Seminar on implications of agricultural adjustments for land grant college administrators

Colorado State University

Center for Agricultural and Economic Adjustment, Iowa State College

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Seminar on Implications of Agricultural Adjustments for Land Grant College Administrators

Colorado State University
Fort Collins, Colorado
June 25 - July 1, 1961

CAEA Report 8
Center for Agricultural and Economic Adjustment
Iowa State University of Science and Technology, Ames, Iowa
Seminar on

Implications of Agricultural Adjustments

for

Land Grant College Administrators

Colorado State University
Fort Collins, Colorado

June 25-July 1, 1961

sponsored by

Colorado State University

and

the Center for Agricultural and Economic Adjustment

Iowa State University
Other publications of the Center for Agricultural and Economic Adjustment:


Demand for Farm Products, CAA Report 2, Center for Agricultural and Economic Adjustment, Iowa State University, Ames, Iowa, 1959.

Adjustment and Its Problems in Southern Iowa, CAEA Report 4, Center for Agricultural and Economic Adjustment, Iowa State University, Ames, Iowa, 1959.


FOREWORD

As we end the first century of Land Grant College and University operations, it is appropriate that these institutions should submit themselves to critical review. We enter the second century in times of accelerated economic, social, and technologic change of great magnitude and consequence. Apparently we shall enjoy no more the luxury of deliberate evolution.

We live amidst the consequences of times that have imposed major adjustment problems in the agricultural sector. These problems in turn have enlarged and complicated the responsibilities of Land Grant institutions to agriculture. It is, therefore, appropriate that we assess the implications of these changes upon Land Grant institutional programs and organization.

It is especially appropriate that staff members responsible for the administration of agricultural programs review and, where necessary, redirect the efforts of Experiment Stations, Extension Services, and Colleges of Agriculture. To do so will help assure that the significant impact of these institutions may not diminish but shall increase in the century ahead.

The Seminar on Implications of Agricultural Adjustments for Land Grant College Administrators represents a serious effort to move in this direction. I am confident that the effort will provide a measurable and meaningful start toward a second century of service and leadership to agriculture and to the nation by Land Grant institutions.

William E. Morgan
President
Colorado State University
PREFACE

The institutions, firms and individuals comprising the present and potential clientele of the Land Grant institutions are challenged by a series of events involving change and adjustment. In many instances, these challenges are different quantitatively and qualitatively from those faced in the past.

The Land Grant College system is one of the institutions most responsible for the stepped-up rate of change in agriculture and the resultant pressure for adjustment. As farmers and agricultural businesses adjust to changing agricultural conditions, so must the institutions serving farmers and the rest of agriculture. So the pressures for adjustment come full circle; the technological inputs developed within Land Grant Colleges and fed into agriculture in turn build pressure for adjustment by Land Grant Colleges.

Many Land Grant College leaders have taken the initiative in studying the implication of these developments for our programs of extension teaching and research. To provide a setting for further analysis and reflection by Land Grant College administrators, Colorado State University and the Center for Agricultural and Economic Adjustment of Iowa State University sponsored a "Seminar On The Implication of Agricultural Adjustments for Land Grant College Administrators". A Steering committee provided counsel and guidance to the seminar sponsors and its director. Serving on the steering committee were

H. A. Albrecht, Pennsylvania State University
G. H. Beck, Kansas State University
S. A. Bice, Colorado State University
R. E. Huffman, Montana State College
R. D. Rehberg, Colorado State University
R. E. Seltzer, University of Arizona
L. M. Thompson, Iowa State University
L. H. Watts, Colorado State University
S. S. Wheeler, Colorado State University

A total of 71 leaders from 45 institutions met at Fort Collins, Colorado, June 25 to July 1 to study and exchange ideas on the situation we face and needed internal adjustments.

