Agriculture as a profession

U.S. AGRICULTURALISTS AND THE EMERGING NATIONS

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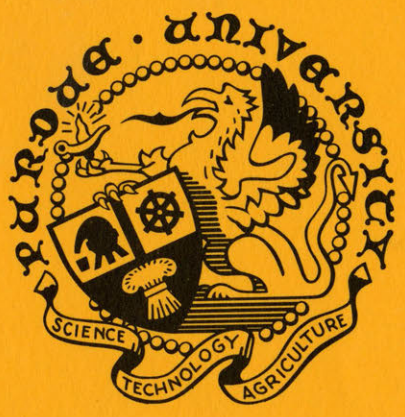

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A great deal has been written and said in recent years about the world food crisis, the population explosion, and the technological and scientific gaps in developing agricultural economies. Alternative means of resolving these issues have been discussed, but appropriate solutions and their consequences are far from clear. Positive action from many of the most likely sources has not been forthcoming in a magnitude commensurate with the difficulties of modernizing much of the world's agriculture.

There are a multiplicity of reasons for this. One of the most significant appears to be that, in general, the "right people" have not become actively involved in the kind of soul-searching that must precede effective action. In our opinion, the "right people" are the teachers, scientists and scholars that constitute the highly competent academic community of U.S. schools of agriculture. Here, and only here, exists the latent capability to accomplish much more than bemoan the

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facts that much of the world is not as it should be; that two-thirds of the world's population is so poverty stricken that it approaches economic insolvency and social disaster; and that this unhappy situation is completely inconsistent with the enlightened self-interest of the modern nations, the national objectives of the emerging nations, and the fundamental universal desires of the world's community of nations.

This Symposium on International Animal Agriculture sheds a positive ray of hope. It provides an opportunity for a significant number of the "right people" to think seriously about the challenges of world animal agricultural development and to consider means by which these challenges might be successfully met. It is an important first step in the right direction. If we are wise enough to follow this direction, we will forge a path that can only lead to the resolution of a world situation which is contradictory to everything mankind believes to be good.

We are delighted to take part in this symposium. We shall speak as forcefully and candidly as we know how to one important aspect of the larger problem. We shall consider the training of U.S. agriculturalists for career involvement in international agriculture and in the agriculture of the emerging nations. We shall develop the underlying rationale, examine the nature of the educational requirements for such people, explore the opportunities which exist, and finally discuss certain barriers to successful educational endeavors in this area.

The Rationale

The rationale for our schools of agriculture to train U.S. students for careers in international agriculture is straightforward. It involves the following:

1. U.S. agriculture is not independent of foreign agriculture. Rather, its well-being is closely associated with what happens to agricultural and general economic development abroad. This interdependence will increase through time[1/].

2. The United States, as a matter of foreign policy and in the national interest, has made irrevocable commitments to assist the poorer nations to develop economically. This means assistance in the modernization of the traditional agriculture that characterizes these nations. Our government, our universities, our foundations and other public entities are involved in this process.

1/ Thompson, Kenneth W., "The National Interest and Responsibility of the United States in Relation to World Food Needs", Alternatives for Balancing World Food Production Needs, Iowa State University Center for Agricultural and Economic Development, 1967.

"Growth Abroad Spells Bigger U.S. Farm Markets", Foreign Agriculture, Foreign Agricultural Service, United States Department of Agriculture, July 8, 1968.

Hardin, Charles M., Food and Fiber in the Nation's Politics, Vol. III, Section II, Technical Papers, National Advisory Commission on Food and Fiber, U.S. Government Printing Office, Washington, D.C., August 1967.

Meeting our international commitments will necessitate deeper, broader and more effective future involvement[2/].

3. The rate of future expansion of the U.S. economy, both industrial and agricultural, will depend in large measure on the identification and/or creation of mutually acceptable, profitable opportunities for investment of U.S. capital and managerial skills in emerging nations[3/].

4. The most limiting factor to success in these several endeavors has been and will continue to be the limited

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2/ Rockefeller, David, "The Case for Foreign Aid", Address at Council on Foreign Relations, Chicago, April 18, 1967.

Hardin, Lowell S., "Potential Growth Areas in Agricultural Economics", Journal of Farm Economics, Vol, 45, No. 5, December 1963, pp 946-951.

