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ABSTRACT

This report by the National Association of State Universities and Land-Grant Colleges (NASULGC) ad hoc Committee on Federal Support for Agricultural Research, Extension and Education suggests solutions to major challenges in agricultural research. Three new realities provide a powerful rationale for major new investment in agriculture: dramatic changes in health care incentives; agriculture in an increasingly interconnected world economy; and the environmental benefits of agriculture. New initiatives are needed to secure the funding necessary to capture attention and build the necessary support base for public policy to invest in strong, scientific research and its vital partners in agricultural research: cooperative extension and education. These concepts must then be shared with stakeholders and others so that their responses and ideas can be incorporated where possible. Reactions should be sought from national science leaders and multiple agencies. Identification of specific goals, research and education programs, collaborators, timelines, and outcomes constitutes the next step. A coordinating entity based in Washington, DC, must promote the initiative daily. NASULGC, its president, and the board on agriculture are recommended to head this effort. A copy of the Committee Appointment Letter and a membership list, as well as a statement regarding funding problems in agricultural research/extension/education are appended. (MSE)

MILLENNIUM III CHALLENGES:
A MAJOR ROLE FOR AGRICULTURAL RESEARCH/EXTENSION/EDUCATION

The NASULGC ad hoc Committee on Federal Support for Agricultural Research, Extension and Education[1]

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INTRODUCTION: The quick response time of the agricultural research machine during the past century gives us hope for solutions to certain major vexing challenges, delineated below, that face us in the next.

Cooperative extension surely must be in the top ten among underappreciated American inventions. A phenomenon in its own right as an agent of practical and technical education far beyond the reaches of agriculture, it is also, in the world of agricultural research, the interactive link between scientist and user. The product has been the often times startling advancement in food production that has made American agriculture the world model. That unique American advantage can and should be put to many of the tasks and challenges of the 21st century. These tasks include enhancement and maintenance of health, both in an aging American society, and in the politically volatile countries of the world that are world-threatening primarily because of the instability that can be caused by inadequate food supply and nutrition. Secondly, this agricultural research enterprise has the capacity of keeping America green and ecologically sound in an increasingly urbanized nation.

There is, though, a problem.

Funding for agricultural research, cooperative extension and education has not, by any measure, kept pace with funding for health research and development. In fact, over the last 10 years the NIH budget for health research has increased by over 50 percent, compared to a steady state research budget, at best, for agriculture. This comparison of agriculture with health is appropriate since both health and agriculture are multidisciplinary fields, each engaged in the full range of research, from basic to applied, and in improving our personal day-to-day well being. A body poorly nourished can suffer equally to one that is diseased.

Why, then, do we have such a funding discrepancy? While it is always better to consider the future, dwelling on the past and the origins of this problem might have some benefit as we consider a strategy for greater financial support in the future. Appendix B gives a quick resume of likely past difficulties.

THE FUTURE. Fortuitously, three new realities of the 1990's and the foreseeable future provide a powerful three-pronged rationale for a major new investment in agriculture, namely **the dramatic changes in health care incentives, international business and agriculture in a shrinking world, and the environmental benefits of agriculture.**

Health Care. The foundations of healthcare are being shaken and rearranged in this country. After several decades of rapidly rising health care costs, and hence health insurance costs, managed care is taking over the industry. Employers and employees, with the California Kaiser Health Care model in hand, have gone from paying for or subsidizing insurance rates that would

[1] The committee membership, appointed by President Peter Magrath, is shown in Appendix A.

finance health care on demand ("fee for service"), to paying a health maintenance organization a fixed amount per person for a fixed menu of health services. The result has been a dramatic shift of emphasis from **treating disease** to **maintaining wellness**. Said differently, the health care industry is going from making money when insured patients get sick, to making money when insured patients stay well.

A major agricultural thrust for the foreseeable future, **enhanced nutrition and improved food safety**, fits precisely and importantly into the "wellness" theme of human health. The relationship between diet and health is sufficiently established to justify a major expansion of research on, for example, diet and child development. Similarly, funding for research on the *prevention* of cancer could be argued at least as persuasively as funding for research on treating the disease. Further, the tools are now becoming available to determine food components that prevent disease, and once identified, genetically incorporate them into other foods to meet varied taste or cultural preferences. It is an opportune time to develop a multidisciplinary program that will bring medicine together with nutrition and food safety in the pursuit of wellness.

