



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

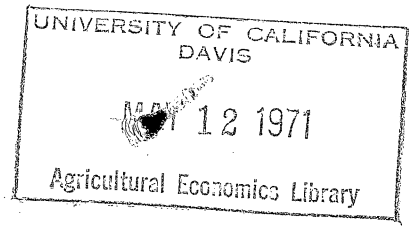
<http://ageconsearch.umn.edu>

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.*

1970

*Agricultural -
Economic aspects*



PRIORITIES IN AGRICULTURAL ECONOMICS^{1/}
FOR THE 1970's

Emery N. Castle
Oregon State University

Economists should be exceedingly reluctant to start playing the priority game. There is much current emphasis on goals, objectives, and priorities. However, economists know that priorities are useful only in a comparatively static situation. A change, either in choice indicators or production possibilities, will change the opportunity cost of a particular choice or decision. If economists believe their own logic, priorities should reflect opportunity cost. The 1970's will not be static; consequently, a statement of professional priorities, developed at the beginning of this decade, is not likely to have great relevance near the end of the decade.

One way of characterizing agricultural economics in the 1960's would be as a decade of discarding small conceptions of social problems. Sub-specializations such as farm management, marketing, and resource or land economics tended to yield to broader categories. Agricultural economists looked at problems more, and techniques less, and began to realize that even agricultural economics itself was too narrow for many purposes. Many will argue these trends were long overdue, and that there is still much more to be accomplished in this respect.

These events can be explained, in large part, by three major environmental factors:

1. The perception in our society of increasingly severe and inter-dependent problems, i.e.,

^{1/} Technical Paper 2929. / Oregon Agricultural Experiment Station. Presented to the American Agricultural Economics Association at Columbia, Missouri, August 11, 1970.

I have benefited greatly from the insight of Herbert H. Stoevener in the preparation of this paper. Penetrating and helpful comments were also received from Richard S. Johnston, Joe B. Stevens, and William G. Brown. My discussants, Richard Kohls, James Plaxico, and Andrew Schmitz improved the organization and the logic of the presentation.

- a. Man's apparent inability to live in harmony with his fellows. Both internal and domestic violence continued, and became more severe in some respects.
 - b. Man's apparent inability to live in reasonable stability and harmony with his natural environment.
 - c. Man's apparent inability to design an economic system that will simultaneously:
 - (1) have reasonable stability,
 - (2) produce abundantly,
 - (3) distribute the proceeds so that all participants will benefit.
2. The absence of any intellectual discoveries or break-throughs that had great impact on methodology in agricultural economics.
 3. The near exhaustion of the possibilities for research within a traditionally narrow frame of reference.

Most of the forces identified above are likely to continue for a considerable period. But it would indeed be a brave person who would predict with respect to basic intellectual developments that might transform the way economists look at and investigate phenomena. Such an intellectual development, more than any other possibility, is the most likely to invalidate the pages which follow; yet, by definition, such an event is unpredictable.

Subject Matter Areas for the 1970's

In 1967, C. E. Bishop called upon agricultural economists to identify and work on problems outside of commercial agriculture [1]. His impressive paper was politely accepted, and three years later the proceedings of this Association will reflect the type of orientation Bishop was advocating. Allowing for a realistic lag in the reallocation of resources, there is evidence that Bishop was not far ahead of the profession. Considerable

evidence can be marshaled that much had already been done in agricultural economics that was not focused on commercial agriculture and the economics of the individual firm.^{2/}

In the material that follows, brief comment is made about commercial agriculture, natural resources, and community and human resource development.^{3/} This is not to argue that these areas are necessarily the best possible classification. Rather, they appear to permit the discussion of relevant problems. Classifications should be judged not only on the basis of their utility in grouping homogenous problems, but also as to whether they obscure, hide, or ignore relevant interrelations and problems. The following comments are superficial, but are necessary to a later discussion pertaining to multi-disciplinary work, social problems, and our profession.

The Economic Problems of Commercial Agriculture. One classification of the economic issues of commercial agriculture is that of (1) the farm-firm and non-farm firm, (2) the performance of the industry, and (3) commercial agricultural policy. This area of work is experiencing the greatest decline

^{2/} The most powerful support I can give for this statement is Roger Gray's brilliant paper given to the Western Agricultural Economics Association at Tucson, Arizona, July 20, 1970. Gray's paper, which may become a classic in our profession if given the proper exposure, contends that "real" agricultural economists have become extinct [9]. The support for Gray's basic argument was drawn from the composition of the 1970 program for WAEA. The above paragraph was written prior to hearing Gray's paper.