Thomas, D. Woods, "The Role of the U.S. University in International Education and Research", Journal of Dairy Science, Vol. 51, No. 2, 1968.

Bell, David E., "U.S. Domestic and Foreign Policies and World Food Needs", The Land-Grant University and World Food Needs, Special Publication 13, University of Illinois College of Agriculture, 1968.

3/ Model, Leo, "The Politics of Private Foreign Investment", Foreign Affairs Quarterly, July 1967.

Bruck, Nicholas K. and Lees, Francis A., "Foreign Content of U.S. Corporate Activities", Financial Analysts Journal, September-October 1966.

"States Take a Stab at Salesmanship", Business Week, February 18, 1967.

"Charting New Seas for U.S. Capital", Business Week, April 8, 1967.

"Old Bank's Young Men Swing Overseas", Business Week, October 12, 1968.

The great interest of U.S. business in international opportunities is presented in issues of International Commerce, a weekly publication of the U.S. Department of Commerce. Of special interest is the January 13, 1969, issue on the world trade outlook.

availability of highly competent professionals, willing and able to perform effectively, efficiently, and continuously in the technical, economic, political and cultural environment of international agriculture[4/].

5. One of the principal justifications for the existence of U.S. schools of agriculture is to respond with excellence and in timely fashion to the trained manpower demands of our society.

If the above assertions are accepted as valid, our major task is to carefully examine two aspects of the final assertion. One aspect is the historical record of achievement; the second considers future prospects for acceptance of responsibility and satisfactory performance.

U.S. agricultural professionals have been involved in foreign agriculture for generations. As early as 1876, the Massachusetts State College of Agriculture aided in the development of Hokkaido University in Japan. However, only in the last twenty years has the magnitude of involvement escalated. This escalation has been the by-product of our nation's expanding world leadership role and our expanding agricultural economy. U.S. universities have developed and maintained numerous relationships with foreign educational and research institutions.

4/ Loomis, Ralph A., "Why Overseas Technical Assitance is Ineffective", American Journal of Agricultural Economics, Vol. 50, No. 5, December 1968.

International Development Assistance, A Statement of the TASK FORCE on International Developmental Assistance and International Education, National Association of State Universities and Land-Grant Colleges, January 1969.

Building Institutions to Serve Agriculture, A Summary Report of the CIC-AID Rural Development Research Project, pp 222-223, Published by Committee on Institutional Cooperation, Purdue University, Lafayette, Indiana.

Between 1951 and 1966, thirty-five U.S. universities worked cooperatively with the Agency for International Development and its predecessor agencies on sixty-eight contract projects in the general area of agricultural development. These contracts have involved 1,400 faculty members of U.S. schools of agriculture who have committed 2,845 man-years of effort to the rural development process[5/].

Foreign Agricultural Service of the U.S.D.A. currently has 175 professionals serving in foreign lands and another 300 backstopping these efforts in the United States. Other branches of the U.S.D.A., directly and indirectly via participating agency service agreements, have some 500 personnel associated with ongoing professional programs both abroad and in the United States[6/]. It is estimated that by 1973, about one-fourth of all U.S.D.A. executive personnel will have foreign service as part of their career programs[7/].

The major foundations in their worldwide agricultural programs employ substantial numbers of U.S. agricultural professionals and support many more as visiting scientists and scholars in institutions indigenous to the less-developed nations[8/]. International agencies also rely upon U.S. agriculturalists for a substantive part of their

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5/ Thompson, W.N., Guither, H. D., Regnier, E. H. and Propp, K. M., AID-University Rural Development Contracts and U.S. Universities, CIC-AID Rural Development Research Project, University of Illinois, June 1958.

6/ U.S.D.A. employment figures were provided by Joyce Resler, Personnel Division of the U.S.D.A.

7/ Education and World Affairs, The Professional School and World Affairs, University of New Mexico Press, Albuquerque, New Mexico, 1967, p 119.

8/ Refer to recent Annual Reports of the Ford, Kellogg and Rockefeller Foundations.

manpower needs. While numbers escape us, there is no question but what U.S. corporations employ a large number of U.S. agriculturalists in their operations abroad and in their international divisions domestically.

We can only conclude that there has been, and is, a meaningful involvement of U.S. agricultural professionals in international and foreign work. More important is the fact that this involvement will continue to increase, both absolutely and relatively, in the future.

