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THE STATUS OF FARM MANAGEMENT INVESTIGATIONS IN THE WESTERN STATES

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During the time that has elapsed since the war there has been a very rapid growth in the literature dealing with agricultural economics. When agriculture was rapidly expanding every effort was made by experiment stations to assist farmers to increase production and very little of the investigational work dealt specifically with the economic side of the farmers' problems.

During the war individual efficiency of the farmers was increased to a remarkable degree and this efficiency has not decreased, but rather, has inclined to increase up to the present time so that the problem of readjustment to meet the new conditions has become acute. As a result, the experiment stations are giving increased attention to problems of farm management, market conditions, outlook reports and other phases of economics. It was this high efficiency in production that helped to bring on the long agricultural depression, and it is greater efficiency that is now advocated to cure the disease. We advocate the culling out of low producing cows and hens, the growing of better beef, swine and sheep, and the production of crops by the least cost methods in order that the greatest net income per producing unit may be obtained. It was the rapid development of efficiency that helped to bring on the present unprofitable agricultural situation but paradoxically enough, it is high efficiency that farmers must now possess if they are to keep out of bankruptcy under present conditions.

There is a difference however, in the way this efficiency is being applied. Formerly farmers were instructed and experiments were designed with the object in view of producing greater amounts of agricultural products. Now our investigations are beginning to deal with methods of producing goods at a less net cost per unit. This may involve greater production but it does not necessarily do so. Frequently the lowest cost is obtained by methods which do not result in the highest yields, as when greater profits are obtained by less cultivation and a slightly reduced crop yield, or when, as in the case of cows, a diminished production is obtained in conjunction with the feeding of a smaller amount of high priced concentrates. Again in the case of pigs, it is sometimes found that the ration which is most efficient from the economic standpoint may not be the most efficient ration in producing rapid gains.

The mark of efficiency now is not so much an increase of production per unit as it is the increase of profits per unit. Because of this changed conception, the subjects of farm management, marketing, and cooperation are continually rising in importance in the work of experiment stations and the volume of projects and bulletins dealing with these subjects has become so great that even economists are hard put to it to keep abreast of developments. It is not to be expected that farmers can keep up with the latest results in farm management studies. It is certain they do not do it to any great extent by reading bulletins. The progress they make in this line can most effectively reach them thru the Extension Service. To meet this condition the investigators of the experiment stations in some states plan the less technical phases of their work as to meet the requirements of the extension leaders and county agents in the sections where the investigations are applicable. In some states a part of the farm management work

is planned and carried out in full cooperation with the extension departments. Such a course has two useful results. It tends to hold the investigational work to the more practical or immediately useful phases of farm management and it also is the most effective method of educating the extension workers in agricultural economics. They are the ones who must get the useful economic information to the farming public. This information cannot filter down and be made immediately useful by means of bulletins alone. It must be digested by those who are capable and be put into effective use thru well organized effort. We are in the midst of an agricultural crisis and the quickest and most effective means of diagnosing the trouble and applying the remedies should be used.

Certain it is that the extension service is now becoming very active in the application of the principles of agricultural economics. In some instances the extension divisions are evidently of the opinion that the experiment stations are too slow in securing adequate information in regard to farm management and marketing in a form that can be passed on effectively to farmers and so they are starting enterprise studies and farm management projects of their own. The extension service is very efficiently organized thru its county agent system for the prosecution of certain types of economic studies and it looks now as if we were soon to have an additional stream of economics literature coming from that source to join the flood already coming from the experiment stations and the Bureau of Agricultural Economics.

In the early days of farm management investigations in the central and eastern states, it was thought necessary to determine as accurately as possible the money cost of all farm operations. The labor rates and feed cost rates were used as they actually varied from month to month and from farm to farm. Horse labor was charged at what was termed its exact cost on each individual farm. When the results were compiled they were found to be of considerable interest to the individual cooperators but they were of little value for use in making farm management plans that were adapted to changing economic conditions. Furthermore it was difficult to compare the efficiency of management of one farm or one group of farms with another for the reason that each farm had its own independent cost rates that differed in some degree from those of any other farm.

