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## THE ROLE OF AGRICULTURAL ECONOMICS IN A CHANGING ENVIRONMENT

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The historical development of Agricultural Economics as a field of applied economics has been well-documented in books and journals by scholars within the profession. The relationship of Agricultural Economics to other social, biological and natural sciences has changed as the discipline has emerged and as forces of science and technology have been brought to bear on problems of our society.

The objective of this paper is to define or establish the parameters of Agricultural Economics but offer personal views on how economic forces within our economy have influenced program development in research involving many disciplines. In this process I will emphasize some of the areas where Agricultural Economics has made a major contribution and, in my judgement, can play an important role in the future.

### THE CHARGE IS GIVEN

Our research mission was set forth in the Hatch Act. Section 2 states, "It is further the policy of the Congress to promote the efficient production, marketing, distribution and utilization of the products of the farm as essential to the health and welfare of our people and to promote a sound and prosperous agriculture and rural life as indispensable to the maintenance of maximum employment and national prosperity and security..." With minor modifications this Section could be interpreted as setting the goals not only for research but for the teaching and public service functions of Colleges or Institutes of Agriculture within Land Grant Colleges.

The language of the Hatch Act is rather broad and provides flexibility to meet changing needs in the agricultural sector and for total society. From passage of this Act in 1887 until around

the end of World War I, the primary emphasis in agriculture was on increasing food and fiber production in this country. Agricultural research scientists primarily represented the disciplines of agronomy, animal husbandry, horticulture and soils. Some of these scientists recognized the need for economic evaluations relating to farm management. They initiated studies dealing with such topics as farm enterprise selection, farm budgeting and financing.

### ECONOMIST ENTERS

The period between World War I and World War II brought many new problems in agriculture outside the production area. Economic conditions fostered interest in such areas of agriculture as parity prices, parity income, marketing (including cooperative marketing), and soil conservation. An environment was provided for a host of legislation relating to the welfare of rural people and consumers. It was during this period that most departments of agricultural economics were organized. Research efforts became more formalized, not only in farm management but in other subject matter such as marketing, policy, finance and land economics. Needs for research in agricultural economics exceeded available manpower as well as financial resources available to Agricultural Experiment Stations for expanded activities. Significant contributions were made by these economists in developing an improved data base at both the State and National levels. They also refined statistical techniques for the solution of problems.

The period since World War II has brought to our attention the interdependence between the agricultural sector and other sectors of the economy. The resource mixture in agricultural produc-

tion has shifted drastically. Substitution of new technologies in the form of machinery, fertilizers, insecticides, improved varieties and other forms of capital for farm labor has been widely recognized. The movement of farm labor into industry has created opportunities to increase total goods and services for society. Problems associated with workers' lack of basic educational training and job skills have also increased. The reduction in farm population and number of farms has placed stress upon businesses and institutions serving rural areas, and many adjustments have been made or must be made to meet new needs.

### **NEW QUESTIONS, OLD ANSWERS INADEQUATE**

Agribusiness firms now provide a high percentage of the inputs for farm production and perform most of the job of processing, packaging and distributing food and fiber to consumers. Consumers' demands and preferences for food and services, which cannot be ignored by farmers, are more quickly reflected through the trade channel.

Some of the policy issues of the 1930s and 1940s such as management of surplus food stocks, price support levels, income parity and instability of farm income remain alive, but are no longer viewed as strictly agricultural issues. Consumers are expressing increasing interest in the use of food relating to domestic programs such as school lunch and food stamp programs as well as in international affairs where food is important in trade and relief efforts. In a similar manner, the agricultural sector has had an increasing interest in policies relating to such issues as the energy crisis, EPA and high interest rates. In other words, we need to recognize the interdependence between agricultural and non-agricultural policies.

### **PAYING THE BILL**

Since World War II, the funding level for research in Agricultural Experiment Stations has increased appreciably at both Federal and State levels. Greatest gains were made between the late 1940s and the mid 1960s.

Recognition of changing priorities for research has been more evident in legislation at National than at State levels, as represented by the ear-marking of funds for special purposes. For example, 20 percent of Hatch funds must be used in marketing projects and up to 25 percent of these funds may be used for regional research.

Other ear-marked funds have been designated for pesticide and rural development research. The McIntire-Stennis Act provided funds for forestry research. In recent years, special grant funds have been authorized for allocation to 1890 Land Grant Colleges and Universities. Too, CSRS has made competitive grants to Agricultural Experiment Stations for projects in such areas as food and nutrition, environmental quality, beef, cotton, soybeans and pork production, pest management and rural development. In many cases funds for ERS and ARS have been more restrictive.

In approaching executive and legislative branches of State governments for research appropriations, deans and directors have had priorities such as providing matching requirements at the Federal level, and meeting increased costs or expanding programs to accommodate existing needs. Nevertheless, ear-marking State appropriations for specific programs is not commonplace.

Expanding research programs into new areas or disciplines is difficult unless increased funding is available. If it is not, adjustments in personnel from established to emerging departments is dependent upon retirements and resignations within the Experiment Stations. This process is slow.