The question before us is dualistic. On the one hand, it is a question of the quality of performance of those who were, or are, so employed. On the other hand, it is a question of the degree to which our present undergraduate and graduate study programs and our opportunities for career experiences are preparing people for these kinds of careers. The answers to these questions can be only tentative; available evidence is too subjective and circumstantial to provide firm conclusions. Nevertheless, it is imperative that these questions be asked.

With some notable exceptions, there appears to be substantial reason for concern over the true productivity of U.S. agriculturalists who have been involved in foreign agriculture during the last two decades. Questions have been raised, both overtly and covertly, relative to the real contributions of U.S. employees of government, foundation and development agencies. The effectiveness of U.S. university personnel involved in development activities abroad has also been questioned[9/].

9/ Education and World Affairs, The University Looks Abroad, New York, Walker & Co. 1965.

Loomis, Ralph A., "Why Overseas Technical Assistance is Ineffective", American Journal of Agricultural Economics, Vol. 50, No. 5, December 1968.

While some portion of such ineffectiveness may be attributable to the institutional arrangements under which participation has occurred, there remains just cause to doubt the adequacy and effectiveness of the preparation of U.S. people for such endeavors.

In fact, rather than being astonished by some degree of ineffectiveness, we should be surprised that U.S. agriculturalists working in the international arena have been as successful as they have. There are a number of reasons for this.

First, the worldwide demand for U.S. agriculturalists following World War II caught this nation with no major cadre of agricultural professionals experienced in foreign agriculture. Unlike the colonial nations, our professional experience gave primary concern to the agriculture of the United States. Thus, the supply of U.S. manpower responding to worldwide demands for technical and scientific assistance had little, if any, technical background in the specifics of other regions of the world, nor did they have a storehouse of knowledge relative to the environmental, technological, political, economic and cultural milieu that characterized the emerging nations.

Second, it seems reasonably clear that the orientation of our undergraduate and graduate programs has traditionally focused on training a supply of agriculturalists equipped for domestic demands rather than international demands. In large part, the professional people of U.S. agriculture came out of rural America. Training at the undergraduate level was cast wholly in the environment of U.S. agriculture and, in many cases, gave major emphasis to the problems of the state and the region wherein the educational institution was located. At the graduate level, the scope of scientific training was set by two

variables. One was the basic tenets of the scientific field in which the neophyte scientist held interest. The other was a graduate research experience dictated by the research programs being carried out by the agricultural experiment station system which, both by tradition and law, were limited to problems confronting U.S. agriculture.

A third reason is that, for the majority of U.S. agriculturalists, professional experiences beyond their formal educational period tended to be quite provincial. Agricultural scientists followed their interests in institutions, both state and federal, having almost exclusive domestic orientations. Professionals moved from our universities into the agribusiness community which also, until recently, was linked closely to U.S. agriculture.

The above is not meant to be critical of what has been done in the past. Rather, it constitutes the secret for the training of people and the production of knowledge that is directly useful in supplying the personnel and knowledge demands of U.S. agriculture. However, it is very doubtful that it provides the optimal educational environment for training agriculturalists and/or agricultural scientists to move into international and foreign careers.

When called upon to fill professional positions which seek solutions to the complex problems of agricultural development in emerging nations, U.S. agriculturalists, scientists and scholars have found themselves less than ideally equipped to move effectively and efficiently into this arena.

Many have been hypercritical of the efforts of U.S. development agencies to bring about rapidly the modernization of agriculture in developing nations. Many of us in the university community have been

among the critics. It appears, however, that some major share of this criticism rests squarely on the doorstep of the schools of agriculture and the universities of this country. The weight of this criticism is some function of the degree to which we have failed to provide the public and private sectors of our country with agricultural manpower trained in a manner that permits them to perform with excellence in the non-U.S. environment. This is part of the soul-searching that is long overdue.

The Requirements

If there is a single germ of truth to the allegations made above, we must ask ourselves the difficult question of what mixture of ingredients constitute an educational program capable of meeting the non-domestic fraction of the total demand for U.S. agriculturalists. This is a matter, of course, which must be hammered out by the educators in each of the subject matter fields of agricultural science. There would seem to be, however, some commonalities among the several disciplines which might serve as useful guidelines. Let us examine these briefly.

First, it is clear that the preparation of an individual for effective and efficient professional involvement in international agriculture is not a short-run endeavor. Attempts to "retread" U.S.-oriented professionals have had less-than-acceptable success. While it might be necessary to continue some of this in the short run, our experience has indicated that this is not the long-run solution.