International Agriculture. The more than adequate food supply in the U.S. is not the norm in the world. Fifty percent of the world's population suffers from some form of malnutrition. While research into food quality and production in developing countries has been funded in the U.S., e.g., through U.S.A.I.D., the problems of food shortage and its related political instability persist. Africa suffers from widespread dietary micronutrient deficiency, Nepal from Vitamin A-inadequate foods. With passing time in our new world of instantaneous worldwide communication, these problems will grow in our collective consciousness. We must now focus, more than ever before, on these and the related political problems of global food supply and availability.

As well, the world has an increasingly connected economy. The practical and political consequences of food shortage, even subtly inadequate nutrition, will be felt in ways and places remote from their origins by means currently unknown. The domino effect in the recent economic downturn in Asia best exemplifies the interconnectedness of the world economy. International investments by the world's governments, its banks and its citizens, will tie us together as never before. The financial value of stability in foreign governments, as dependent on adequate food as on any other variable, can be argued to far exceed the cost of the research needed to make those countries food sufficient. Money allocated toward U.S. research and education in this country, in the laboratory and in the field, will be money well invested.

The Environment. The enhanced understanding of, and attention to, delicate balances in the environment has the potential to be the core of a major expansion of research within agriculture. We have an increasing need for an enhanced knowledge base on which to formulate sound environmental policy. Agriculture and forestry can and should be major contributors to the knowledge base. The primary benefits of that knowledge base will, thereby, be more likely to accrue to agriculture and forestry. Equally important, our greater involvement in the research will guarantee our participation in the development of environmental policy.

Agriculture should expand its contributions toward enhancement of the environment and quality of life beyond providing food and fiber. For example, we should concentrate on 1) enhancing agriculture's value in maintaining open space at the same time that it contributes to the economy and creates jobs; 2) reducing the potential pollution load of agriculture; 3) enhancing the visual environment; 4) providing habitat to maintain biodiversity. These all are salable and entirely feasible areas of research and education. We may by now be inured by the mantra, but

it is indisputably true: *If current land use trends continue, we will find much of our prime farmland occupied by wall to wall suburbia, highways, and congestion, arguably resulting in a dependency on food from external sources, similar to our dependency on external energy sources.* In short, we must make it clear that economic and policy research is essential to finding a way to preserve open space, prime farmland, and the quality of the environment.

THE STRATEGY: A New Initiative. If it is agreed that there are viable areas of agricultural research and education that are essential to the future well-being of our nation, then how shall we proceed to secure the necessary funding? It is proposed that a *new initiative* is more likely to gain support and new funding than is a strategy that would seek to add new dollars to currently funded units and programs. A *new initiative* and its catch phrases (every suggestion had its critics, but one proposal was "Designer Foods for a Healthy and Safe World") would capture people's attention and provide the opportunity to build the base of support necessary to sell the administration and Congress on the need for an increased investment in strong, scientific research and its vital partners in the agricultural research machine, namely Cooperative Extension and Education.

Thrust? Thrusts? There is a major decision to make regarding tactics. On the one hand, it may be necessary to choose one thrust from those described above, rather than attempting several thrusts at one time. We may deem it necessary to "keep it simple." Examples of criteria that could be used for choosing the thrust might be: Does it attract the interest and concern of a broad base of the public and members of Congress? Can one easily predict benefits from the increased investment in terms that are meaningful to the public e.g., improved quality of life or economic gains and savings? Does it fit into interests already expressed by the administration or Congress? Will it be seen as beneficial to all stakeholders?

Alternatively, rather than choosing a single thrust, we might present just a small number of related thrusts, those described above, to groups from whom we will depend upon for support. Having more than one thrust may make the initiative palatable to a broader range of constituencies, for they are more likely to see something in it for themselves.