The changing financial base as well as ear-marking of funds (example: Marketing) has led to a strengthening of research in agricultural economics over the last 25 to 30 years. Most noteworthy has been an increased depth of training of agricultural economists in the social sciences—economic theory, research methodology, and quantitative methods in problem solution. The development of computers has enhanced model building to describe and analyze different sectors of the economy. The lack of adequate data base especially adapted to technological changes has impaired the effectiveness of such models, but continuing improvements and refinement in these models is anticipated.

### **SETTING PRIORITIES**

In looking at areas of research in agricultural economics, marketing continues to receive considerable attention. With farm prices representing approximately 40 percent of the aggregate consumer bill for food, many feel that either inefficiencies exist in the marketing chain or excessive profits are being made. It is interesting to note that only about 6 percent of all research funds are spent in marketing. Approximately 36 percent of the total scientific man-years in marketing in

the southeast in 1972 were devoted to projects relating to research problem area 503 (marketing efficiency). Twenty-five percent were concerned with RPA's 508, 509, and 510 dealing with market development, performance and power, respectively. In 1972, the average SMY's in marketing research per state in the southeast was 10.

The greatest limitation to under-financed marketing research is the "shotgun approach" which we have used where we have too many projects, some with low priority, understaffed and underfunded. Too many projects are staffed with .2 of an SMY, with a graduate student doing most of the work, including interviewing and analysis.

Our scientists must be challenged to identify high priority problems in marketing and to devote a major part of their effort and resources to finding systemic solutions. Our marketing Task Force recommended more funds to support a "critical mass" of research effort. The research might be organized as a state, regional or interregional project. Administrators should be challenged to provide adequate resources for such research. The senior market researcher must study the activities of managers and institutions relating to these problems, and must gain the confidence of those engaged in marketing activities by providing some feedback of research findings. Fewer descriptive materials and more alternative solutions to problem analysis should be our goal.

Considerable progress has been made through marketing research, but a stronger challenge looms. Looking ahead, we must also give greater attention to foreign as well as domestic markets for food and fiber.

Farm management (including production economics) under the old regional project S-42, the current S-67, and other state projects has provided useful information on changing patterns of agricultural production in the south. Again, one of the problems has been obtaining an up-to-date base to meet changing technological developments. These studies can provide administrators with insights into the production potential within a state and some of the research needs in other disciplines if a given potential is achieved. Providing input-output data, especially on alternative methods of producing specific farm enterprises, has been a major contribution. Such data are sought by Extension workers and farmers.

It is important that farm management researchers not become isolated from production specialists in other disciplines or from farmers in their state. With the development of models and

data banks, there could be a tendency to work on problems using secondary data and lose touch with farm firms.

In an era of high specialization in the sciences, many high priority problems confronting agriculture require an interdisciplinary approach to their solutions. Farm management personnel, with their broad training, are and will be needed as full partners on team research. As administrators, we must provide the proper environment for such endeavors.

The current and future needs for food and fiber, both nationally and internationally, emphasize the importance of maintaining a strong productive capacity. To meet this task, farm management researchers and administrators are offered a challenge.

Rural development has created more discussion and more frustration among both administrators and scientists over the last few years than almost any other subject. Providing more goods and services for rural area development in both the public and private sector is recognized as being highly desirable. Most governmental agencies serving rural people have a mandate for such activities. Leadership from industries and civic organizations is devoted to this task. Needs seem to vary considerably even within a state. Agricultural economists must help set the "boundaries" for rural development and set meaningful and manageable priorities for problem solution.

Use of our land and water resources is a concern of all our people. The urban population is probably voicing its opinion more readily than the rural. Land use planning is an issue needing the attention of researchers, that meaningful alternatives can be evaluated. Agricultural economists need to assume a leadership role working with soil scientists and other disciplines in such an evaluation.

### **TIMID ADMINISTRATORS CHALLENGED**

Agricultural policy research, broadly defined, has been conducted by individuals at a few Land Grant Colleges and at the federal level. Actually, administrative encouragement for this research has often been absent. Nevertheless, the impact of agricultural legislation has resulted in major shifts in resource use in states and regions.

The need exists for research which will evaluate the impact of different courses of action upon agriculture. (Example: SM-11, SM-29, and SM-42—Grain Marketing, and S-71—Regional Income

and employment effects of investments in natural resources.)

In addition to policies on pricing or production of agricultural commodities, attention should be given to such issues as international trade; land use planning as previously mentioned; energy use by agriculture; and environmental standards relating to chemical use, waste disposal, etc., as they affect clean air and water.

In conclusion, these comments have focused

only on selected sub-disciplines of agricultural economics research; the discipline is too broad to cover all areas. This social science provides skilled individuals equipped to develop alternative solutions to the problems of people whether they relate to production, consumption or welfare issues. A last challenge is to communicate effectively not only with fellow economists but with those having responsibility for policy implementation using the results of our work.