FUNDING FOR AGRICULTURAL ECONOMICS: Needs and Strategies for the 1980's

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Public funding for work in agricultural economics--teaching, research and extension--appears to be declining in real terms at the start of the 1980's following two decades of real increases. There is a call for reductions in spending by government at all levels--a call for less taxes and public accountability. At the same time there are more students in the courses that agricultural economists teach. There is a renewed interest in agricultural business curricula. Graduate study in agricultural economics is attracting new students from the biological and social sciences as well as agriculture. The demand for competent, applied economists, particularly agricultural economists with advanced degrees, appears to be growing.

The anomaly of apparent increases in demand coupled with declining public funding presents a challenge to the profession. It should be one for which economists are prepared. After all, we regularly teach students about economic decision rules for allocating scarce resources among competing ends. The political environment requires that we take our classroom lessons seriously and put them in practice in our own operations.

This paper explores several approaches and strategies for funding work in agricultural economics and more effective use of current resources. We begin with an overview of changes in funding during the decade

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of the 1970's drawing upon secondary data and results of a mail questionnaire sent to agricultural economics department chairmen and administrators in the spring of 1981. We turn then to discussion of the demand, current and prospective, for services of agricultural economists and the capacity of current institutions to service that demand. We conclude with discussion of funding strategies and recommendations on actions which might be pursued by the AAEA.

I. Overview of Funding in the 1970's

During the decade of the 1960's federal appropriations for agricultural research from all sources increased in real terms. In the 1970's, in contrast, they held roughly constant. Over the same time span total non-federal support continued to rise in real terms. Most of this support was from state and local sources but it also included small but significant increments from private foundations and industry groups. Although similar data are not readily available for extension and resident instruction, and the relative proportions supplied by state and local versus federal sources is somewhat different, the same basic trends should hold with non-federal sources providing an increasing share of the total in the 1970's.

In 1970 USDA had appropriations of $281 or 1.8 percent of total federal funding. In 1980 research at USDA was funded at $664 million or 2.2 percent of the federal total. Relatively, agriculture gained in the 1970's along with other non-military federal agencies as a smaller percentage went to defense and space.

1. Research Funding - CRIS Aggregates

Public sector expenditure for agricultural research is largely the work of either USDA or State Experiment Stations. In terms of 1979 dollars, funding for agricultural research increased by 27 percent during the past decade. Biological science accounted for about 70 percent of the total, physical science varied between 18 and 22 percent and social science the remaining 8-12 percent (Table 1).

When funding for research in agricultural economics was separated out of the totals for social and behavioral sciences, there was an increase in the total (1979 dollars) of more than 45 percent during the decade, compared with 27 percent for all agricultural research. Thus, economics amounted to a little more than 6 percent of all agricultural research expenditures in the first half of the 1970's and over 7 percent in the last half (Table 2).

A distribution of the funding of agricultural economics research by source is presented in Table 3. In terms of 1979 dollars there were important increases in all of the sources listed in these unpublished CRIS data. USDA "in-house" funding for economics research increased about 50 percent in real terms. The Economic Research Service, accounted for 69 percent of that total in 1970 and 75 percent at the end of the decade.

Agricultural economics research funds distributed to the state experiment stations by the USDA, both formula funds and all types of grants, contracts and cooperative agreements increased modestly (27 percent) in real terms, equivalent to the aggregate increase in the decade for all agricultural research. Agricultural economists at the state experiment stations and land grant universities turned increasingly to their

Table 1. PUBLIC SECTOR EXPENDITURES FOR AGRICULTURAL RESEARCH

All Sources, CRIS Data, United States, 1970-79

Year	Biological	Physical	Social and other	Total
		Millions of 1979* dollars		
1970	684	204	80	969
1972	716	216	91	1,023
1974	738	213	94	1,045
1976	773	229	117	1,119
1978	860	248	146	1,256
1979	885**	226	122	1,233

*Using the GNP Implicit Price Deflator.
**Preliminary.

Table 2. PUBLIC SECTOR EXPENDITURES FOR AGRICULTURAL ECONOMICS RESEARCH

All Sources, CRIS Data, United States, 1970-79

Year	Expenditures current terms	Expenditures 1979 dollars*	Percent of total agricultural research
	Millions of Dollars		
1970	$35.8	$63.8	6.6
1972	44.7	72.8	6.1
1974	50.8	72.0	6.9
1976	69.6	85.8	7.7
1977	74.4	86.6	7.1
1978	87.0	94.3	7.5
1979**	93.7	93.7	7.6

*Using the GNP Implicit Price Deflator.
**Preliminary.