Stakeholders. Once a thrust or thrusts are tentatively identified, it will be necessary to secure support. This will mean sharing the concept with the stakeholders, listening to their responses and suggestions, and where possible, incorporating their ideas. In this way we will have a greater chance that stakeholders will buy into the concept. Included, but not exclusively, would be agriculture's traditional supporters, the Farm Bureau and commodity groups that have Washington lobbyists such as the Cotton Council, Corn, Wheat, Barley and Soy Bean Growers, the Cattlemen, and the Pork and Poultry industries. Other agriculturally related groups could include the Agricultural Research Institute (ARI), United Fresh Fruits and Vegetables Association, the grocery manufacturers, the National Restaurant Association and major companies such as Nabisco, Purina, and Dow.

For the initiative to be successful, however, it will also be necessary to involve other supporters, such as representative biotechnology-related companies such as Novartis, Semenis, and Danforth, consumer and environmental groups, and health-related industries.

Federal Support. It would be good, as well, to get reactions to the initiative from national science leaders such as Lane, Colwell and Varmus. This is especially necessary since there was strong feeling in the committee that this must be a multi-agency effort. As one committee member put it: "The reasons are the farmer control of USDA and the fact that other agencies are able to tap different constituencies for the necessary political support of our initiatives. We

must open the clear possibility of NASULGC going independently to other federal agencies and forming alliances with them for research in these selected areas -- that may or may not involve USDA. We do not want to seem or be unappreciative of the long and productive cooperative association with USDA, but we also do not want to be limited by this relationship or how NASULGC has worked historically with USDA." If funding is to be in the agency budgets, then concurrence and support of the agency directors is necessary. For example, in the case of the USDA budget the concurrence and support of the Secretary and Deputy Secretary of Agriculture and the Under Secretary for Research, Education, and Economics would be highly desirable. The initiative could become an administration initiative and if broad enough in its impact, a Presidential initiative. In this way the administration could play an important role in "selling" the initiative to Congress along with the stakeholders described above and the governmental relations staff from our land grant universities. While we may not be able to please everyone in pursuing the enhanced research/extension/education funding initiative, we surely must find means that are threatening to no one. That likely requires focus on areas that virtually everybody considers worthy. The goal must be to minimize to zero the likelihood of naysayers from within our own community.

If the initiative cannot have its origins within the administration, perhaps because of conflicting priorities, then the initial stakeholders will change. For example, if it is to be a congressional initiative, several key legislators preferably from both parties and members of the appropriations committees must be the "spear carriers." It is they who must make the initiative a top priority, and enlist the support of colleagues. Lobbyists from commodity groups and the government relations staff from the land grant community again would be key players, as well as constituents from the selected congressional member's home state.

The Roadmap. Once the thrust(s) and stakeholders/supporters have been tentatively identified in general terms, the details of the long and complicated road to the eventual funding of the initiative could be developed by a consultant who would compose a "Galvin roadmap." The process of developing the road map would identify specific goals, research and education programs, collaborators, and time lines and outcomes.[1] The National Academy of Sciences' Board on Agriculture (National Research Council) developed the equivalent of the roadmap for the National Research Initiative (NRI). A similar approach could be considered for a new initiative, i.e., if the agriculture-human nutrition thrust were chosen, a joint effort by the National Academy's Board on Agriculture and the Nutrition Board could be requested to provide the roadmap.

Promoting the Initiative. With the roadmap in hand, there must be a coordinating entity based in Washington that will be able to "bull dog" the initiative on a daily basis. The individual or firm must have access to the USDA, know how to work with commodity group lobbyists and governmental relations' staff from the land grant universities. In addition, the individual or firm

[1] The detail of the roadmap are perhaps best left to the expert who composes it, but a multitude of suggested inclusions and considerations were forthcoming from the committee, including, among many, special taskforces to initiate negotiations with key federal agencies; placing members on and engaging with major federal advisory boards; directed partnerships with industries (other than agriculture); liaison staff to federal agencies other than USDA for NASULGC; special federal legislative initiatives/cooperating with appropriate agencies; National Research Council/National Academy Boards that might be approached to participate in and develop new strategies; systematic discussions of three initiatives from our report with the major foundations; cooperative arrangements with the multinational agencies (e.g., World Bank, FAO, UNDP, etc.); and linkages for the land grants/NASULGC with other research universities in other nations, e.g., a NASULGC-like organization for China/India/Africa/etc.

would work with the members or Congress and their staff and key congressional committees. This person or firm will be charged to know the detail of the initiative so as to be best able to argue its merits, stimulate and coordinate the efforts of support groups, and "head off" opposition.

