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SIGNIFICANT PROBLEMS
(Other Than In Marketing)
FOR AGRICULTURAL ECONOMICS RESEARCH IN THE WEST

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Agricultural Economics research in the West has been plugging along during its relatively brief history, at the agricultural problems traditionally the subject of study within the discipline. Like most of the culture within which we in the West live, our conception of agricultural economic research problems has been imported with us and our immediate predecessors from the East and Mid-West. Out of this orientation given by our humid-farming background, much significant work has been done in the West. But, for the same reason, we have passed over completely or touched only lightly and obliquely some of the more acute, more basic, and more difficult of the problems peculiar to our environment.

With funds for economic research so severely restricted as they have been in most western states, and with each of the states working largely alone and independently on the research program it by itself has formulated, this preoccupation with the traditional problems of agricultural economic research has been inevitable. Many of our peculiar western agricultural economic problems are so broad and complex as to defy, or at least sharply discourage, attack by single, small, research departments.

The advent of the Research and Marketing Act and the organization of the Western Agricultural Economics Research Council, has made it possible to give consideration to a research attack on these peculiarly western problems. Funds for such research have been augmented by the Research and Marketing Act, and the Western Agricultural Economics Research Council will make it possible to funnel the resources of many small departments on problems that are frequently too big for any one department alone.

For reasons that do not need repeating here, marketing research has received the big impetus from the Research and Marketing Act, and the Council has spent most of its short life guiding and coordinating the marketing research program. To the Council, as to many others, it has seemed unfortunate, although unavoidable, that marketing research should have dominated, to the exclusion of all else, the integrated and regional program of research now made possible. The Council, a year ago, decided the time had come to make a start on doing for the "non-marketing" research in agricultural economics in the West what had been done for marketing research in the past four years. It set up a committee for the purpose, and what I will give you in this paper is largely the product of that committee's work.

Let us begin by listing the broad categories into which this non-marketing field of research can be divided. We will later list more particular research problems under each of these broad categories. The major problem categories follow:

1. Economics of resource development
 - a. Irrigation development
 - b. Soil and water conservation
 - c. Land development through clearing
 - d. Land and water resource development relative to national welfare

2. Economics of multiple use of resources
3. Economics of range livestock production
4. Development of production functions in farming and ranching
5. Economics of the firm in western agriculture
6. Land tenure, financing, and capital requirements
7. Land values, appraisal, and taxation
8. Trends in western demand for farm products
9. Western economic development and its effects on western agriculture.

Some of these broad problems are peculiarly western because they relate to conditions found only in the western environment. Some are so stated as to relate to peculiar western aspects of problems not confined to the West. Later when sub-problems are listed under these broad problems, it will be found that many of them, although of a class with problems national in scope, have their peculiarly western aspects.

Two of them are peculiarly western. In addition to being problems peculiar to the West, they are problems so important that they must be given a prominent place--even a pre-eminent place--in any integrated, regional program of research in the West. I refer, of course, to studies of the economics of irrigation development and the economics of multiple-use of resources. Let us list first, then, the sub-problems of importance under these broad western problems.

- I. The economics of irrigation development
 - A. Research into the development and utilization of water resources
 1. How rapidly should irrigation development proceed?
 2. What, if any, are the economic limits of such development?
 3. How should costs of development be allocated?
 - B. The economics of sprinkler irrigation
 - C. Study of non-farm benefits in irrigation development
 - D. Study the question of project justification and benefits--acceptable ways and means of evaluating benefits, and how costs may be assessed in keeping with the benefits.
 - E. What is the more equitable method of financing new operators on new irrigation projects? Should credit be repaid over a period of years and should it come from public or private sources? Should resources be rented to the new operator and should it be by public or private landlord? Or should the cost of irrigation works be repaid as a "public utility charge" over the life of the works?
 - F. Study of the assessment and collection procedure relative to water charges in irrigated areas.
 - G. Study the economic problems involved in the formulation and establishment of new and supplemental irrigation developments.
 - H. Economic analysis and appraisal of comparative costs and returns from alternative irrigation uses of a given water supply--headwaters vs. downstream; this area vs. that, etc.
 - I. The economics of self-contained irrigation projects in irrigation development as an integral and integrated part of a larger agricultural economy; (a) in the immediate area, (b) in the larger region, (c) in the nation.
 - J. The western region should take the lead in a program of study to appraise the place of the western states or of the western region in the agricultural and general economy of the nation with

