The changing role of colleges of agriculture is a major concern in the land-grant universities today—not only at the level of faculty members and deans and directors but also among presidents and governing boards of land-grant institutions. One land-grant president, for instance, voiced the opinion recently that most of the programs in the colleges of agriculture are helping the consumer and not the farmer, whom he believes they should be helping. Another is concerned about the rigidity of federal grant-supported programs. Many are asking how resources can be re-allocated within the land-grant colleges to meet the priority needs in agriculture.

The purpose of this paper is to discuss the changing role of colleges of agriculture and some of the ways we can orient our programs to meet the needs of the people we serve. Naturally enough, I am going to talk about the institution I understand best, Iowa State. But several of the examples which I will give could be applied to the similar institutions in other states.

Anyone who has been around the state of Iowa much recently can arrive at two conclusions which we feel have a bearing on our work here at Iowa State. First, we are convinced that the majority of Iowans recognize that our agricultural, economic and social structure is shifting rapidly. Secondly, even though Iowans appreciate that tremendous strides have been made in recent years, there is much concern that Iowa's economic growth is not fast enough.

In our changing role in the years ahead, it seems to me that the task of the College of Agriculture here at Iowa State is in four principal areas:

1. To help move Iowa forward through teaching and research.

2. To help assure agriculture's place in our nation's economy by establishing understanding and relationships with all segments of our society.

3. To provide ideas and information needed to develop sound public policy relating to agriculture.

4. To meet educational needs in world affairs and in international relations.

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1/ Dr. Andre is dean of agriculture, Iowa State University.
Moving Iowa Forward Through Teaching and Research

First, let's think about our task to help move Iowa forward through teaching and research since this most surely is where our primary responsibility lies.

Teaching. There are some who say that we are slow to change our teaching subject matter and methods. But anyone who is familiar with the reorganization of the major part of our program here the past 10 years can only be proud of a deep thinking and farsighted faculty. There have been five developments which I feel are especially significant. I want to mention these briefly to illustrate the change from curricula-oriented toward turning out production technologists—which was the need from the time of the establishment of the land-grant colleges up to the beginning of the 1950's—to curricula oriented to meet the requirements of graduates entering a setting of abundance in agriculture in the United States but of pressing need in world affairs.

1. A farm operation curriculum was established during World War II—primarily as a two-year program but with a provision that a person might continue and earn a degree in farm operation. Instead of the two-year program becoming the popular program—as everyone expected—the four-year degree program rapidly grew to have the largest enrollment of any curriculum in the College of Agriculture. Last year the average size farm from which these students came was over 440 acres, almost two and a half times the average size farm in Iowa. In this curriculum emphasis is placed on management rather than technical skills. It is one of our most rigorous curricula in terms of requirements in the physical and biological sciences. We believe that many successful future college-trained Iowa farm operators will be well grounded in economic principles and will have an understanding of the principles in management of business and industry.

2. In the early 1950's, it appeared that most of the rewards for students at Iowa State were based either on extra-curricular activities or grade points. To achieve either of these recognitions required steering away from the more rigorous courses in mathematics, statistics, chemistry and physics. We found it necessary to reorient our students, particularly those who had unusual academic ability. Our advanced curriculum program was established in 1956, and at the present time we have 51 scholarships for juniors and seniors who maintain high averages and who agree to take at least two years of mathematics and a year of physics or statistics in addition to other advanced courses. This advanced curriculum program led to the establishment of a science option in several of our curricula, and certain modifications of all of our curricula for those students who wish to prepare for graduate study.

3. In the fall of 1951, the curriculum in agricultural economics was changed to agricultural business. And in 1954, sweeping changes were made in the curriculum and options were established to satisfy the needs of a wide range of abilities and interests. As a consequence of these changes, the agricultural
business curriculum is one of our fastest growing programs in the College of Agriculture and now has almost 300 undergraduate majors. In 1958 several other curricula, including agronomy and animal science, included options in business and industry.

4. Recognizing that over the years ahead there will be a continued need for technical assistance in underdeveloped countries, the College of Agriculture established during this past year an international service program in agriculture at the undergraduate level which provides for training in international subjects and in at least one foreign language. This program, like the advanced curriculum program, is backed by scholarships to encourage our better qualified students to enter this area, and it is open to students from every curriculum in agriculture.

5. A fifth significant change has been the recognition of the importance of counseling and guidance of undergraduate students. We are charged with the education of young people with a wide range of abilities and interests at a critical age in their lives. To meet this challenge, we selected our best qualified teachers and allowed teaching time for counseling. This has increased our teaching load more than 10 percent, but the system has been highly effective. Our superior students have been given more challenging programs. Our slower students have performed much better. A very important result of counseling is the reduction in numbers of students dropping out of college. It has been estimated that 20 percent of our upper class enrollment is the direct result of the benefits of counseling and guidance.