When I came to the West in 1954, I found four Farm Foundation Committees of the Western Agricultural Economics Research Council. Of these committees, two were concerned primarily with the kind of problem Bishop identified approximately a decade and a half later. At the time of Bishop's paper, WAERC had in existence a committee to study its regional committee structure. The work of this committee culminated in the establishment of three committees. They are (1) Commercial Agriculture, (2) Natural Resource Economics, and (3) Community and Human Resource Development. At this point, these appear to be appropriate classifications for the 1970's, if allowance is made for international agriculture, which does not lend itself well to regional committee structure.

The Council Committee which studied and reported on the Committee structure consisted of William Folz, James Hildreth, and Emery Castle, Chairman. It is my understanding a similar pattern has been adopted in other regions.

^{3/} The problem of international agriculture is not given separate attention; it is discussed briefly under the other headings.

in the profession, as the greatest public concern and the most intellectual excitement is being generated elsewhere. Farm management was not a very exciting field in the early 1940's, but Earl Heady, Glenn Johnson, and others transformed it into a growth area in the late 1940's and the early 1950's. The same thing could happen in commercial agriculture if the right minds were to discover some new approaches to old problems.

Surely the policy issues of commercial agriculture during the coming decade will have as one concern the industrialization of agriculture. The impact of industrialization on the supply and demand of entrepreneurship and capital for agriculture, as well as its impact on the commodity markets, appears worthy of study. The impact should be judged in terms of the possible divergence of private and social costs and returns as these changes occur in commercial agriculture [8].

There is general recognition that indirect effects and income distribution effects of improving efficiency in a primary industry (agriculture) have been largely ignored in the policy of this Nation. It is not so generally recognized that a much less developed set of public welfare programs existed here when the biggest changes in efficiency occurred than is the case for many of the less developed nations where public assistance and public welfare programs may be rather well developed.^{4/} The social framework existing in this country, which provided for the "spin-off" by which the private sector could develop and merchandise the technology and science produced by the public agricultural research establishment, may not be present in some of the less developed countries. Research is needed to determine if these and related forces should be taken into account when policies are formulated and predictions are made based on the U.S. experience. In other words, agricultural policy studies may focus increasingly on the performance of U.S. Agriculture over time. Agricultural economics may have need for the insight of the economic historian.

The welfare and income redistribution consequences between nations, which result from the export of knowledge and technology from the United

^{4/} I am indebted to John Edwards for this insight. He has set forth the basic framework for the consideration of some of these effects in an unpublished paper [7].

States, will be of considerable interest to many, including Deans of Agricultural Colleges who have faculty busily engaged in the knowledge export business. As agriculture becomes more "commercial" there are apparently numerous unknown, but important, economic relationships and processes involved.

It has been 25 years since the appearance of T. W. Schultz's Agriculture in an Unstable Economy [12]. Agricultural economists may rediscover this area of work during the 1970's.^{5/} There is a strong possibility that greater concern will be shown over the performance of our national economy during the 1970's than at any time since the 1930's. Unemployment and inflation will continue to be the sharp horns of a dilemma, as the public clamors for a greater production of public goods. The effect of national policy tools on the performance of a primary industry, and interdependence of national economies in an international dimension, are crucial in this respect. The more powerful macro tools now available hold prospect of isolating these important relationships.

The relationship of the firm to the industry can be expected to become an issue on which agricultural marketing people will focus. The issue of economic performance probably will command greater attention as one looks to the future. Systems analysis also will undoubtedly be used more, but we hope these investigations will mature to the point where these analyses will be used to diagnose areas for concentrated attention, rather than viewing the tool as some type of panacea for prescription.

Agricultural economists should not turn their backs on firm management. If one is to believe the studies that have been made concerning research productivity in this country, the pay-off has come from increased efficiency resulting from the adoption of new technology. The possible divergence of private and social costs and returns may form the focal point of agricultural policy research, and problems of industry structure and performance may be

^{5/} It is understandable that agricultural economists tend to take a micro approach to policy issues. However, we may miss significant issues by failing to take a macro viewpoint. For an example, attention is directed to the underlying conceptual framework of some of the early supply response studies that relied upon linear programming and representative firm approaches.

a central issue in marketing research. However, if we say research on hybrid corn is justified because it makes farmers more efficient, it is consistent to say that firm management research that has the same effect is also justified, providing it returns more than its cost.^{6/} Of course, if market structure in either marketing or production is such that increases in efficiency are not distributed widely in society, legitimate question can obviously be raised concerning such efficiency gains. The firm-industry-society interdependence is, of course, the principal reason for merging the sub-specializations of marketing, farm management, and policy.