Second, we must start with the young. In order to develop a really first-class group of U.S. agriculturalists capable of performing with

excellence on the international scene, there seems to be no alternative to that of systematically "growing" this cadre of people from the "seedlings" of the new generation and the generation to come.

Third, high-level professional performance in international agriculture would seem to require three things--one, the provision of highest quality training in subject matter disciplines; two, an early firsthand exposure to foreign agriculture; and, three, a continuing professional involvement in international agricultural activities.

Fourth, the establishment by administrators and professional colleagues of a set of rewards and penalties which will assure the capable internationally-oriented professional of advancement in his field, challenge him and assure the development of the kind of performance essential to solving the world's agricultural problems.

In short, we know the set of educational criteria that have permitted U.S. schools of agriculture to produce the most competent, domestically-oriented agricultural professionals in history. Now we must squarely face the problems of applying these well-known criteria to producing a corps of agricultural professionals equally competent in effectively seeking solutions to problems of international agriculture.

The Opportunities

The next question or primary concern is that of opportunities for evolving educational programs which will be consistent with the above. It is our firm belief that, if the schools of agriculture of the United States so choose, the opportunities for creating such educational programs are unlimited. The reason for this optimism comes in several parts.

First, each fall our universities enroll a generation of new students having background and training superior to that of any generation admitted to date. Additionally, this generation is characterized by a set of values which provide long-run, in-depth commitment to the solution of the major social and economic problems of today's world. The raw material from which to create a highly productive elite of U.S. agriculturalists trained for international endeavors is now available.

Second, the technical educational capabilities of our U.S. schools of agriculture continue to improve. We are increasingly better equipped to provide the excellence of technical competence prerequisite to high-level performance in international agriculture.

Third, although still limited, the investments which U.S. university personnel have made in foreign agriculture over the last 20 years have provided a corps of university staff capable of teaching the kinds of academic courses and supervising the research endeavors needed to effectively train students in non-U.S. agriculture.

Fourth, the competence of U.S. land-grant universities in the humanities and social sciences as these refer to the developing nations, while once extremely weak, has improved immeasurably and continues to grow. This provides a resource base of inestimable value for the preparation of agriculturalists for international careers.

Fifth, modern transportation has made the emerging nations an accessible laboratory to undergraduate students in our colleges of agriculture. It is quite feasible to develop campus-based courses on foreign agriculture which include laboratory-field observations in the emerging nations. It is technically and economically feasible to arrange

extended study-travel courses to these areas for students having international interests. Curricula in a few schools of agriculture in the less-developed nations are now of such quality that the internationally-oriented undergraduate may now consider, without academic risk, spending some portion of his undergraduate years as a student abroad[10/]. With a bit of institutional effort, early and meaningful involvement in foreign agriculture is a realistic alternative for undergraduates in our schools of agriculture.

At the graduate level, equally exciting and feasible opportunities to continue preparation for international careers exist. The first condition, of course, is the availability of scientific training of the highest caliber. There is no doubt about the ability of our graduate schools to meet this condition. The second condition is one of supplementing solid course work in the theories and methodologies of a chosen discipline with courses from other areas which will contribute to the understanding of the real issues facing developing societies, and assure effective application of scientific competence to these

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10/ For example: The Department of Agronomy, Cornell University, offers AGRONOMY 481 - Special Studies in Soils of the Tropics - which includes a ten-day field trip to a tropical soils area. The College of Agriculture, Cornell University, in cooperation with the Faculty of Agriculture and Veterinary Medicine, University of Buenos Aires, sponsors a student exchange program each academic year.

The Departments of Agronomy and Animal Sciences, Iowa State University, offer a joint course - AGRONOMY--ANIMAL SCIENCES 400 - Agricultural Travel Course - which involves a field trip to major crop and livestock regions of the United States and other countries.