Table 3. SOURCES OF FUNDING FOR AGRICULTRAL ECONOMICS RESEARCH
Public Sector Expenditures, CRIS Data, United States, 1970-79

Sources of Funds	1970	1976	1979
	Millions of 1979 dollars*		
USDA: (internal)			
Economic Research Service	21.1	30.5	33.1
Agricultural Research Service	2.3	2.2	3.2
Forest Service & Farmer Coop. Service	7.2	7.2	7.7
Total	30.6	39.9	44.0
USDA: (external)			
Cooperative Research	12.6	16.4	14.6
Grants, Contracts, Agreements	1.2	1.5	2.9
Total	13.8	17.9	17.5
Other Federal Departments & Agencies	2.3	6.0	7.1
Non-Federal	17.1	22.0	25.1
Total	63.8	85.8	93.7

*Using the GNP Implicit Price Deflator.

own state governments and other federal agencies for funding during the decade. In 1970 federal agencies other than USDA accounted for only 3.6 percent of total funding but this increased to 7.6 percent of the total in 1979. Non-federal sources increased by 47 percent over the period, the same rate as total research funding grew in real terms.

2. Information on Funding - Agricultural Economics Departments

A survey of chairmen of departments of agricultural economics was conducted using a mail questionnaire during the spring months of 1981. A total of 50 questionnaires were returned from 1890 and 1862 land grant universities and a few other departments with programs in agricultural economics. Comparative data were obtained from 40 departments.

Agricultural economics departments have not fared particularly better or worse in funding than other academic departments in their respective colleges over the past decade. Agricultural economics had a larger budget relative to the rest of the agricultural college in 1980 compared to 1970 in 18 cases but it was smaller in 15 others. Changes in both directions were generally modest.

Departments were asked to allocate their budgets to the three major functions of teaching, research and extension as well as international programs and note important changes in these distributions. Only modest changes in the percentage distributions occurred during the decade. The median allocations in 1980 were 47 percent for research, 24 percent for extension, 18 percent for teaching, and 11 percent for all other activities including international programs.

It is difficult to establish the percentage of time individual faculties spend on each function, such as teaching. The numerical

data on the changes in student numbers advised by agricultural economists at the 40 colleges and universities indicate a substantial increase in the teaching commitment over the decade even though the percentage allocations to teaching do not fully reflect this. In all of the regions undergraduate numbers increased significantly. The number nearly doubled nationally with the largest percentage increase in the 14 departments in the South. Every department reported an increase in undergraduate majors. The increase in graduate student numbers during the decade was also substantial, a little over 40 percent nationally. It is likely that resources from these commitments have likely been "borrowed" from research.

In terms of sources of budget support for all the programs and functions of individual departments state resources are the primary source of funding on the average in all of the regions. Funds allocated to Departments from the USDA were a smaller part of the total budgets in all regions, dropping from 34 to 28 percent nationally. Other federal agencies and departments provided some of the added support from grants, contracts, and other types of agreements.

Funding for research is more completely documented than for extension or teaching. Departments nationally obtained 45 percent of their funding from State sources in 1970 compared with 43 percent in 1980. USDA formula funds and grants also decreased from 42 percent of the total in 1970 to 38 percent in 1980. Other federal agencies, which accounted for 7 percent of research funding in 1970, provided 14 percent in 1980. Energy, natural resources, transportation, international development, and environmental protection were the chief sources of

Table 4. STUDENT NUMBERS: AGRICULTURAL ECONOMICS DEPARTMENTS

40 U.S. Universities, 1970 and 1980

Region	Number of schools	1970	1980
		(number of majors advised)	
Undergraduate students:			
Northeast	7	708	1,290
North Central	9	1,806	2,962
South	14	1,091	2,546
West	10	1,416	2,481
Total	40	4,821	9,279
Graduate students:			
Northeast	7	187	239
North Central	9	654	776
South	14	375	675
West	10	234	353
Total	40	1,450	2,043

this support. Only limited funding, less than 0.7 percent in 1980, came from the National Science Foundation.

