch organization, costs and income.

Future progress

It is anticipated that similar studies on ranch organization, costs, and returns will be initiated soon in the yearlong grazing areas of the Southwest and Southern Great Plains. When these latter studies are completed, a fairly complete analysis of family sized ranch organization and annual estimates of costs and returns will be available. Present publications have been limited primarily to emphasis on the statistical aspects of costs and returns with limited detail on organization and input-output factors. Future analyses will present much of the input-output factors used and an analysis of production functions between type of ranching areas. The extent of farm management analysis that can be made from the basic data seems great. Current knowledge of ranch organization is limited in the range livestock region in comparison to other type of farming areas.

Some results of studies

Estimates presently available permit some comparisons of ranch organization, input-output factors and costs and returns between several types of ranches and between farms in other type of farming areas. Reports of three types of ranches,

(1) a sheep ranch in the Northern Plains, (2) a sheep ranch in the Intermountain Region and (3) a cattle ranch in the Intermountain Region are now available. (op. cit.) The Northern Plains sheep ranch has approximately 1,100 head of sheep. The Intermountain Region sheep ranch has approximately 1,500 head of sheep and the Intermountain cattle ranch has approximately 220 head of all cattle. The Northern Plains and Intermountain sheep ranches presently encompass approximately 5,200 acres each while the Intermountain cattle ranch contains about 1,675 acres. These acreages do not include public lands used under permit or license.

The Northern Plains sheep ranch has about 200 acres of crops whereas the Intermountain sheep ranch has only about 45 acres of cropland, and the Intermountain cattle ranch has about 180 acres of cropland.

In 1951 the Intermountain Region sheep ranch had a total investment of approximately \$103,000. Comparable investment data for the Northern Plains sheep ranches is about \$88,000 and for Intermountain Region cattle ranches about \$78,000. The significant part of this investment data is that although they are large they still represent investment required to operate a family size ranch in the range-livestock region. This accounts for much of the difficulty in starting a family size ranch in the ranching area under present conditions.

Nineteen hundred fifty-one investment for a comparable size farm in that wheat roughage livestock area of the Northern Plains is about \$33,000; for cotton farms in the Delta of Mississippi about \$11,000; for hog-beef raising farms in the corn belt about \$33,000; and for dairy farms in Eastern Wisconsin about \$33,000.

Generally the family furnished 80 to 90 percent of the labor on family-operated farms. The percent of total labor furnished in 1951 by the farm operator and family is about 86 percent for Intermountain Cattle Ranches, 84 percent for Northern Plains wheat-livestock farms, and reaches 94 percent for cash grain farms in the corn belt. Sheep ranches are an exception. The Northern Plains sheep ranch in 1951 hired 43 percent of the required labor and Intermountain sheep ranch hired about 60 percent of the necessary labor. Sheep ranches have peak labor requirements such as shearing and lambing that require a relatively large labor force. In addition, for sheep grazed on the open range, hired herders are necessary.

Western stock ranches lead other types of family-operated farms in gross and net farm income. The sheep ranch has from two to ten times the gross income of other types of family-operated farms. However, the expenditures are proportionately larger so that the differences in net farm income between a stock ranch and other farm types is not so pronounced.

After allocation is made for invested capital the earning power of stock ranches is not so pronounced when calculated on a return per hour to operator and family labor. The sheep ranch earned in 1951 about \$3.50 per hour for the operator and family labor. Comparable data for the cattle ranch was \$2.43 followed closely by the wheat farms, corn belt farms, and other grain farms.

The above discussion indicates that stock ranches are relatively profitable enterprises under the present price and production level. They do, however, require large farm capitalization for a family sized enterprise and probably entail greater risk for the invested capital than do other types of farming.