These studies would have been of value if our economic conditions were static. It was thought at first that the results could be compiled and used something like engineering data and this is true to a limited extent with the physical measurements that enter into costs but there are so many variables to deal with in estimating any kind of farm costs that the determination of money costs is of only momentary and local value, applicable only to that particular time and place. This method has its use in extension work for it makes it possible for each individual farmer to compare the efficiency of his own system of management with that of neighboring farmers, but it should always be kept in mind that this comparison applies only to the economic conditions then prevailing. In another year, with a different set of price conditions, the order of efficiency might be considerably changed. The man whose net returns were highest in 1929 might be among the least efficient under the conditions prevailing in 1931.

This brings out the point that farm management investigations should always be designed to discover the principles that govern profitable procedure rather than to discover the most profitable procedure under any one set of conditions. In looking over the bulletins on farm management issued by the western stations, one finds that the trend has been in this direction. Everything possible is expressed in physical quantities so costs may be determined under any new set of conditions. Costs in dollars and cents are useful in reducing these physical quantities to a common denominator that expresses results in a few figures for any set of price combinations. Then by means of correlation the factors which affect costs and profits are determined.

In many of the bulletins we find the authors, first determining physical and money costs under one set of conditions and then attempting by using the data in hand, to work out set-ups that would have brought or which will bring in the future, greater profits. To make attempts to devise the most profitable set-ups for a number of years to come is probably a risky undertaking, only a little safer than making equally long-time forecasts of the weather. The economist at least has some advantage over the weather forecaster because he can be reasonably certain of his economic weather conditions for one and sometimes two years in advance. On this basis farm management readjustments can be planned by annual budgeting that should have the effect of materially increasing net returns. Might we not say that the potential usefulness of investigations in farm management depends upon the extent to which the information may be used in shaping farm organization and methods to secure the greatest profits under varying economic conditions? To discover the methods of management and set-ups that will yield greater profits under conditions prevailing today is of little value unless there is also outlined the principles which make possible readjustments to secure greatest profits under any new set of price combinations which may obtain in the future.

Certainly the farm management investigations now being conducted in the western states are trending toward this point of view. Data is presented in such a way that it can be used in the making of budgets to fit new price combinations. Still we seldom see an attempt made by authors of bulletins to show under what conditions the methods now found to be most profitable would become least profitable. For instance, under a certain set of price conditions it is profitable to feed grain to dairy cows but if the price of butterfat drops low enough or if the price of concentrates rises high enough or if the efficiency of the cows is low enough, it becomes unprofitable to feed grain. The question is not "Does it pay to feed grain to dairy cows?", but "Under what conditions does it pay to feed grain to dairy cows?"

Until recently economists have not very generally attacked their problems in farm management from this point of view. They usually have shown which of two or more methods pay the best under the economic conditions then prevailing without attempting to show under what conditions some other method might be more profitable.

I believe that our farm management investigators might often improve their presentation by meeting squarely this condition we have of continuously changing prices as has been done for example, very effectively

by Severance, Hunter and Eke in their recent bulletin "Farming Systems in Eastern Washington and Northern Idaho".

In Montana, three bulletins have recently been issued by Sherman E. Johnson who has attempted to show how adjustments in farming systems can be made to adapt them to changing economic conditions. The following quotation is from Johnson's Bulletin 239. "Consequently the income possibilities of farms as they are organized today may be far different from the incomes of farms five years hence that are organized and operated under difference conditions. The comparative incomes of individual farmers in the next few years will depend quite largely upon the rapidity with which they are able to make adjustments to changing economic conditions."

"The fact that agriculture is changing so rapidly should not discourage plans for detailed studies in the area. More facts about the physical adaptability of the area, more information on external economic conditions, and more tests of internal adjustment possibilities, will place research and extension agencies in a much firmer position to aid and advise in the necessary readjustment problems."

I have quoted this to show that western economists are beginning to place more stress upon the fact that this is not a static, but a dynamic, ever changing economic world and our bulletins to be of greatest value must be adapted to this idea. Just because such presentation is difficult is not a legitimate excuse for not doing it. One of our big problems is to learn how to deal with these variables that are ever present in economic studies.