Natural Resources and Environmental Economics. Agricultural economists have something of a tradition and history on which to draw with respect to economic problems of the environment. The early land economists pioneered the area; more recently, the resource economists have contributed to the field [4]. Problems in this area include the following:

1. The existence of an "environmental" problem, by definition, indicates there are costs and benefits that are not being properly accounted for by the economic system. What is not so clear is how the economist may aid in evaluating institutions that will eliminate the divergence of social and private costs and returns. The literature of welfare economics is enlightening here, although there are numerous unanswered questions.
2. Those problems related to defining the level of environmental quality that is desired. Much confusion currently exists on this score. No one really knows the sacrifice that would be required, in terms of market valued goods and services, to achieve varying levels of environmental quality. As indicated in (1) above, our economic system apparently does not yield this desired level of environmental quality automatically. Economists can be helpful as the adoption of constraints is considered which

^{6/} This statement begs the question as to the proper criteria to use in evaluating the social returns from public investment. The above statements are generalizations which treat both efficiency and distribution. It would require a more extended treatment to do justice to all the complexities.

may be placed on the economic system to force it to produce a particular level of environmental quality. These constraints can be related to some of the macro questions of economic performance mentioned earlier in this paper.

3. Those problems pertaining to the adjustment of the agricultural industry and agricultural firms to environmental constraints. This issue needs to be viewed in an interregional context in order to isolate both the micro and macro effects.

Rural Area Development, Community Development, Human Resource Development.

There is already substantial literature in this area of work, but a perspective has not yet been discovered. A complete treatment of the problem obviously requires the inputs of numerous disciplines. But what significant social problem does not? Is there something unique about this problem area which renders the contribution of an individual discipline to be less valuable than is the case with other problem areas? The answer to this question is frequently asserted, but the reasons underlying the assertion are not ordinarily made explicit.

No attempt will be made here to make an exhaustive list of economic issues underlying problems of rural area development. Two issues are identified that are basically economic at the root, and which are fundamental to most problems of rural area development.

1. Every rural area has a unique combination of human and natural resources. This combination of resources, together with the larger environment, defines the production possibility frontier for the community. Depending on the nature of the resources, both human and natural, a range of choice may exist with respect to how the community may wish to develop. Just as there may not be a single "bliss" point for a nation, neither may there be one for the rural community. The range of choice open to some rural areas either may be exceedingly narrow or quite broad. In the latter case, there may be numerous plans that will permit considerable change, but which cannot be ranked in terms of social superiority

by scientific standards. The economist, if he wishes to be helpful to local people, will not necessarily spend great quantities of resources searching for an optimum that, once discovered, can be revealed to local people as "the" plan of development. Rather, he may be much more useful by predicting the economic consequences of different plans, and by providing inputs to the local decision process rather than viewing himself and his work as a substitute for that process.

2. The provision of public goods in the community. The economics of public goods has long been recognized in the literature; yet there is much that remains to be done if we wish to do more than deal in general terms with the broad policy issues. This is not to disparage those policy treatises on public good provision that have been written for (say) water and education, but too often such treatments are politically naive, and do not make the impact they could make if the problem had been viewed more realistically. The assumption is frequently made that the sole objective in supplying a public good is to maximize national income; this is the familiar economic efficiency criterion. Yet the fact that the political process was relied upon means there are likely to be numerous objectives for bringing public goods into being; only rarely will the result be the maximization of national income. Economists should not be surprised, and need not be horrified, if the conditions for economic efficiency are violated when the political process is used for resource allocation. Yet the unique tools of the economist permit him to view such problems from more than one point of view, and to identify relevant information for many of the participants in rural development.

Two areas of economic theory will command greater attention of those who work on rural development and resource economics. These will be the economics of public goods and regional economics. These areas of thought hold potential for the unification of much work.

Intra- and Multi-Disciplinary Research and Education:
The Rudiments of a Theory of University Organization

The areas of emphasis indicated above for the 1970's have been addressed largely from an intra-disciplinary point of view. Yet all stem from social problems which require the contribution of more than one discipline for solution. Anyone close to legislatures and the federal establishment has to be conscious that this is being recognized to a considerable extent in such places. A condition for receiving funds may well be to demonstrate a capacity for multi- or inter-disciplinary research or education. Within the universities there will undoubtedly be pressure either to make Departments of Agricultural Economics multi-disciplinary, or to create overlapping or duplicative multi-disciplinary units. There are also signs that the U.S. Department of Agriculture may not always exist in its present form to sustain and nurture the present university organizational structure. In my opinion, these trends will put greater pressure on the identity of this profession than any we have faced in our short history. In large part, the growth and success of agricultural economics in recent decades has been due to a compatibility between our disciplinary orientation and our service work in research and extension. The fundamentals of these issues are now addressed.