Respondents were asked to allocate funding for research into five general areas of work in agricultural economics in both 1970 and 1980 (Table 6). In the Northeast there was a marked swing away from marketing and farm management to natural resource economics and land use issues. In the North Central region, marketing and prices and supply-demand analyses were the most important general areas of work in both 1970 and 1980. In this region alone, marketing did not show a decline in relative importance. In the South farm management and production economics increased in importance over the decade. In the West there was a major shift away from marketing toward natural resources and farm management.

Nationally, farm management and production economics held quite steady over the decade as a major research area. Marketing received less of the research resources and there was an important shift in work toward land use issues, rural development and natural resource economics in all of the regions. In a relative sense the increase in work in agricultural policy, regional economics and macro-economic issues was also of special note.

During the past decade agricultural economists have increased their participation in both research and extension projects involving scientists in other agricultural disciplines. This is true across all the regions and in most departments. In looking ahead 33 of the department chairmen expected further increases in the amount of research involving other disciplines. Seven expected the amount to be roughly the same as now.

Table 5. CHANGES IN SOURCES OF BUDGET SUPPORT:

RESEARCH, EXTENSION, RESIDENT INSTRUCTION

40 Departments of Agricultural Economics, 1970 and 1980

Region	Source of budget	1970	1980	Net change
		(percent of total)		
Northeast	State	56	62	+6
	USDA	38	30	-8
	Other federal	2	2	0
	All other	4	6	+2
North Central	State	60	58	-2
	USDA	28	25	-3
	Other federal	7	11	+4
	All other	5	6	+1
South	State	53	54	+1
	USDA	42	36	-6
	Other federal	2	9	+7
	All other	3	1	-2
West	State	65	63	-2
	USDA	25	20	-5
	Other federal	6	14	+8
	All other	4	3	-1
Total	State	58	58	0
	USDA	34	28	-6
	Other federal	5	9	+4
	All other	3	5	+2

II. Setting of the 1980's

The foregoing data suggest that agricultural economics did as well or better than other agricultural science disciplines in competing for scarce resources in the 1970's. And, there is evidence of adaptability and resiliency of the profession with respect to both sources of funding and subject matter emphasis.

1. Demand for Services

At the risk of appearing self-serving, we believe that aggregate demand for services of agricultural economists will continue to expand in the 1980's. However, the composition of that demand may change dramatically.

Our optimism with respect to growth in demand for agricultural economic services is predicated upon the expectation that food, agriculture and natural resources will occupy critical roles in economic systems both in the United States and abroad during and beyond the 1980's. Food production, even in the United States, cannot be taken for granted as multiple use competition for natural resources intensifies.

Commercial production, marketing and distribution of food and fiber have always been and are still the cornerstone of agricultural research and education programs (70 percent of total research). If the evolution toward less direct intervention by government in the agricultural economy continues in the 1980's as now seems apparent, the private sector demand for timely, reliable, market-related economic information is likely to increase substantially. In the public sector, demand for economic information will continue strong as a basis for monitoring performance of the food and fiber system, policy analysis, and for targeting and evaluating public programs.

Our international interdependence will also be a source of continuing demand for economic information, research and analysis in both the public and private sectors. Issues related to trade policy, food security, international market instability, market development, the organization and performance of international monetary and financial institutions, and the interdependence among trade and domestic food and agricultural policies are key areas likely to require additional attention of agricultural economists, particularly in the public sector. The private sector will require from corporate economists and from those in the public sector more detailed and specific data and analyses to guide market development and foreign investment activities.

We expect American agricultural economists to continue to be called upon for technical assistance and "institution building" in the developing countries of the world. For many of those countries, agriculture is the "cornerstone" of economic development. Heavily affected as many have been by petroleum price increases and a large foreign debt-servicing load, most developing countries face critical economic choices involving food and agriculture.

The major onus of responsibility for development of economic information, research and policy analysis concerning natural resources rests in the public sector. That is not to say that the private sector is unaware of, unconcerned with, or without need for relevant economic information concerning the economics of natural resource use but merely to remind that market forces, which drive many of the "on-site" decisions concerning natural resource use, fail to capture externalities associated with those decisions. With much of the "slack" already removed from the U.S. agricultural production plant, we know much less than we

should about the characteristics of the long run supply functions for land and water and the associated conservation, environmental impacts and costs under conditions of sustained increases in agricultural production.