The overgrowing importance of investigations dealing with agricultural economics is indicated by the recent rapid increase in the number of economic bulletins issued by the stations. During the seven years of relative agricultural prosperity from 1914 to 1920, inclusive, there were only 1.1 printed bulletins dealing with agricultural economics put out per year in the eleven western states. During the next 5 year period there were 6.4 bulletins per year and during the last 5 years, 20.4 bulletins were issued per year.

In order to get a clear conception of the nature of the investigations now being conducted in farm management in the eleven western states, a list is given of the projects in force in 1931 or that were completed during the past year.

When the nature of the projects in force for a number of years back is compared, it is evident that those related to marketing, markets and prices are increasing in numbers more rapidly than any of the other divisions mentioned in the table below.

Twenty five general projects in farm management were reported. These include studies of such crops and livestock as are found on farms in the area studied. They are as a rule studies of the farm organization and management of the farm plants as units rather than specific studies of individual enterprises.

Twenty one projects dealing specifically with farm management studies with livestock are classified as follows -- general, 2 projects; beef, 5 projects; sheep, 6 projects; dairy, 4 projects; poultry, 3 projects; hogs, no projects; and goats, one project.

This list does not represent all the farm management work being done with livestock since nearly every project in the general farm management class includes livestock in its scope.

Farm management studies specifically applied to crops are classified as follows -- general, 2 projects; fruits, 9 projects; grain, 4 projects; and other crops, 7 projects. Crop studies are also an integral part of the general farm management investigations.

The number of projects in farm economics is shown by states in the following tabulation.

CLASSIFICATION OF PROJECTS BY STATES
1929-1931

	Farm Management			Markets & Marketing	Misc.	Total
	General	Livestock	Crops			
Arizona	0	1	1	1	0	3
California	2	1	1	10	20	34
Colorado	1	1	4	3	6	15
Idaho	4	4	6	2	0	16
Montana	10	4	1	1	0	16
Nevada	1	1	0	0	0	2
New Mexico	1	1	0	3	0	5
Oregon	1	5	10	6	4	26
Utah	1	1	0	2	4	8
Washington	2	0	1	6	2	11
Wyoming	2	2	0	2	1	7
Totals	25	21	24	36	37	143

LIST OF PROJECTS DEALING WITH AGRICULTURAL ECONOMICS IN THE ELEVEN WESTERN STATES. 1929 - 1930 - 1931.

Farm Management Projects - General

California:	Investigation of economic and farming conditions in irrigation district.
	A study of the types of farm organization best suited to irrigated farms of various sizes and resources in the Turlock irrigation district of California.
Idaho:	A study of farm organization and management in the Palouse area of Idaho and Washington.
	Farm Management. - To place the remainder of the farm in condition to produce crops for feed or sale.
	Farming systems for Idaho Falls and surrounding territory. (In prospect)
Montana:	Study of farm organization in Montana.
	Organization and management and practices of successful farmers in Montana.
	Organization of successful dry farmers in southeastern Montana.
	Study of the organization, land, labor and capital requirements and comparative advantages of representative types of mechanically operated wheat farms in northeastern Montana.
	Tests of hypothetical farm organizations designed for areas in Montana in which previous studies have shown maladjustments in farm organization.
	Crop and livestock enterprise combinations in relation to farm organization and income on Sun River and Valier irrigation projects.
	Crop and livestock enterprise combinations in relation to farm organization and income on the Milk River reclamation project.
	Irrigation farming vs. dry farming, under the ditch.
	Crop and livestock combinations to yield highest net income in western Montana.
	Study of organization, land, labor and capital requirements and comparative advantages of a "two-tractor" type of mechanically operated wheat farm.
Nevada:	Farm development studies.
N. Mexico:	A farm organization and related market-outlet study in the Middle Rio Grande Conservancy District.
Oregon:	Applied farm organization.
Utah:	Farm organization and accounting.

Washington: Development of profitable set-ups for types of farming adapted to the more humid portions of the wheat producing area of eastern Washington and northern Idaho.
Development of profitable set-ups for types of farming adapted to the nonorchard areas of the Yakima Valley.

Wyoming: Costs and methods of management on a small farm daily.
An economic study of the organization, management and returns on our irrigated and dry-land farms in Goshen County.

Farm Management Projects in Livestock

Arizona: A detailed study of factors affecting economics of range sheep and goat production in Arizona.