Research. Through the years, research has played a major role in moving Iowa forward. The extent of the success is clear in some of the problems that exist in excess capacity to produce, in problems of adjustment and in the public debate on farm policy. Only a small start has been made in obtaining the answers that are needed intelligently to shape the vast adjustments taking place today in rural America. This is one of the major concerns here in Iowa and one in which Iowa State hopes to continue to receive support.

Our future research work in agricultural and economic adjustment will emphasize three major areas designed to assist in acceleration of economic growth in Iowa. First is that of research on agricultural and industrial development and its impact on rural areas and communities. Under this area, work will be done in these areas: developing criteria for classifying and delineating rural areas in Iowa in terms of critical industrial location factors; projecting and evaluating industrial development for rural areas and communities; adjusting economic, governmental and social institutions to local industrial development; and assisting communications media to better serve the people of Iowa as an aid to economic growth.
The second area designed to contribute to Iowa's economic growth will be in water resources and recreational area development. At present, best estimates are that current supplies of water in the states west of the continental divide will be fully developed within 20 years. If studies haven't shown by that time that additional sources of water are available or that there are better ways of using the supply, the economy and agricultural growth of that area will be drastically curtailed. This will place a challenge on the central states.

The third area will be in expansion of production technology research for more rapid economic growth. Emphasis will be given to improving per capita income in Iowa's area of lower farm income, development of soybeans which have characteristics for high demand in the foreign market, and further expansion of research in food technology.

It seems clear, as we look to the future, that the challenges for agricultural research will increase. The team-of-specialists approach in research work has become a must. At the same time, we need to remember that no agricultural college can specialize in everything. Rather we must choose carefully the areas in which there is need and for which we are particularly adapted by way of natural resources, facilities or faculty. We must be aware that it is possible to reach the point of getting so many grants for research from various outside agencies that they start to direct our program rather than fitting into our program.

**Extension.** Extension--with its state-wide campus--has a major responsibility, too, in our task of moving Iowa forward. The broader concerns of Extension work came into prominence during the years following World War II. These years brought wide awareness of the adjustment problem that was growing out of the great productivity achieved by American farmers. And, the Cold War following the Korean conflict brought an even greater awareness that we live in a compact and highly interrelated world. The need to apply our Extension technique of education to difficult questions was recognized. The appropriate content of Extension education has been defined beyond disseminating simple technology or management of the farm enterprise or home. The appropriate content has become that content which helps people of a county--town as well as farm--understand the world they live in and to make adjustments that will help them live the kind of life they choose.

The Extension Service idea--developed and tested over a 50 year period--has been a success story. As we have suggested, today's needs are more difficult and complicated, but we can build on the strengths of our past successes. We can build on the sound and tested structural arrangement of Extension, even though many questions arise today as we face our changing role.

1. We need to consider such matters as what staffing arrangements are needed to provide informational sources on broader topics of the community, taxation, economic growth and so on, in addition to the technology and
science of agriculture and home economics. Then, too, what staffing arrangements or modifications are needed to provide for the increased specialization as demanded for education in depth? Do we need more specialists? How should they be organized? Should Extension continue to be organized as county units or should it be organized into multiple county units? True, the pattern is not yet clear, but the direction does seem to point clearly toward greater specialization and larger programming units.

2. Our Extension program needs to be built on current needs. This requires continuous flexibility and shifts in emphasis. It requires deliberate and careful planning at local levels as well as leadership on national, state and area problems. Our changing role has directed our Extension emphasis into six principal program areas.

a. First, of course, is the area of technology. Here we find three levels of need today: providing facts and answers to problems; the interaction of technological problems as they affect a total enterprise; and the newest development--education in depth, or in other words, specialized training for selected audiences.

b. The second program area is management education--that area in which the principle of choice-making is emphasized.

c. Marketing is another of the program areas. In this area increased attention is now being given to state and regional problems and specially trained staff are working with producers, firms and consumers.

d. Family living--another of the program areas--is concerned with urban and rural families alike. Problems of physical and mental health, consumer information, management and family life education are receiving increased attention.

e. Work with 4-H and other youth also is a program area. Here we find the emphasis today on the development of boys and girls, citizenship training, career exploration and projects stressing science rather than merely skills.

f. The last program area is community development and public affairs. In this area the task is to provide organizational and educational leadership to help people tackle the problems of economic and social change, area and community development, and to provide citizenship information on such topics as the farm program, the Common Market and international trade. We feel that such efforts as the "Challenge to Iowa" and "Iowa Future Series" have been highly successful in this area.
3. Program balance should be achieved in these areas. The varying background, interests and needs of Extension's clientele demand a balance between applied and theoretical technology, between output increasing and quality improvement, between technological and social and economic development, between programs for the individual and programs for communities. We have need for balance between the planning function and the action function. Balance, in fact, is a basic consideration in building an Extension program.