Department chairmen and administrators were asked in our survey to indicate the most important areas toward which additional work in agricultural economics should be directed in the 1980's. These judgments provide further insight into areas of work where increased demands seem evident.

- o 39 percent suggested commercial agricultural production and marketing as areas requiring additional work.
- o 22 percent identified agricultural policy and structure issues as highest priority.
- o 19 percent identified with energy and natural resource issues.
- o For the remaining 20 percent, undergraduate teaching programs and international trade and development were about equally distributed.

A wide range of specific problem areas were listed as most likely to require increased work by agricultural economists with scientists in other disciplines. Most frequently these were problems involving some aspect of production economics. Commonly there was an energy related component of the problems. Resource management issues, particularly about land and water were high on many lists. A wide range of environmental concerns from integrated pest management to acid rain were noted.

Strikingly, not a single department chairman or administrator indicated that rural development should be given high priority. Whatever the future may hold for funding of rural development it clearly is an area in which the application of economics should be highly relevant

and to which agricultural economists have the capability to contribute given their considerable talents in relating "economic theory to observable facts" and their knowledge of rural institutions. Surely agricultural economists as social scientists. sector have a unique responsibility to understand and assist in the resolution of economic problems of people, all people, and institutions in rural areas.

2. Structure and Organization for Delivery of Services

Despite impressive growth in number of agricultural economists employed in the private sector during the past decade, the public sector continues as the major source of employment, economic data, situation and outlook information and basic economic analyses. As an integral part of the USDA-Land Grant partnership fashioned in the late 19th century and tailored to its present institutional form in the first third of the 20th century, the public agricultural economics "establishment" of today bears many of the same strengths and deficiencies as the larger system. Several of the characteristics are worth noting as we reflect on needs, priorities and funding of the 1980's.

1. Decentralization: Institutionally, public sector agricultural economics work is conducted in 64 land grant universities (50 "1862" and 14 "1890"), about 15 other State universities and colleges, the Federal government (primarily USDA), most State governments, perhaps 10-12 non-profit research and education institutions, and a few private universities. This decentralization of work is in many ways a strength of the establishment, tending to encourage responsiveness to local needs, independence and intellectual freedom, and precluding singular, authoritarian dogma in theory and methods. But in other respects it

complicates communication and coordination, contributes to duplication of effort, and inhibits development and implementation of concerted, discipline-wide initiatives.

2. Specialization: In most universities and in the USDA, agricultural economists have been most commonly grouped in units or departments that center around the discipline of economics. The disciplinary organization of our work is not inconsistent with the view of agricultural economics as an "integrating science." And, it has permitted us to develop theory, methods, comprehensive data sets, and a macro view of agriculture which might not have been achieved otherwise. At the same time there has been a tendency for isolation from other disciplines and "problem oriented" agricultural departments and units. That tendency inhibits interdisciplinary, mission-oriented research of the type needed to resolve many of the problems of the 1980's.

3. Pluralism: The "establishment" is diverse and pluralistic in mission, goals, methods and funding sources. Most land grant departments include research, extension and resident teaching functions. Appointments are commonly split two-ways, sometimes three, tending to result in small, fractional commitments to each function. University programs emphasize state and local issues: USDA programs have a national and international focus. Research in universities is small in scale, heavily supported by graduate students, and oriented to the discipline, methodology and longer run problems. USDA research tends to be heavily applied, larger in scale, short-run, sometimes "crisis" oriented, with greater emphasis on policy analysis and primary data collection.

Again, there are strengths and benefits from pluralism. But these same strengths make it difficult to obtain clear national or disciplinary focus on programs, specify priorities or develop system-wide strategies.

III. Strategies for Funding and Problem Solving in the 1980's

Several indicators of tighter funding for agricultural economics work in the 1980's could be cited. As a proportion of college budgets, funding for agricultural economics during the 1970's declined in 15 of the 33 departments responding to our survey. In late 1980, Michigan State University was forced to furlough staff and severely restrict support services as a result of falling state revenues. Other states have been similarly if less drastically affected by "proposition 13" type reductions in state revenue. At the federal level the Reagan Administration has proposed sharp reductions or smaller than expected increases in budgets for many non-defense related functions and departments. To bring matters "closer to home" the Reagan Administration has proposed to reduce National Science Foundation grants for social, economic and behavioral research from $49 million in 1981 to $16 million in 1982. The Washington Post reported that "OMB Director David A. Stockman and others have complained for years that social sciences produce little or nothing, and that their studies are often used to support liberal social programs." At the same time the Post reports, the Administration has begun a "social science hour" at the White House to better understand the background social facts against which policy will be mapped.