Some Definitions

Multi-disciplinary Research: Research resulting from the combined attack of representatives from more than one discipline on some problem. These disciplines may work in a parallel fashion, or the output from one discipline may become inputs to another. Multi-disciplinary research may be quite useful in solving a social problem, yet the research may require little change in the basic conceptual framework for single discipline research.

Interdisciplinary Research: As arbitrarily defined here, interdisciplinary research is a special case of multi-disciplinary research. This is research which results in the development, and possibly the testing,

of hypotheses which cannot be deduced from the theoretical framework of a single discipline. Interdisciplinary research is comparatively rare. When successful on a sustained basis, a new discipline will arise. Biochemistry provides an example [3,11].

Problem Identification: The use of Venn diagrams permits us to treat the fundamentals of the problem identification in a systematic fashion.

Define:

- A. The set of phenomena perceived by the researcher in terms of his disciplinary knowledge (say economics) and/or his social awareness.
- B. That part of real world phenomena explainable by economic logic.
- C. That part of real world phenomena consistent with social aspirations.^{7/}

Figure 1 is presented to permit the isolation of certain conditions:

AREA I: There is no problem, social or intellectual. The researcher's observation of the real world is consistent with how the world "ought" to be, both from a positive and normative frame of reference.

AREA II: The observed phenomena can be explained in terms of economic logic, but are inconsistent with social aspirations.

^{7/} It is assumed there is some objective method of identifying social aspirations. While this in itself may be an area worthy of research, one must make some such assumption if any sense is to be made of the whole concept of "mission-oriented" social research. However, this writer is prepared to admit this is a much neglected area for economic researchers and research administrators. On the one hand, we admit research has the potential of changing the distribution of income and being an agent of social change. In our economic research we are very cautious about judging the welfare gains and losses from alternative social policies. Yet on the other hand, we pioneer research to measure the productivity of research when such methods are based on the assumption of a constant income distribution which we know will change if the research is successful. We also write papers, such as this one, on priorities in mission-oriented social research, which implicitly assume that the writer somehow knows, or assumes, the political process can yield some indication of "important" social problems [5].

A research problem in another discipline may exist, or education in economics may be required.^{8/}

AREA III: The observed phenomena are consistent with social aspirations, but inconsistent with economic logic. Research to improve predictability will tend to be pure, rather than mission-oriented.

AREA IV: The observed phenomena are inconsistent with both economic logic and social aspirations. Mission-oriented research is more likely to be found here, as society may recognize the power of science may be useful to them in helping them achieve their social aspirations. If they do recognize this, and cause research to occur on the problem, the result is research with a mission.

By superimposing a second discipline on Figure 1, Figure 2 results. We add two sets, D and E, defined as follows:

- D. The set of phenomena perceived by a researcher in terms of his disciplinary knowledge and/or social awareness (some discipline other than economics).
- E. That part of the real world phenomena explained by the second discipline.

The diagram shows some real world phenomena are "explained" by both disciplines, some explained by one but not the other, and, as in Figure 1, some that are not explained by any discipline. The following interpretation is offered:

^{8/} The term "applied" research has not been utilized in this discussion. Instead, we use "mission-oriented" and "pure" as adjectives modifying research. The application of what is known to help people achieve social aspirations is called "education." This includes education of both resident and non-resident students (extension).

It should also be recognized that "priorities," as used in this paper, is never rigorously defined. Whose priorities? The researcher's? The educator's? Society's? It is hoped the message of this paper will illuminate the complexity of this issue. Nevertheless, progress cannot always wait on rigorous definitions, and I have chosen to proceed.

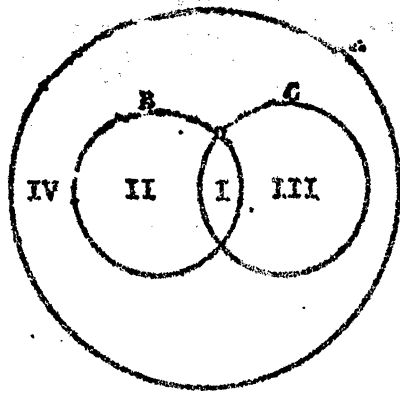


Figure 1.