You will agree, I think, that our programs in teaching, research and extension do help in moving Iowa forward. I have attempted to discuss some of the major ways in which we are fitting this most important part of our task into our changing role as a College of Agriculture. I will be more brief in talking about the other three principal areas of our task—namely, working to assure agriculture's place in our nation's economy, providing ideas and information needed to develop sound public policy relating to agriculture, and meeting our educational responsibilities in world affairs.

Assuring Agriculture's Place in the Nation's Economy

Agriculture's responsibility is to provide food and fiber for the nation. Society expects the agricultural industry to satisfy these needs at reasonable prices and furthermore to keep production in balance with demand. This, as we all know, is a difficult task for we are dealing with the complex problems of national economic growth. The problems of adjustment in agriculture are an important part of the total problem and must be dealt with as a part of the larger problem. It becomes part of our task as an educational institution to help agriculture meet its responsibility and adjustment. Then, too, people in agriculture expect to share fully with the rest of the economy in the rising levels of living. Thus, helping these people realize a fair share in the nation's economy becomes part of our task, also.

There is one example I would like to mention which is especially important to us in education and research in this area of agriculture's place in the nation's economy. This is the need for a thorough understanding of total resource use on the individual farm, in the individual state and in the entire nation—also understanding of the relation of resource use to world conditions. It seems to me that our students need a thorough understanding of this area.

Providing Ideas and Information Needed to Develop Sound Public Policy Relating to Agriculture

The next principal area of our task is to provide ideas and information needed to develop sound public policy relating to agriculture. The several land-grant institutions that have launched programs in public policy relating to agriculture most surely have made a real contribution to society.
Inevitably, all land-grant institutions will be involved in this work to a greater or lesser degree. In this area, research can help identify and measure significant factors involved in social and economic change. Extension can perform a catalytic role in helping people identify and solve their own problems. Also a significant area in this endeavor for Extension is the need for sound, unbiased public policy information. This need will grow both in scope and depth. Most would agree that democracy cannot function effectively without an informed, responsive citizen body. Few jobs facing Extension deserve more consideration than this task.

Meeting Educational Needs in World Affairs

The last principal area of our task as a College of Agriculture concerns our educational responsibilities in world affairs. This area is receiving tremendous attention today and is a challenge which I believe the agricultural colleges are accepting. Agricultural development of necessity is an important part of assisting the developing nations to help themselves. Thus, we have a critical and unique role in this aspect of our nation's foreign policy.

Today our work of an international dimension consists of specific kinds of activities. Among these are: the training of foreign students on our campus; the training of American students not only for work in foreign lands but also to provide knowledge about world and foreign affairs for students who are not planning foreign careers; the participation of staff members in both short-term and long-term foreign assignments; the participation of the College of Agriculture in international cooperative projects; and acting as host for foreign visitors to the campus.

You may be interested and also a bit surprised at some of the figures recently compiled in a report of our activities in these areas during the period 1950-61. For instance, in 1950 we had a total of 97 undergraduate, graduate and special students from foreign countries studying agriculture at Iowa State. In 1961, there were 170. During the ten-year period, 1951-61, we had 1,737 foreign visitors from 87 countries. Our 4-H group has been responsible for providing places for 150 International Farm Youth Exchange students in Iowa during the period 1949-61, while 69 Iowa students have participated in the IFYE program abroad. In addition to this, you might be interested to know that approximately 146 staff members from the College of Agriculture have been on leave to at least 45 foreign countries for short-term or long-term assignments since 1950. This past summer, for instance, one of our outstanding professors, Dr. Earl Heady, was in Hungary, Poland and Russia lecturing on our type of economics to economists who had been trained under the Marxism theory.
Also, we have just recently completed negotiations on cooperative contracts with two Latin American countries--Peru in the field of land economics, and Uruguay in the fields of animal science and crops and soils.

We have been considering the changing role of the colleges of agriculture in four settings; first, our role in moving our state forward through teaching and research; second, our role in assuring agriculture's place in our nation's economy; third, our role in providing information needed to develop sound public policy relating to agriculture; and fourth, our role in an international dimension for land-grant institutions.

Perhaps I can best conclude these remarks by expressing the view that we in the colleges of agriculture need to continue to build our programs in teaching, research and extension upon the enthusiasm, boldness, and dedication that has characterized the success of the land-grant universities through the years.

Change in agriculture, of course, is not something new. It has been going on ever since man planted the first seed. But, it does seem to be going at a gallop now. Any going organization--including an educational institution--needs to keep up with the times as a minimum. If it is to be effective, it must give leadership in the adjustments as well. In the changing role of the colleges of agriculture, we need imagination for new ideas in education; we need boldness to try them; we need courage to face failure if necessary to gain success. We must continue to break new ground and orient our work to modern day needs and problems. In such a role the challenge and the opportunity for the colleges of agriculture will continue to be great.