Initiative Support. We have in the past depended, virtually exclusively, on producers for support for the academic research/extension/education activities. That has to change, especially considering the fact that the importance of science, cooperative extension, technology, and education seem never to be emphasized in the arguments that are put forward in favor of agricultural appropriations. Specifically, our major supporters in the future must include a broader range of participants, including health care agencies, foreign policy change-makers, and multiple consumer and environmental groups. As the primary beneficiaries of agricultural research/extension/education and they have great potential as supporters.[1]

Next Steps: This report describes the vision of a broadly based group of individuals, each with some connection to agricultural research. While it truly is our collective vision, "vision" is often overrated. Implementers are the real heroes of any accomplishment that occurs in complex environments. The next steps for the implementers seem to be:

1. **Actor:** The NASULGC Board of Directors. **Action:** Approve the concept of an initiative as described in this report.

2. **Actor:** President Magrath. **Action:** Assign the action to a NASULGC entity, perhaps its Board on Agriculture, with the understanding that they will regularly report on progress to the Board of Directors.

3. **Actor:** Board on Agriculture(?). **Action:** Select and authorize a consultant to prepare the road map, and to coordinate efforts to build support within USDA and/or other funding agencies, stakeholders, including commodity, environmental and consumer groups, and congress.

This "road map" should, in the process of its composition, determine the exact nature of the initiative thrust, the major players (individuals and agencies), the wisdom and feasibility of involving multiple funding agencies (this will depend on the thrust), and the dollar amount of the package.

4. Subsequent steps will be defined by the road map.

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[1] Although the major effort of the *ad hoc* committee is focused on Federal funding sources, we should remember that federally financed academic R&D funds for the agricultural sciences is only 30% of the total support. The other components are institutional funds, state and local governments and the industrial sector. The data published in a recent *Research Brief* from the National Science Foundation show that the Federal share of support for the agricultural sciences has remained close to the 30% level for the past two decades from 1976 to 1996.

The level of support varies among scientific fields. For example, in 1996, the Federal Government financed close to 80% of the academic R&D expenditures in physics and the atmospheric sciences, and 70% in chemistry, oceanography mathematics and statistics, and the computer sciences. In contrast it supported only 34% of academic R&D in economics and political science, and 30% in the agricultural sciences.

Are there messages here? One may be that the agricultural sciences are better positioned to attract greater support from other sources, such as state governments and the industrial sector. If this is correct, then our committee may wish to recommend that our member institutions, in addition to seeking increased Federal support, must also invest considerable, if not major, effort in maintaining or increasing funding from state and local governments and the industrial sector.

APPENDIX A

COMMITTEE APPOINTMENT LETTER AND MEMBERSHP

NASULGC National Association of State Universities and Land-Grant Colleges

August 28, 1998

Dr. Larry N. Vanderhoef
Chancellor
University of California, Davis
One Shields Avenue
Davis CA 95616-8558

Dear Larry:

At the last meeting of the NASULGC Board of Directors, Martin Jischke, the current chair of the Association and other members of Board joined me in expressing concern about the continuing erosion of federal funding to support our "Land-Grant Programs in Agricultural Research, Education, and Extension." The decline in real dollars is significant while funding for research in NSF and NIH—which of course we support--is increasing. The problem is further illustrated by the absence of any food and agriculture initiative in various congressional proposals to double funding for science research over the next five to six years. These proposals have generated understandable and desirable support from the science community—yet nothing is being said about food and agriculture, which has been at the core of land-grant programs in science and education.

The NASULGC Board encouraged me to appoint an ad-hoc committee to explore avenues for creating a greater national awareness of the necessity for an increased investment in food and agricultural science and education programs at our universities.

I believe it essential that a small number of university presidents from our land-grant community be involved in working on this critical issue. Accordingly, I am most grateful that Dr. Larry Vanderhoef, chancellor of the University of California at Davis, will chair this effort, and he will be joined by three other chief executive officers: President M. Peter McPherson of Michigan State University, President Sam Smith of Washington State University, and President Clinton Bristow of Alcorn A&M. Dr. Mortimer Neufville, Director, Federal Relations-Food, Environmental and International Affairs, will serve as the lead person to staff the committee as an ex officio member; he will be also joined as an ex officio member by Dr. Myron Johnsrud, Director, Extension and Outreach, NASULGC. Mort will try to get as many of the committee members together for a teleconference call some time before the end of September, and he will also try to schedule a meeting of the group during the NASULGC Annual Meeting in Atlanta November 15-17.