The School of Agriculture, Purdue University, is developing a formal six-week course in international agriculture and the development process. This course will include a four-week travel-study program in Latin America.

relevant problems. Here, our pedagogic background and experience is limited. Equally, there exists real doubt about the availability of the most meaningful offerings in our school and university curricula[11/]. Thought, experimentation and systematic evaluation are called for. The third condition is more controversial. We submit, however, that it is crucial to the adequate preparation of young U.S. scientists for international careers. This is a menaingful professional experience in non-domestic agriculture as an integral part of the graduate program. To attempt to prepare young agricultural scholars for international careers without participation in such would seem to negate all that experience has taught us about effective education. Here, two vehicles are worthy of consideration. The first is a professional internship as a staff member of an indigenous institution in a developing nation at, say, the post-M.S. level. The second is an appropriately supervised Ph.D. dissertation research experience in a devloping nation.

11/ The University and World Affairs, Report of the Committee on University and World Affairs, J. L. Morrill, Chairman, The Ford Foundation, New York, 1960, esp. pp 23-25.

Education and World Affairs, The Professional School and World Affairs, The University of New Mexico Press, Albuquerque, New Mexico, 1967, pp 128-132.

Caldwell, Oliver J., "Search for Relevance in Higher Education", International Education and Cultural Exchange, Winter 1969, Vol. IV, No. 3, Published by the U.S. Advisory Commission on International Educational and Cultural Affairs.

McCormack, William, "New Directions in Study Abroad: Opportunities for Students in the Professional Schools", Journal of Higher Education, Vol. 37, October 1966.

Dickerson, R. B., "Undergraduate and Graduate Education of American Students Interested in Preparing for a Career in International Educational Development Work", The Agricultural Development Council, 1965 (mimeo).

We can, of course, raise a host of reasons why such endeavors are not feasible or not desirable. The point is that both have been tried and both have proved effective[12/].

One point remains to be made. This is that even the best formal education at the undergraduate and graduate levels will not guarantee a productive agricultural practitioner, scientist, or scholar on the international front, any more than it will on the domestic front. Nevertheless, well-prepared young people must be accorded the opportunity to mature as professionals in the environment of the emerging nations. It is the experience gained from continuous professional involvement with the problems of these nations that will bring dividends to the educational investments made.

It is from some variant of the type of educational program suggested above that will come the cadre of U.S. agriculturalists necessary

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12/ Purdue Fellows in Latin America - Annual Report to the Ford Foundation, International Programs in Agriculture, Purdue University, July 1968.

Cornell University, Graduate School of Business and Public Administration Latin American Internship Program in Business and Public Affairs.

Syracuse University, Maxwell Center for the Study of Overseas Operations, Africa-Asia Public Service Fellowship Program.

The University of New Mexico, Internships in Latin American Education.

Massachusetts Institute of Technology, The MIT Fellows in Africa Program.

Cornell University, Purdue University, and The University of North Carolina are now offering to selected Ph.D. candidates research associate positions which provide overseas opportunities for dissertation research.

AID Internship positions in developing nations.

The Foreign Area Fellowship Program, Special Awards for Latin America and The Caribbean.

for the fulfilling of our national, scientific, professional and moral responsibilities to the rest of the world. As educators, we face, in our respective fields of expertise, the job of fashioning programs which will yield this result.

The Barriers

Next, let us examine briefly some of the barriers hindering implementation of the notions presented above. Here, we are concerned with two broad categories. One concerns our views and our positions as U.S. educators relative to the nature and scope of our responsibilities. The other is more pragmatic and "real".

With respect to the first of these categories, there are difficult questions that all of us concerned with agricultural education in the United States must face. We must examine, both individually and together, our values and beliefs in regard to training U.S. people for international careers. Let us suggest a few of the questions to which we must seek objective and candid answers. First, to what degree have we really recognized and responded to the increasing need for U.S. agriculturalists trained specifically for high-level performance in international and foreign agriculture? Second, are there currently available in our colleges of agriculture the types of educational opportunities that will permit bright young U.S. scientists to systematically prepare themselves for productive and interesting employment in world agriculture? Third, do we have the courage to carefully examine the present day relevance of the role we have traditionally accepted for our agricultural colleges? If relevance is found lacking,

do we have the commitment, determination, imagination and, of course, the resources to redefine this role in ways that will make our colleges more capable of responding to the current and ever-changing needs of world agriculture?

These are difficult questions; they are easily avoided or put off for future consideration. We submit, however, that they are pertinent questions that must be examined in depth, and answered, before progress will be made.