Still "closer to home," ESS (now ERS and SRS) recently conducted a two-day public meeting to obtain suggestions for establishing priorities

on statistics and economic research in ESS and activities which might be reduced or eliminated in the event that a 20 percent budget reduction were necessary in fiscal year 1983. Concurrently, the Administration's budget proposals for FY '82 included increases for agricultural economic research as well as all agricultural research.

Although the funding levels for agricultural economics work for the immediate future are not yet clear, the direction toward tighter budgets and closer public accountability is evident. If, as we have suggested, demand for agricultural economics services continues to grow we face difficult choices and the classical economic problem of allocating scarce, possibly scarcer, resources among competing uses.

Obviously, no single initiative or funding strategy will suffice. Each institution will need to develop plans and strategies adapted to its particular or unique circumstances with respect to clientele, priorities and the quantity and quality of available resources. Nevertheless, there are several common and some multi-institutional or discipline-wide plans and strategies that warrant consideration and action.

1. Monitor Funding and Resource Allocation for Agricultural Economics Work on a Regional and National Basis.

Communication within our decentralized system is difficult and highly imperfect. Yet, the availability of reliable, timely information is essential for planning and decisionmaking. The need for such data is particularly important at this time when important decisions on funding and resource allocation may be taken in the context of tight budgets. These data are also essential for any informed, rational plan or strategy that might be undertaken subsequently by the profession, or groups of professional institutions.

The CRIS is an embryo of a useful system for these purposes. It contains, however, superfluous information and is subject to excessive reporting lags. We suggest AAEA consider an annual survey of institutions having substantial resources devoted to agricultural economics to obtain information on funding by functions and source, and allocation of resources by subject matter field. These data might be reported at the annual AAEA business meeting. The questionnaire developed for use in preparing this paper could be a point of departure The CSRS/USDA might be approached for funding assistance.

2. Initiate Efforts to Identify High Priority Research and Extension Needs for the 1980's

The profession has been loathe to undertake such efforts in the past. Certainly some of our past experiences, the pluralism of our work, and the reluctance of some leading figures and entrepreneurs in our profession make it a risky venture. However, the invitation of the Director of USDA's Science and Education Administration to professional societies to develop a statement of priorities engendered a substantive statement from the AAEA Board in 1980-81. Greater involvement by more individuals in the profession should be fostered in future efforts.

To be useful and credible, a statement of priority needs must be more than a "laundry list" of what economists do or an amalgam of platitudinous wishes. It should be keyed from a careful, comprehensive review of likely directions of agriculture, natural resource use and rural America in the 1980's; the principal data and research needs to which those trends give rise; and a sober assessment of our capacity

to respond to such issues. It must avoid being self-serving or condescending in tone and it must above all be rigorous and professional in content. With regional elaboration, one version could serve the profession as an indicative research planning tool. But a second version also is needed--one which is issue and output oriented, stressing decisionmakers to be served, and the value of output to those decisionmakers. Where appropriate, scientists from other disciplines should be involved in preparing these statements especially the latter. Such statements should be updated and refined periodically to reflect changing needs and priorities.

Whatever approach is taken should involve the AAEA as an active participant. One approach might be for AAEA to "commission" a group of scholars nominated by the membership to draft the statement. Or, groups of scholars by subject matter field might be nominated to draft a series of statements to be integrated by another AAEA-appointed group. In any event, the statement should be the subject of written comments or conference dialogue by AAEA membership before final approval. Another variant would be to invite the regional associations to draft statements with a synthesis made nationally by AAEA. Recent prototypes of statements of this type include Soil and Water Resources: Research Priorities for the Nation sponsored by 10 professional societies including the AAEA, and Animal Agriculture, Research to Meet Human Needs in the 21st Century sponsored by 5 professional societies, several experiment stations and the USDA.