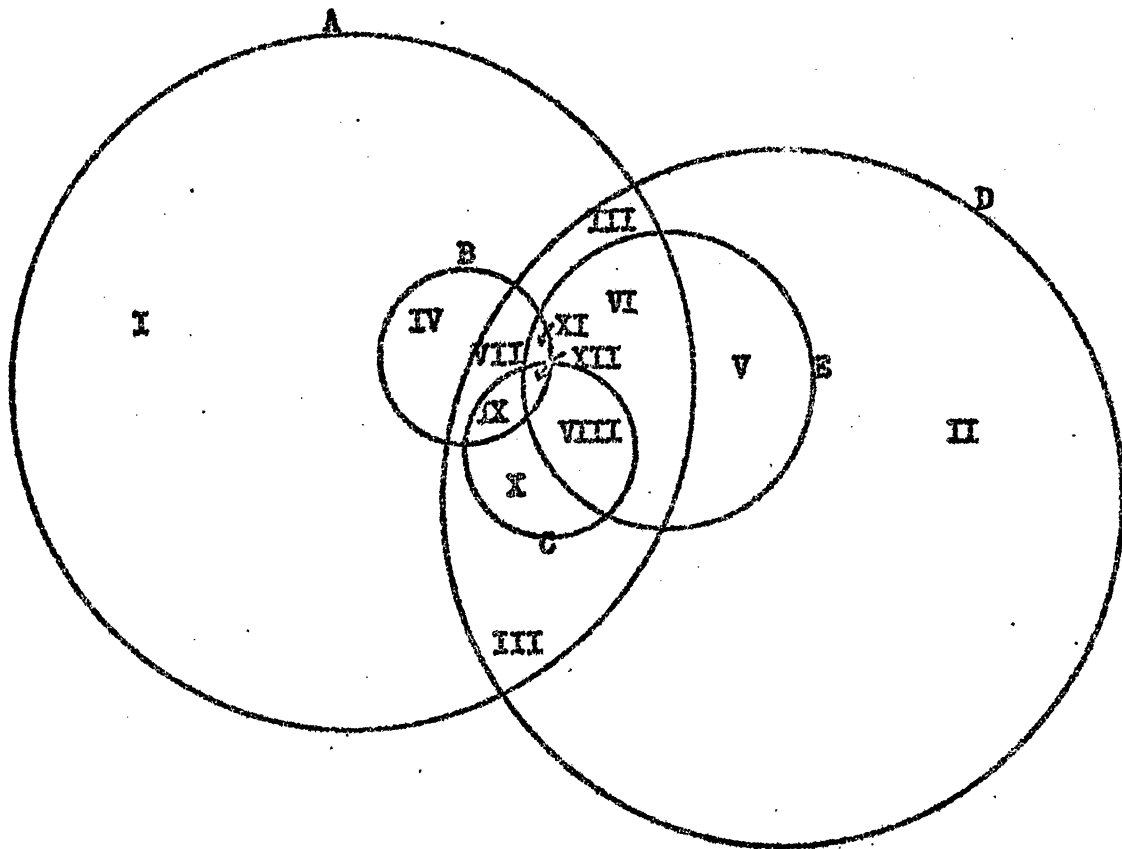


Figure 2.

AREAS I and II: The interpretation is similar to that for Area IV in Figure 1; however, single discipline research in both disciplines is probable, as the problems as perceived by one researcher are likely to be formulated differently than they are by the other researcher, or they may, in fact, be different problems [10].

AREA III: This set of problems calls for research by both researchers, although the research may be either single or multi-disciplinary. The research administrator may be aware of requests for research resources from individuals from more than one discipline.

AREAS IV AND V: An interpretation similar to the one for Area II in Figure 1 may be given. The administrator may have requests for funds to do educational work in both disciplines. Pure research of a multi-disciplinary nature, to explain why the disciplines have a different perception of reality, would be appropriate.

AREAS VI and VII: Here an interpretation similar to that for IV and V is appropriate, except that different explanations are offered for the "reality" perceived by both disciplinarians. Again, educational work may be promoted by representatives of both disciplines. Coordination of educational effort is clearly suggested. Research to provide a more general framework than is provided by either discipline alone may be appropriate.

AREAS VIII and IX: Single disciplinary research appears appropriate. For the economist, Area VIII represents a challenge, but for the non-economist researcher all problems are solved; the converse is true for Area IX.

AREA X: A possibility of multi-disciplinary "pure" research exists.

Table 1. Classification of sets from Figure 2.

	Education		Research	
	Pure	Mission-oriented	Pure ^{b/}	Mission-oriented
Single discipline	All sets	I, II, III, IV, V, VI, VII	VIII, IX	I, II, III, VI, VII
Multi-	<u>a/</u>	XI	IV, V, VI, VII, X	III, XI

a/ I am not confident about the content of this cell. However, liberal arts schools tend to be oriented toward disciplines unless they decide to be "relevant."

b/ It is assumed that research may be "pure" in the sense that the motivation for undertaking it is not necessarily that of solving a social problem. Hence, some cases will appear in more than one cell.

AREA XI: Multi-disciplinary, mission-oriented education is a possibility.