Let us now consider some of the more pragmatic issues. One of these, of course, is the availability of financial and other resources needed to develop the kind of comprehensive educational endeavor suggested in this paper. The financial issue turns squarely on the structure of the agricultural education and research institutions of the United States. We do not have, in this nation, a "national" system of universities responsible for education and research in the agricultural sciences. Rather, our structure is one of state-supported institutions having broad-based professional and scientific responsibilities conditioned by specific state and regional divisions of labor. This organizational structure has been one of the great strengths of our educational and research system as it has related traditionally to U.S. agriculture. By the same token, it is an organizational structure that, without substantive modification, is not particularly well adapted to servicing effectively the problems of world agriculture.

Given the above, we must examine with care alternative means of providing resources for the type of educational program proposed. Clearly, there are certain aspects of this program which would appear

to constitute perfectly legitimate uses of funds from existing sources. If the development of an appropriate group of courses treating matters relating to non-domestic agriculture is essential to the redefined educational responsibilities of our colleges, there would seem to be no reason why regular university resources should not be allocated for these purposes. There is in our universities considerable precedent for this in the non-agricultural schools and departments. There would appear to be little excuse for not using such resources for these purposes if such are required for training U.S. people for international careers and/or providing an adequate international bias for the educational programs of all our students. Equally, there is some minimal research involvement essential for creating a knowledge base adequate to permit quality presentation of such courses. The use of university resources for this purpose is as legitimate as their use for any of the other educational missions of the university. Equally, the search for new knowledge in the agricultural sciences is not bounded by arbitrary political boundaries of states and nations. In this quest, our universities would seem to have not only the rationale, but also the responsibility, to support such endeavors wherever the particular "laboratory" or source of data might be on the face of the globe.

At the same time, it is most doubtful that traditional sources of funding for agricultural education and research will be adequate to meet the magnitude of the challenge confronting us. This fact of life must be faced, not only by the universities and faculties, but also by the public policy makers of this nation. It seems reasonably apparent that there is no alternative to substantive federal financing if the full weight of the scientific and educational competence embodied

in our schools of agriculture is to be brought to bear on the developmental issues of agriculture around the world. The objective must be one of providing long-run financing of the magnitude, in the form, and under a set of conditions which will permit continuous individual and institutional involvement in the international arena. This is the way the university and scientific community must operate if they are to be productive.

Thus, on the resource side of this issue, there are both real and non-real problems. The non-real consist of difficult decisions to reallocate resources from traditional uses to uses which will permit our schools of agriculture to be most productive in the modern world. The real issue is that of systematically creating an institutional framework between the federal government and the schools of agriculture capable of providing the resources requisite to making our professors, our scientists and our scholars bona fide, productive members of a world community of agricultural research and education.

There is another type of barrier to the development of comprehensive international education and research programs in our shcools of agriculture. This barrier might be identified as institutional imperfections. Effective international education and research programs require collaboration with foreign institutions, colleagues abroad, collaborative research endeavors and appropriate associations with international development agencies and programs of work. Our missions of the past have been such that institutional arrangements of this kind have not evolved to the degree that they must. Involvement of U.S. schools of agriculture in foreign agriculture during the past two decades has made important inroads toward the removal of these institutional

imperfections. However, we have taken only the initial steps in this direction. We must work diligently for the creation of a worldwide institutional network of agricultural research and educational institutions which will permit maximum productivity of such capabilities wherever they exist.

Finally, our schools of agriculture may still lack adequate professional staff who, through firsthand involvement and experience in international agriculture, possess the basic understanding and knowledge necessary for the development of educational programs of the type and of the excellence described in this paper. However, without doubt, our schools are far better off in this respect today than they were a decade ago. We do find among our agricultural faculties a great number of highly competent agricultural educators and scientists who have benefited from meaningful experiences of relatively long duration in agricultural development work abroad. These people constitute a most valuable resource. We would be remiss if we were not to draw heavily upon the unique knowledge and understanding that is theirs in the development of educational and research programs to meet the demands of world agriculture.

The challenge to contribute in an increasingly meaningful fashion to the solution of the development problems of the world is clearly with us. Our schools of agriculture are at a crossroads. They may accept the challenge in the same tradition that has made them great in the past. If they do, we submit that they will make as great and as lasting a contribution to worldwide development, prosperity and peace as they continue to make to the development of our own society. If they choose to neglect the challenge, then the prospects of mankind

attaining its universal goals will be greatly diminished. This nation simply cannot afford to pay the price of abdication by the institutions holding the greatest and potentially most productive scientific capabilities in the world.