3. Assume a More Positive Stance in Funding of Agricultural Economics Work

Unless we are prepared to exert influence with those who make decisions on the funding of agricultural economics work, the development

of improved information and statements of needs and priorities are of little avail, however elegant they may be in formulation and exposition. Other scientists have perceived this simple truth more readily than we. For example, the American Society of Animal Scientists has appeared on several occasions before SAES/USDA research planning entities to present consolidated statements on research needs and priorities on behalf of its membership. The land grant forestry schools and the Forest Service have worked closely over the past decade under aegis of the Joint Council and its predecessor organization to develop comprehensive statements on forestry research needs on regional and national bases. Those statements have been used consistently for development and presentation of budget proposals in the USDA, SAES and before Congressional Committees with considerable success.

We know of no occasion in the past decade when a state agricultural economist has appeared before the House or Senate subcommittee on appropriations to support or comment upon the budget proposals of ERS or CSRS. Nor has the reverse occurred to our knowledge.

Direct support for agricultural economics research in the budget making process is diffuse and weak. With the exception of ERS and CSRS most budget proposals for economic research are "brokered" to appropriations bodies through deans or directors. Frequently those proposals are presented as "riders" to proposals from the physical and biological sciences where support may be higher. Typically it is more difficult to convey the purpose and value of economic research to legislators than for sciences in which output can be expressed in demonstrable physical terms. And, whereas farm and commodity organizations appear

regularly before appropriations committees to support physical or biological science needs and proposals, few appear before such bodies in direct support of economic research. Even our statistician colleagues enjoy stronger, more direct, external political support than we in the budget-making process. We should consider how best to build external support for our work and more effective representation of our interests in the budget-making process.

We recognize the constraints, professional and legal, which pertain to "exertion of influence" in the budget-making process. We do not advocate politicization of the profession. But, indirectly and properly, we can be more active in supporting the funding of agricultural economics work. For example, we might interact more extensively with IR-6, the SAES venture to support and coordinate SAES/SEA budgets for agricultural research. Perhaps we should seek more active involvement in the Joint Council on Food and Agriculture Sciences and its related bodies including the National Research and Extension Coordinating Committees and the Regional Councils and Committees. Other institutions in which social science research and extension needs and priorities might be injected more effectively include the regional and national associations of land grant experiment station and extension service directors. Support from various interest groups might be explored.

Currently, funding of agricultural economics through the P.L. 89-106 Special Grants program is limited to one project--NC-117. Under management of CSRS, P.L. 89-106 authorizes "earmarked" funding of mission-oriented research in several disciplines. In collaboration with CSRS we believe this source of funds should be explored further to support mission-oriented agricultural economics research. Further, we suggest that

ERS and the land grant universities explore funding of joint projects through ERS appropriation requests.

Effective joint planning and leadership are required for any of these approaches to succeed. AAEA, the regional professional societies, regional committees, informal research groups as well as ERS and CSRS are potential sources of such leadership.

At the state level an important source of new funding is from business, industry and commodity or special interest groups. Often, small marginal increments from these sources will permit initiation or conduct of research or extension projects which might not otherwise be undertaken or fully completed. However, it is essential that management and publication control of research or extension projects funded by the private sector or, for that matter, funded by public agencies with action programs or special mandates, be retained by the research or extension agency. T. W. Schultz has spoken succinctly to the issue in a recent paper:

> "The core of my argument is that one of the primary functions of academic economists is to question society's institutions. Economists are all too complacent about their freedom of inquiry. They are not sufficiently vigilant in safeguarding their function as educators. ....The distortions of economic research will not fade away by accommodating patrons of research funds."

4. Develop Fewer, Larger Research Projects with a Regional or National Orientation

One of the important needs of the 1980's is to develop new mechanisms to allow extension specialists and research workers to make more effective use of their skills and knowledge across state and county lines with appropriate funding transfers which recognize these contributions. This

is a longer term problem with no simple solutions. Castle (1980) in his impressive Kellogg Foundation Lecture to the National Association of State Universities and Land Grant Colleges speaks clearly to this issue. The need to build credibility, make use of our specialized knowledge and comparative advantage within universities and disciplines, and reduce State and Federal conflicts was emphasized. But we cannot simply wait for administrators to find ways to build bridges to allow greater specialization and reduce overlaps in research and extension. We should ourselves take the initiative. We have several suggestions.