It is our hope that the committee might be able to complete its work and make recommendations within a one year period, but that it could provide at least an interim report and suggestions to the NASULGC Board at its meeting in April of 1999. A list of those being invited to serve is attached. We also expect Mr. Terry Nipp, President of Aesop Enterprises, Ltd., to sit with the committee and give the benefit of his perspective and advice. Similarly, and he is included as a recipient of this communication, we hope that Dr. I. Miley Gonzalez, Under Secretary for Research, Education and Economics at the U.S. Department of Agriculture, might find it possible to participate in the discussions of the group by giving his perspective from the vantage point of USDA.

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The specific charge to the committee, which it may wish to amend and change as it begins to discuss the issues, is as follows:

1. Re-examine whether our traditional or historic case on behalf of food and agricultural research and education in the national science agenda needs to be adjusted to the new circumstances of the 21st Century.

2. Recommend to me and the NASULGC Board of Directors a strategic plan for better communicating the national interest in increasing support for food and agriculture and related activities

3. Suggest ways for more effective advocacy between the university food and agriculture community, the congressional appropriators, the science committee, and the federal and executive branch fiscal decision makers.

The chief executive officers have agreed to donate their time to this very important inquiry, and I hope that those of you invited to participate as leading representatives for what is loosely described as our "agricultural community" will also find it possible to contribute your talent and perspective. It would be much appreciated if you would let Mort Neufville know of your willingness to participate in this effort. His telephone number is: 202-478-6022; his e-mail address is: mneufville@nasulgc.org: and he can also be reached by fax at: 202-478-6046.

This is an essential initiative, and Mort and I will be reviewing it with the Board of Directors at our forthcoming meeting on September 22, 1998. Your help is profoundly appreciated.

Cordially,

C. Peter Magrath
President

CPM/jlr
Enclosure
cc: I. Miley Gonzalez, Under Secretary, Research, Education and Economics, U.S. Department of Agriculture
Mortimer Neufville, Director, Federal Relations-Food, Environmental and International Affairs, NASULGC
Myron Johnsrud, Director, Extension and Outreach, NASULGC
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APPENDIX B

Funding Problems in Agricultural Research/Extension/Education

Why is there little enthusiasm for the support of agricultural research, and so much for human disease research? In the general area of health the AMA alone spends $30 million every year lobbying the legislature for support in particular research areas. Albeit shortsighted, the prominent and likely accurate explanation is that we have no apparent problems with food supply, but we are reminded almost daily of devastating human diseases. That death, usually caused by disease, is, after all, inevitable will never allay our sense of tragedy when we learn that a friend has incurable cancer. That sense of tragedy is heightened in these days and times because, with the cure of the many lethal children's diseases of the early part of this century and previous, we no longer become inured to the specter of disease and death during our early years.

Conversely (in a sense), with dramatic twentieth century increases in food variety, quality and production, we also, in these days and times, no longer grow up worrying about our next meal.

These facts, especially if isolated from a vision for the future, do not bode well for federal investment in agriculture in the 21st century.

Additional Problems. Furthermore, the practice of agriculture and agricultural research has accumulated other problems over the past four decades. They include a diminished understanding of agriculture in our general populace (and thereby in our representative government) with only two percent having direct experience with farming, the decreasing likelihood that our brightest plant and animal biologist will choose agricultural careers, agriculture's apparent culture of complaint ("too wet, too hot, too cold, too dry..."), at least as perceived by those 98 percent who read and hear about agriculture only during climatic calamities, some temporary bouts of denial within the agricultural community in the past (e.g., environmental problems) and currently (e.g., workplace safety), the academy's misunderstanding of, perhaps disdain for, the non-peer reviewed research support that agriculture enjoys and perhaps a too-heavy dependency on just one agency, the U.S.D.A., for research support in this broadly complex area.

All of these taken into account; the disparate funding trends should not be surprising. Furthermore, if we are to reverse these funding trends, past behaviors and tactics to enhance agricultural funding should be considered suspect.

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