California: Cost of producing beef animals under California range conditions.

Colorado: A study of costs and methods of producing cattle and sheep on the range.

Idaho: A study of the changes that have taken place in the production of beef cattle in Idaho and the reasons for these changes.
Sheep management - Cost of production.
Dairy - farm management. (a.) To encourage the introduction of dairying as a type of farming for this area of the state. (b.) To determine the crops to be grown for a dairy herd. (c.) To determine the proper number of animals to be maintained on an 80 acre unit of land and their management.
Dairy cost and efficiency study.

Montana: Study of range livestock industry.
A study of economic causes for the wide fluctuation in range-sheep population in Montana.
A study of the economic advantages of dairying in the irrigated and nonirrigated areas of Montana and of the types of farms and farm organization best adapted for this enterprise.
An economic study of feeding wheat to livestock.

Nevada: Studies of the economics of cattle production under Nevada ranch and range conditions.

New Mexico: Economics of sheep production in New Mexico.

Oregon: Angora goat enterprise study.
Livestock shelter sheds. - Records of cost and efficiency of same on 60 farms.
Dairy - farm cost and organization study.
Poultry enterprise cost and efficiency study.
Cost of production (Poultry)

Utah: Economic factors affecting the production and marketing of Utah's poultry products.

Wyoming: An economic study of the production of cattle on the Mountain Valley ranches.
A study of the range sheep industry in Wyoming.

Farm Management Projects in Crop Production

Arizona: Cost of producing field crops in Arizona.

California: A study of economic factors in cost of producing California crops as affecting farm organizations and profits.

Colorado: Farm organization and cost of production survey in typical peachgrowing district.
An economic study of the apple industry in Colorado.
An economic study of the peach industry in Colorado.
A study of apple orcharding and its relation to the agriculture of the western slopes of Colorado.

Idaho: Study of methods, equipment, crew organization, and cost of harvesting grain with the combine in northern Idaho.
A study of the methods, equipment, crew organization and cost of harvesting and stacking hay in southern Idaho.
A cost study of sacking wheat vs. bulk handling of wheat in combine harvesting in the Palouse wheat area.
Farm management. - To determine the cost of certain crops from the standpoint of man and horse labor expended.
Potato cost and efficiency study.
Cost study in growing of sugar beets.

Montana: A study of the economics of flax production in Montana.

Nevada: Farm development studies (Cost of production)

Oregon: Cost of production experiment, field basis, 80 acre farm unit. -- Three-year rotation (wheat-peas-potatoes) 5 acre unit, only one crop grown per year.

Cost of production experiment, field basis, 80 acre farm unit -- Nineteen acres federation wheat, 19 acres field peas and wheat, 24 acres Grimm alfalfa.

Cost of production experiments, under small plant. -- Field peas in 5 acre units.

Cost of production experiments,under small plant. -- Wheat in 5 acre units.

Cost of production experiment, field basis, 80 acre farm unit -- Pasture mixture, 15 acre block.

Cost of production experiments, under small plant -- Potatoes in 5 acre units.

The economic status of the pear industry. - Cost of production.

English walnut cost study.

Economic study of the hop industry in Oregon.

Washington: An economic study of apple production in the Yakima and Wanatchee areas.