particular bearing on how fast reclamation and water development generally should proceed in the West and as to the probable effect of such developments on agricultural supplies, prices and incomes accruing to farmers generally. This also would include, presumably, consideration of "public" benefits including cheaper food and fiber supplies, if any, from expanded reclamation.

II. The multiple use of resources

- A. A systematic economic evaluation of multiple land uses in various related groups. (individual states might study one of these related groups.)
 1. Lumber--wildlife--recreation
 2. Watershed value for irrigation water, domestic water, flood control.
 3. Grazing--wildlife--lumber
 4. Lumber--watershed--grazing useOther groups are possible and might be worthy of study in certain states.
- B. What is the probable future demand for and competitive relations between uses in the West of land and water resources for such purposes as lumber, recreation, rural residence, watersheds, etc., in addition to their use for crop and livestock production.
- C. Develop criteria for evaluating alternative uses of range lands for forage, water, game, timber and recreation and to appraise such uses or combination of uses in specific local areas.
- D. What reasonable investments can be made for various alternative kinds of resource development and for watershed management in various parts of the West?

Next, let us turn to those broad problems listed above which, although not confined to the West, are so stated as to relate to peculiar western problems.

III. Trends in western demand for farm products

- A. The effects of the expanded population of the region upon regional supply of and demand for agricultural products, particularly those important in western agriculture and especially those that may shift from a surplus to a deficit position.
- B. What is the outlook for population growth and changes in population composition for the West as a whole and for important parts of it, such as on the Pacific Coast?
- C. Study of prospective prices for products important in western agriculture, with particular emphasis on those whose market lies largely in the West. (Such prospective prices must be stated with reference to explicit assumptions concerning national income and employment.)

IV. Western economic development and its effects on western agriculture

- A. The relation of water development to power development, and the relation of the latter to the growth of local markets within the region.
- B. The economic possibilities of a fertilizer industry in the West, and the effect on western agriculture if such an industry should and did arise.

For the balance of this paper on non-marketing research problems in agricultural economics in the West, we list those broad problems that are found

elsewhere in the country but under which sub-problems peculiar to the West can be studied.

V. The economics of soil and water conservation

- A. Economics of irrigation water conservation--on the watershed, in reservoirs, canals, laterals and farm ditches, as well as on the fields.
- B. Economics of soil conservation--under irrigation, dryland farming, and grazing.

VI. Economics of livestock production in the West

- A. The economic problems and possibilities of sheep and wool production in the West.
- B. The economics of seeded pastures and irrigated pastures for livestock production.
- C. The economic possibilities of feeding livestock, including a study of desired degree of finish; the spread in price necessary for profit; the possible sources of livestock for feeding; and the potential capacity of the western markets for finished animals.
- D. The economics of fluid milk and butterfat as outlets for western milk production--the quantities of these goods that the market may take; the potential prices which they may obtain; the possibilities for economic production of these commodities in the West.
- E. What changes in livestock production are taking place in the West? What are the economic possibilities that western livestock production might satisfy western meat demands or at least that all western livestock might find a market within the region. (The Western Livestock Marketing Research Committee has recommended, as an important adjunct to its research in livestock marketing, a study of production possibilities in the western region to fit western meat demands.)
- F. The economic possibilities of utilizing surplus wheat or wheat producing resources in the western region for livestock feeding.
- G. Determine the relative returns from alternative systems of livestock production in various areas using different combinations of range, irrigated pastures, crop land, and other feed sources, keeping in mind the need to maintain such resources in a productive condition.