AREA XII: There is no problem.

In Table 1 the sets from Figure 2 are classified relative to the discussion above. It is interesting to note that the number of entries in the multi-disciplinary category is not large. No empirical information is given regarding the relative magnitude of the relevant variables. The main value of the analysis of this section is to provide a framework for viewing the type of problem discussed in the following section.^{9/}

^{9/} I am aware that the relations and problems dealt with in the Venn diagrams are highly complex, and the philosophical base of some of the definitions is debatable. However, I believe the use of such diagrams for these purposes is useful, and should be encouraged. Perhaps this paper will encourage others to offer a more rigorous and useful formulation. For further stimulation in this connection, see Halter [10].

In the first part of this paper, areas of research within agricultural economics were identified. These areas were identified largely in terms of real world or social developments. They are not primarily disciplinary problems, even though disciplinary formulation may be helpful in their eventual solution. Yet the problems, as stated, are not in a researchable form. If stated in a social context, a multi-disciplinary group would appear to be appropriate for their solution. However, when problems are reformulated as research questions, it does not necessarily follow that a multidisciplinary research unit will be required, although synthesis of research findings or coordination of educational efforts may be needed. Five possible situations are presented which provide a base from which organizational questions can be viewed. These are realistic but, because they are not exhaustive, must be viewed as illustrative.

1. The solution to social problems can be found only by the integration of results from several disciplines, but the integration is left to people or institutions other than the educational institution of which the research unit is a part. This describes the current situation, both on a firm as well as a policy level, to a much greater extent than we might like to admit.
2. The solution to the social problem can be found by the integration of existing knowledge from several disciplines, and this integration occurs within the organization that generates the individual disciplinary research results.
3. The solution to the social problem can be found by integrating existing knowledge in some disciplines with knowledge yet to be discovered in others. Integration occurs within the organization generating research results.
4. The solution to the social problem cannot be found unless investigations are carried on within some disciplines that depend on information now available from another discipline. In other words, the output from one discipline must become an input to another. Partial integration must become a part of the research process, and multi-disciplinary research is required.

5. The solution to the social problem cannot be found unless investigations are carried on concerning hypotheses that cannot be deduced from the propositions of a single discipline. In other words, interdisciplinary research is required.

The above classification is useful in distinguishing between the need for multi-disciplinary activity in both research and education. Situation 1 indicates a single disciplinary activity for both research and education. Situation 2 calls for multi-disciplinary educational work, but no research is required, while Situation 3 is different from 2 only in that single disciplinary research is required. Situation 4 will require some integration to occur within the research process itself, as does Situation 5.

On the basis of the analysis of this section, the following conclusions can be drawn:

1. Given a concrete social problem situation, it is possible to speak in specific terms the need for intra-, multi-, and interdisciplinary research and education.
2. Even though there are many complex social problems that, for solution, require answers from more than one discipline, this does not always make obsolete intra-disciplinary work in either research or education. There is no single a priori answer to such a question.
3. The optimum combination of disciplines for research is not necessarily the optimum combination for education.

The Profession and the Priorities

In a paper presented to the Western Agricultural Economics Association at Tucson, an attempt was made to analyze some of the current problems facing higher education in the United States [6]. In that paper it was recognized that an uneasy tension exists between the popular and the autonomous functions performed by the large public universities within the United States. The

autonomous functions include (1) the transmission of culture, (2) the discovery of new knowledge, and (3) the certification of elite groups -- the professions generally. The popular functions include (1) providing an education to all post-high school students who wish to attend a college or university, and (2) performing services for individuals and institutions within society who call upon the university for help. The success of the Schools and Colleges of Agriculture, and the Land-Grant Colleges generally, is testimony to the wisdom of combining the two functions in one institution. Even so, a tension will always exist between the two. Within our own profession questions are raised frequently as to whether the certification of the elite (training Ph.D.'s) is compatible with "useful" and "relevant" research and education.

Academic traditions, decision rules, and decision making processes within the university are largely derived from the performance of the autonomous functions. The performance of the popular function often places great stress on these procedures. The traditional university is organized to perform the autonomous functions, and the disciplinary Department has been found to be a rather powerful organizational device in this connection. Departments of Agricultural Economics have performed in both traditions with reasonable success and stability.

In the Venn diagrams presented earlier, the assumption was made that it is possible to have neat compartments between that which can be "explained" by the discipline and that which cannot be. It also drew an easy distinction between knowledge which is useful to the solution of social problems and that which is not. In part, because these lines are so difficult to know and draw, society has permitted and encouraged universities and other social institutions to engage in "pure" or "basic" research, and this is one of their traditional and autonomous functions.