LIST OF PUBLICATIONS DEALING WITH FARM MANAGEMENT AND OTHER ECONOMIC STUDIES IN THE ELEVEN WESTERN STATES
1914 - 1931

Farm Management Bulletins, General

Arizona:	Dry Farming in the Sulfur Spring Valley. Bul. 103, Thompson and Gray	1925
	Lessons from South western Indian Agriculture, Bul. 125, S. P. Clark	1925
California:	Fundamental principles of cooperation in agriculture. Cir. 123, G. Harold Powell	1914
	A study of farm labor in California. Cir. 193, R. L. Adams and T. R. Kelly.	1918
	California farm tenancy and methods of leasing. Cir. 272, R. L. Adams	1923
	Enterprise efficiency studies on California farms. Ext. Cir. 24, Fluharty and Wilcox	1929
	Economic problems of California Agriculture. Bul. 504	1931
Colorado:	Farm costs on the Colorado Agricultural College Farm. Bul. 203, Alvin Keyser	1914
	Factors that influence profits on irrigated farms. Bul. 318, Noorchouse, Burdick and Hutson	1927
	A study of ranch organization in eastern Colorado. Bul. 327, Burdick, Reinholt and Klemmedson.	1928
Idaho:	Preliminary report on farm organization in Twin Falls and Latah Counties. Bul. 123, B. Hunter	1921
	Farm costs and relative costs of seven crops, Twin Falls County, Idaho. Research Bul. 2, Hunter and Nuckols	1922
	Business analysis of 181 general crop, 11 dairy and 10 fruit farms, Twin Falls County, Idaho. Bul. 132, B. Hunter	1923
	Farming practices for the cut-over lands of northern Idaho. Bul. 136, McDole and Christ	1925
	The farming business in Idaho. Bul. 151	1927
	Farming systems for eastern Washington and northern Idaho. Bul. 173, Severance, Hunter and Eko	1930
Montana:	Farm management in the Gallatin Valley. Bul. 111, E. L. Currier	1916
	Farm management studies. Lessons from irrigated farms in the Billings region. Cir. 101, E. L. Currier	1921
	Farming business in the Gallatin Valley, Bul. 175, H. E. Selby	1925
	Statistics of dry-land farming areas in Montana. Bul. 185, H. E. Selby	1926

	An economic analysis of production problems in the Bitter Root Valley, Bul. 220, Sherman E. Johnson	1929
	Successful farming practices in the Billings beet region. Bul. 232, E. J. Bell	1930
	An economic analysis of production problems on the Flathead Irrigation Project. Bul. 237, Sherman E. Johnson	1930
	Present and prospective farming systems in western Montana. Bul. 239, Sherman E. Johnson	1930
	An economic study of farming in southeastern Montana. (In manuscript)	
	Crop and livestock enterprise combinations in relation to farm organization and income on the Milk River Irrigation Project. (In manuscript)	
	Crop and livestock combinations in relation to farm organization and income on the Sun River Irrigation Project. (In manuscript)	
	Crop and livestock combinations in relation to farm organization and income on the Valier irrigation project. (In manuscript)	
Nevada:	The Metropolis Reclamation Project. Bul. 107, J. C. Lambert	1924
New Mexico:	A preliminary study of 127 New Mexico ranches in 1925. Bul. 159, Walker and Lantow	1927
	A five-year economic study of 125 farms in Curry and Roosevelt counties. Bul. 186, Hauter, Walker and Wells	1930
	Production requirement, costs and returns from dry-land farming in eastern New Mexico. Bul. 187, Hauter, Walker and Wells	1931
	Selecting the most profitable system of dry-land farming in eastern New Mexico. Bul. 188, Hauter, Walker and Wells	1931
Utah:	The Agriculture of Utah. Cir. 44, F. S. Harris	1921
	Some types of irrigation farming in Utah. Bul. 177, E. B. Brossard	1921
	A farm management study of the Great Salt Lake Valley, Bul. 184, G. Stewart	1923
	An economic survey of the Dixie section, Washington County, Utah. Bul. 214	1930
	Cost reduction in dry-farming in Utah. Bul. 215, P. V. Cardon	1930
	Farming systems for eastern Washington and northern Idaho. Bul. 244, Severance, Hunter and Eko	1930

Washington:	Farming in the Big Bend country. Pop. Bul. 135, W. P. Spillman	1926
	Farming systems for eastern Washington and northern Idaho. Bul. 244, Severance, Hunter and Eke	1930
	A review of the agriculture of the Big Bend country. Bul. 192, Hunter et al.	1925