Although performance of regional research projects has been uneven we should continue to experiment with these devices. An objective should be to build a regional system for research and extension without the formal structure and bureaucratic processes which have encumbered many regional projects. The NC-117 model with a permanent core staff, full time executive director, and funding from the SAES, USDA, "off-the-top" regional funds, and 89-106 Special Grants funds has been highly successful in providing continuity of effort and coordination among participating institutions. Planning and commitments by the participating institutions are on a rolling three year cycle--long enough to permit conduct of research but short enough to avoid permanent institutionalization of the project. That model might be adapted to research on other major problems.

A related, still-evolving mechanism to improve coordination and additivity in research is that of the International Trade Research Consortium involving about 10 U.S. and Canadian universities and the USDA (ERS and FAS) and jointly funded by those institutions. The Consortium evolved as an informal vehicle to bring together researchers having a major

interest in and commitment to international trade research. Several workshops have been conducted and a research agenda has been established with the intention of seeking funding from government, non-profit foundations, regional and university sources. Without the formal structure of a regional project, but with a small core staff to provide continuity and assist in coordination of effort, this model of a successful working group might be adapted to other situations as a means of seeking major funding when project proposals are reviewed competitively.

A substantial amount of our resources is invested in development of quantitative economic models. Current requirements for development and maintenance of complex economic models are, in some cases, well beyond the technical and financial capabilities of any single agricultural economics research institution. We need to explore new institutional arrangements not only among U.S. institutions but with international research institutions as well.

Initiatives and multi-institutional innovations such as these usually turn on the leadership of a few individuals. We should do more to encourage such innovations. The AAEA is a logical forum in which to explore these and other types of insititutional innovations through workshops, symposia, "commissioned" papers and other approaches.

5. Participate Actively in Developing Research and Extension Proposals with Scientists in Other Disciplines

There is need for a small, but important fraction of agricultural economists to commit themselves to take the initiative back at the project proposal stage to provide integration of economics and other

disciplines. This will require specialization where an individual or a small team puts in perhaps 50 percent to full time on projects that span 3 to 5 years. The need for such leadership and commitment cuts across all aspects of the discipline: production, marketing, natural resources and policy. In cases where such leadership originates in agricultural economics more than token funding is likely to follow. Integration in the form of 10 percent of a scientific man year annually is likely to lead to tokenism with little impact on the project.

If public funding for research and extension is increasingly targeted to special problems as perceived by Congress and State legislatures, then agricultural economists must take leadership in developing proposals to solve these problems and help to define special projects for study. This will require specialization and a commitment to learn more about applied biology and engineering. It will be a mandate for a small percentage of all agricultural economists to be integrators both with fellow economists and those working directly with scientists from other disciplines.

In the near term at least funding prospects appear brighter for the physical and biological sciences than for economics. On a purely strategic basis for future funding as well for the reasons cited previously we should consider seriously means of aligning ourselves more closely with those sciences. AAEA could encourage interdisciplinary work by regularly including a forum in its meetings for reporting the results of such work and extending its liaison representation to other professional societies. Some special recognition of published research in this area might provide further stimulus.

IV. Concluding Comments

Comparatively speaking, we fared reasonably well in the funding of our work in the 1970's. But the 1980's pose new challenges and opportunities for us--prospective growth in demand for services and scarce, possibly scarcer, real resources.

To meet those challenges and opportunities requires that we be prepared to innovate institutionally; that we seek new approaches to conducting our work within the discipline and with other disciplines; that we set forth some central directions and priorities to enhance our image and credibility with potential funding sources, old and new; that we attempt seriously to plan and, yes, even coordinate, our work in a manner to enhance our collective productivity and efficiency.

Passive observation of the changing environment of agricultural economics work will not improve our productivity or improve decisions in the allocation of scarce resources. But neither will short run actions of expediency! What seems to us to be required is that of beginning to view our individual services as collective services not just for disciplinary purposes but in the interests of agriculture, rural America and the public at large. So viewed, collective action in the development of appropriate funding strategies seems appropriate.

The key to our suggestions is, of course, leadership--effective, forward looking leadership at numerous junctures in the profession. AAEA is one such juncture. It is in that vein that we have made our case and our recommendations.

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