VII. Economics of the firm in western agriculture

- A. Determining the scale of farming for different areas and types of farms most efficient from the standpoint of each of the following:
 - 1. The national economy
 - 2. Supporting a family at given levels of living
 - 3. Maximizing entrepreneurial returns
 - 4. Maximizing local area social well-being
 - 5. Producing products at the most efficient (cheapest cost) point.
- B. Study of the above problem with special reference to 160-acre limitation as it is actually applied in practice.
- C. Determining the level of living demanded by farm families as expressed by the actual expenditures made by farm families at different income levels; such data are the basis for "family living allowances" in realistic farm planning.
- D. The economics of part-time farming on the Pacific Coast--magnitude of their operations; their total farm earnings broken down by source and the income they receive from other kinds of employment; their attitudes as to whether they are aiming toward

full-time farming or toward a full-time urban job; and whether they plan to remain as they are by virtue of either being retired because of age or because they are financially independent.

- E. Study of the alternative uses of wheat land going out of wheat.
 - F. Developing measures to portray current changes in farming by types of farms and by areas. (This study contemplates essentially what the Bureau of Agriculture Economics is doing in its projects on trends in organization, costs and returns on family-sized farms from 1929 to date.)
 - G. The economic aspects of weed infestations in the region.
 - H. Cost-reduction opportunities in farming for commodities of regional significance in the western region.
 - I. The economics of grass seed production in the West.
 - J. Study of the factor of risk and uncertainty in the dynamic planning and behavior of the firm in agriculture by types of farms and by areas. (Particularly in "high risk" agriculture; and to increase the realism in the planning of farms, the planning of their financing, etc.)
- VIII. Land tenure, financing and capital requirements
- A. A study of how young farmers are getting started in farming in the region. What are their circumstances? What sources of credit do they use? What rental arrangements do they use? How dependent are they upon inheritance, etc.?
 - B. The economic effects of public land tenure, particularly in relation to the livestock industry.
 - C. Study of the administration and management of public lands. What is the defensible economic level of administration on public lands in various uses and use combinations?
 - D. Methods for attaining greater flexibility in fixed land costs such as taxes, interest and amortization, rents and grazing fees, construction charges on irrigated lands, etc. to reduce the burden of fixed costs.
- IX. Land values, appraisal and taxation
- A. Study of the problems created by the capitalization of grazing permits on public lands into private land values.
 - B. Study of possible improvements in assessments and other taxation practices leading to more effective use of resources.
 - C. Devise helpful guides in the sound appraisal of agricultural lands and water for purchase, sale, credit, taxation, etc.
 - D. Develop economic classification of land and water resources as a basis for sound appraisal and assessment.

In addition to the foregoing truly economic research problems, there is a great need in the West for data on production functions in farming and ranching. Economists must encourage--even needle--our technological brethren in compiling data on such functions. We must get them to make estimates to fill in the gaps in the empirically established data. Where we cannot get the technologist to do this job, we may have to do it ourselves. One of the best ways of impressing on the technologist the need for such data is to embark on the job of working out some farm budgets to meet a general farm problem in the area, such as what to do if 25 percent of all wheat acreage is to be taken out of wheat production. The questions economists are then asking of the technologists are identical with those that farmers will be asking. The technologist then can't dodge them as impractical questions of theoretical economists. Input-output data are needed by every individual who has any responsibility for planning farms, whether in the Bureau of Reclamation or the farmers themselves. We should then do what we can to determine quantity inputs and outputs for crop and livestock enterprises (particularly

on irrigation). Such production functions should, to the extent possible, be stated in probability terms.

If we formulate integrated, regional programs of research on the above mentioned critical problems of our region, we will be not only exploring territory not already pretty well traversed by those who have been doing research elsewhere for a longer period of years than we have; but our science will be a meaningful tool for solving our own peculiar agricultural economics problem.

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