Farm Management Bulletins on Crop Studies

California:	Cost of producing almonds in California. Bul. 422, R. L. Adams	1927
Colorado:	Harvesting and marketing cantaloupes and honey dew melons in the Arkansas Valley of Colorado. Bul. 312, N.D. Sanborn	1926
	Cost of producing crops on irrigated farms. Bul. 353, Burdick and Pingrey	1929
	An economic study of the apple industry in Utah. Bul. 208, Thomas and Cardon	1928
Idaho:	Farm costs and relative profitableness of seven crops, Twin Falls County, Idaho. Res. 2, Hunter and Nuckols	1920
	The potato situation. Bul. 153, Wells and Dale	1927
	Comparative study of the bulk handling of grain from combine harvest in the Palouse wheat areas of Idaho, Washington and Oregon. (Prospective Bulletin)	
	The potato situation in Idaho for 1928. Cir. 51, C. T. Wells	1928
Montana:	The McIntosh Apple Industry in western Montana. Bul. 218, Sherman E. Johnson	1929
	A survey of tractor operated wheat farms in northern Montana. (In manuscript)	
Nevada:	Factors affecting the cost of production of alfalfa hay in western Nevada. Bul. 117, Headley and Clawson	1929
Oregon:	Cost and efficiency in producing alfalfa hay in Oregon. Bul. 124, H. E. Selby	1928
	Oregon apple prices. Bul. 244, Ralph S. Besse	1929
	Cost and practices in strawberry production in the Willamette Valley. Bul. 245, Schuster and Burrier	1929
	Cost and efficiency of producing hay in the Willamette Valley. Bul. 251, H. E. Selby	1929
	Cost and efficiency in pear production in the Rogue River Valley. Bul. 267, Besse, Brown and Wilcox	1930
	Economic study of the hop industry in Oregon. (In preparation)	
	Economic study of the small fruit industry in Oregon. Bul. 274	1931

Washington:	An economic study of berry farming in western Washington. Bul. 204, Johnson and Severance	1926
	Economic aspect of the Washington fruit industry. Apricots, cherries, peaches and pears. Bul. 238, Neil W. Johnson	1930
	Economic aspects of apple production in Washington. Bul. 239, Neil W. Johnson	1930
Utah:	Economic study of the apple industry in Utah. Bul. 208, Thomas and Cardon	1928
	Labor costs and seasonal distribution of labor on irrigated crops in Utah Valley. Bul. 165, L. G. Connor	1918

Farm Management Bulletins in Livestock Studies

Arizona:	An economic study of range sheep production in Arizona. Bul. 134, Pickrel and Stanley	1930
California:	The cost of producing market milk and butterfat on 246 California dairies. Bul. 372, R. L. Adams	1923
	The results of a survey to determine the cost of producing beef in California. Cir. 281, R. L. Adams	1924
	Cost of work horses on California farms. Bul. 401, R. L. Adams	1926
Colorado:	Cattle ranch organization in the mountains of Colorado. Bul. 342. Burdick, Reinhelt and Klemmedson	1928
	Financing the western cattleman. Bul. 338, Chas. I. Bray	1928
	Range resources in the San Louis Valley. Bul. 335, H. C. Hanson	1929
Idaho:	The dairy situation, Bul. 152	1927
	The poultry situation, Bul. 154	1927
	A historical study of cattle ranching in the plains district of Montana. (In manuscript)	
	A study of the organization and operation of typical cattle ranches in southeastern Montana. (In manuscript)	
	Types of ranches and operating practices in relation to costs, investment and income in the range beef cattle industry of Montana. Bul. 244	1931
New Mexico:	Economics of sheep production. (Prospective bulletin)	
Novada:	Efficiency in dairying, Bul. 118, Headley and Venstrom	1930
Oregon:	Cost of producing pork. Cir. 56, Potter, Lindgren and Oliver	1924
	Cost of producing mutton and wool on eastern Oregon ranges. Bul. 219, Potter and Lindgren	1925

	Cost of producing beef on the ranges of eastern Oregon. Bul. 220, E. L. Potter	1925
	Cost and profits of sheep on irrigated farms Cir. 62, Potter and Withcombs	1925
	Cost of producing sheep on western Oregon farms. Cir. 94, Oran M. Nelson	1929
Utah:	Cattle ranching in Utah. Bul. 203, Peterson, Cardon et al.	1927
	Sheep ranching in Utah. Bul. 204, Esplin et al.	1928
Washington:	The cost of producing milk, and dairy farm organization in western Washington. Bul. 173, Severance and Johnson	1922
	Cost of producing milk and dairy farm organization in Spokane and Stevens counties. Bul. 182, Severance and Baker	1924
	An economic study of poultry farming in western Washington. Bul. 216, Geo. Severance	1927