Administrators will ignore this consideration at their peril. The definition of important problems which are researchable calls for first-rate minds which will rebel at inappropriate problem formulation. Certainly the degree of autonomy of the research unit should allow for this. Consider the useful work of Tolley, Ruttan, Hathaway, and Cochrane as examples,

and ask which administrator could have better defined their problems. Much useful work has resulted because researchers anticipated emerging social problems and committed their personal professional resources to their solution. If we always work on those problems that have been defined for us by social standards of "acuteness", we will not anticipate needs. This provides another instance of the practical value to society of a considerable degree of autonomy.

We now return to the prediction made earlier in this paper, that the 1970's will place greater pressure on the identity of this profession than any other profession has faced thus far in its history. This pressure will result from the following trends:

1. A relative decline in the U.S. Department of Agriculture in the financing of mission-oriented research and education in the colleges and universities.
2. A survival test for Schools and Colleges of Agriculture that will force them to evaluate the advantages and disadvantages of tackling a broader range of social problems. (The political realities are such that the long and short run indicators are inconsistent in many states.) In those instances where broader social problems are identified and tackled, there will be pressure for organizational changes. These changes are likely to be in the direction of the establishment of multi-disciplinary units. The compatibility (or lack, thereof) of this with the performance of the autonomous functions of the university has already been noted.

If carried far enough, these two developments could result in a decline in the market for those people who have identity as agricultural economists, and the destruction of the base for the certification of the elite. In other words, these two developments could strike at the very heart of our profession. On the one hand, the demise of the U.S. Department of Agriculture could result not only in a decline in funds for research and service in

agricultural economics; it could also result in a substantial decline in the demand for agricultural economists as agricultural economists.^{10/} On the other hand, the pressure to become more multi-disciplinary may reduce the effectiveness of Departments in granting a disciplinary degree, which is what most Ph.D. degrees in agricultural economics amounts to these days.

Before we too quickly conclude the demise of the profession is at hand, some counter-forces should be noted. These are discussed under the following headings: (1) Researchable Questions, (2) Synthesis and Analysis, (3) Flexibility and Adaptability.

Researchable Questions: The Venn diagrams presented earlier demonstrate that the answer to a research question may be useful in solving a social problem, but the two are not synonymous. Boulding has said the process of science consists of substituting unimportant questions which can be answered for important ones which cannot be answered [2]. While one may argue that agricultural economists may have forgotten the substitution process in many instances, one surely must grant that, for research purposes, there need not be a correspondence of social problem and research organization. The process of community development is not the process of research. One is synthesis; the other is analysis.

Synthesis and Analysis: During the past three decades agricultural economists have placed great emphasis on analytical techniques, and much progress can be traced to such emphasis. The 1970's will place relatively greater emphasis on synthesis and generalization. Yet economics as a body of thought has much to contribute to both processes, and certainly the education of graduate students should provide for both. The economist's unique contribution to system simulation will come from his insistence that certain economic questions be faced squarely. There is too great a tendency in much current work to treat the real economic questions as a constraint, or to design a system that is not capable of treating the most important

^{10/} For those who do not appreciate the importance of a federal sponsor to various and sundry organizational forms on university campuses, it is instructive to compare the number of Water Resources Research Institutes that existed in 1964, when the legislation that led to \$100,000 annual subsidies of such Institutes was passed, with the number of such Institutes that now exist.

economic questions. The talents of the economist will be among the most valuable in the process of synthesizing research results from numerous disciplines to focus on real social questions. After all, the very greatest economists, Smith, Keynes, Marshall, and Marx were unique largely because of their ability in synthesis. Yet their ability in this regard apparently was derived from superior analytical ability.

Flexibility and Adaptability: The basic disciplinary unit will probably be more adaptable than the mission-oriented multi-disciplinary unit as the problems of the 1970's unfold. Such a statement assumes an equal willingness and ability of the economist in each unit to work on significant social problems.

Each of the above -- researchable questions, synthesis, and flexibility -- will enhance the comparative advantage of agricultural economists during the 1970's. These abilities and qualities will be needed by society in the 1970's.

Some Conclusions

The 1970's will be a time of considerable experimentation in organizational form. No doubt many institutions will experiment with multi-disciplinary units that will provide inter-departmental coordination. Others may take certain responsibilities away from Departments and put them in the hands of multi-disciplinary units. Still other Departments of Agricultural Economics will become multi-disciplinary units by bringing lawyers, sociologists, or political scientists into their departmental structure. There undoubtedly are differences among states as to their problems and needs. If this type of experimentation and adaptation were not occurring, our future would not be as promising as it appears to be.

A variety of organizational forms can work successfully if the participants understand what it is they are trying to do. The reduction of social problem questions to researchable hypotheses will indicate substantial intradisciplinary research is needed. When this is the case, there will continue to be a social need for the autonomous functions of certifying

the elite. This can proceed in concert with both multi-disciplinary research and/or educational efforts, if effective coordination is provided. Fundamental to the above, however, is the realization that both synthesis and analysis are important in the total process. This is the most powerful argument that I can muster for a meaningful relationship to exist between research and extension. For survival, each should recognize its dependence upon the other.

In my judgment we are not yet to the point where we must choose between the autonomous and popular functions, although the current pressure to better perform the popular function creates stress. We should not permit the base for the certification of our elite to be destroyed until a conceptual framework emerges which can command the allegiance, on a sustained basis, of more than one discipline. When that happens, a new discipline will emerge to encompass economics. This, of course, might be very desirable, but it can neither be predicted or programmed. Agricultural economists have been quite successful in broadening their scope to many types of applied problems; multi-disciplinary efforts on a sustained basis, either in research or education, have been less enduring.

There is a recurrent theme that runs through discussion in higher education Land Grant circles currently. This is the notion that if the universities could but (1) re-order their priorities, and (2) organize properly to tackle "real" social problems, as contrasted to "just increasing agricultural production," that we would be off and running in our attempt to give rebirth to the Land Grant philosophy. As commendable as such an objective is, a word of caution must be raised. It is now clear that the success of the first "land Grant" effort was largely in terms of first-round and direct effects, with other effects largely being ignored. The social problems we are now addressing are, in large part, a manifestation of these indirect effects coming to the surface. To treat them successfully will require success in the development and application of the social sciences comparable to the success of developing and applying genetics, chemistry, biology, and physics to problems of agricultural production. We do not have

enough empirical information to know that such an experiment will be successful. Yet I hope the experiment will be performed, and that I can be a part of it, recognizing as I do that it is an experiment.

Our survival as a distinct profession rests on our recognized autonomy among the larger community of scholars. This probably will be permitted within our respective institutions only if we discharge our popular functions in a responsible manner. Yet our ultimate goal is not the survival of agricultural economics as a distinct profession. After all, mankind got along without us until the early part of the present century. Furthermore, our individual survival as economists does not depend on the collective survival of a profession of agricultural economists. During the past decade agricultural economists demonstrated the capacity to work on a wide variety of problems. These problems extend far beyond "agriculture." Society will continue to have a need for these skills during the 1970's. I will not predict that a paper will be given a decade from now on "Priorities in Agricultural Economics for the 1980's." But if such a paper is not given, another will be, which will be entitled "Priorities in Applied Economics for the 1980's."

ENC: cp
11/13/70

REFERENCES CITED

- [1] Bishop, C. E., "The Urbanization of Rural America: Implications for Agricultural Economics." Journal of Farm Economics, Vol. 49, No. 5, December 1967.
- [2] Boulding, Kenneth E., The Image. The University of Michigan Press. Ann Arbor, 1956, p. 164.
- [3] Castle, Emery N., "Conceptual Issues in the Conduct of Regional Research on the Economics of Water," in Opportunities for Regional Research on Water Resource Problems. Monograph #10, Agricultural Law Center, The University of Iowa Press, September 1968.
- [4] _____, "The Market Mechanism, Externalities and Land Economics", Journal of Farm Economics, Vol. 47, No. 3, August 1965.
- [5] _____, "The Challenge," in Proceedings: A Seminar on Better Economic Research on the U.S. Food and Fiber Industry. Economic Research Service, U.S. Department of Agriculture, February 1969.
- [6] _____, "The University in the Contemporary Society." Presented to the Annual Meeting of the Western Agricultural Economics Association at Tucson, Arizona, July 20, 1970. Proceedings to be published.
- [7] Edwards, John. "Monetary Effects in a Two-Commodity Exchange Economy," Paper presented to AAEA meeting at Lexington, Kentucky, August 1969.
- [8] Galbraith, John K. The New Industrial State. Houghton Mifflin Co., Boston, 1967.
- [9] Gray, Roger. "Agricultural Economics: An Orientation for the 70's." Presented to the Western Agricultural Economics Annual Meeting at Tucson, Arizona, July 20, 1970. Proceedings forthcoming.
- [10] Halter, Albert N., "The Identification of Problems in Agricultural Economics Research." Journal of Farm Economics, Vol. 42, No. 5, December 1960.
- [11] Hildreth, James. "Agricultural Economics: Science or Fantasy," Proceedings of the Western Agricultural Economics Association. Corvallis, Oregon. 1969.
- [12] Schultz, Theodore W. Agriculture in an Unstable Economy. McGraw-Hill Book Company, New York. 1945.