The attached report is not a compilation of papers presented at the seminar. Instead, the committee sought to capture not only the essence of the formal presentations, but in addition the comments and discussions, the attitudes and feelings of those taking part in the seminar. In short, this is a report of the substance of the seminar, the implications of adjustments, and an interpretation of reactions and sentiments.
PROGRAM

Seminar on Implications of Agricultural Adjustments for Land Grant College Administrators

June 25 - July 1, 1961
Colorado State University
Fort Collins, Colorado

SPONSORED BY:

Colorado State University
Fort Collins, Colorado

Center for Agricultural and Economic Adjustment,
Iowa State University, Ames, Iowa

IN COOPERATION WITH:

The Farm Foundation, Chicago, Illinois
The United States Department of Agriculture

SEMINAR DIRECTOR:

Dr. M. G. Smith, Ohio State University

STEERING COMMITTEE:

Dr. H. A. Albrecht, Pennsylvania State University
Dr. G. H. Beck, Kansas State University
Mr. S. A. Bice, Colorado State University
Dr. R. E. Huffman, Montana State College
Dr. R. D. Rehnberg, Colorado State University
Dr. R. E. Seltzer, University of Arizona
Dr. L. M. Thompson, Iowa State University
Mr. L. H. Watts, Colorado State University
Dr. S. S. Wheeler, Colorado State University
CONSULTANTS:

Dr. J. Ackerman, Farm Foundation  
Dr. E. W. Eldridge, Iowa State University  
Dr. L. J. Pickrel, Center for Agricultural and Economic Adjustment, ISU  
Mr. W. G. Stucky, Center for Agricultural and Economic Adjustment, ISU

SEMINAR PROGRAM

MONDAY, June 26

7:30-9:30 A.M.

Conference Framework

Background, Objectives and Plans for Seminar - Lowell H. Watts, Director of Extension and Director of Agricultural Programs, Colorado State University

Challenges for the Land Grant System - W. E. Morgan, President, Colorado State University

I. PROJECTION OF THE POSITION AND NATURE OF AGRICULTURE IN AMERICAN SOCIETY

What Society Needs from Agriculture in the Future - Mervin G. Smith, Head Department of Agricultural Economics, Ohio State University

10:00-12:00 NOON

The Overall Goal of Progress and Economic Growth. What it is, why necessary, changes engendered by it, present situation, how achieved, driving forces, competition - Robert E. Gallman, Associate Professor of Economics, Ohio State University
MONDAY, June 26 (Continued)

1:00-3:00 P.M.

The Place of Education in Progress -
Human Capital Investment - T. W. Schultz, Head of Economics Department, University of Chicago

Education for Agricultural Progress -
Guided Discussion

What Should be the Future Interrelations Between the USDA and the Land Grant System in Order to Achieve Our National Educational Goals? -
Frank J. Welch, Assistant Secretary for Federal States Relations, USDA

TUESDAY, June 27

Projection of the Position and Nature of Agriculture in American Society (Continued)

7:30-9:30 A.M.

Future Agriculture in the United States -Projection of Trends
Demand and Production - balance
Land and Water Use
Organizational Structure of Farming
Farm supply, processing and marketing structure
-Sherman E. Johnson, ERS, USDA
-Kenneth E. Ogren, ERS, USDA

10:00-12:00 NOON
Discussion on Future Agriculture

1:00-3:00 P.M.

Future Social Developments in Agriculture - Projection of Trends
Community Structure and Services Organizations
Government - local, state, federal
-Olaf F. Larson, Head, Department of Rural Sociology, Cornell University

Discussion
WEDNESDAY, June 28

7:30-9:30 A.M.

II. IDENTIFICATION OF NEEDS IN AGRICULTURE FOR RESEARCH AND EDUCATION THAT SHOULD BE MET BY LAND GRANT INSTITUTIONS

Identification of Problems of Agriculture
Between Now and 1980
Technological problems

Finding new technology - production increasing and quality improvement
Adopting new technology

Economic and social problems
Adjustments to rapid changes in total production and demand
Excess capacity, creation of inefficiency in use of resources, underemployment in farming
Conflict of interests, conflict of attitudes, conflict of beliefs, reconciling short and long run goals
Adjustments of resources by individual farm units
Capital and financing, land, labor, management
Adjustments geographically in production, farm supply, processing, marketing
Effects of government policies

-Panel Discussion by Selected Seminar Participants

Guided Discussion
10:00-12:00 NOON

III. EXPLORATION OF EFFECTIVE PROGRAMS AND PROCEDURES FOR MEETING THE NEEDS

What Will Be the Role and Relationships to States of Federal Extension Service?
- E. T. York, Administrator, Federal Extension Service, USDA

Discussion

The Future Role and Relation of USDA Research to That of the State Experiment Stations - E. C. Elting, Deputy Administrator for Experiment Stations, ARS, USDA

Discussion

1:00-3:00 P.M.

Future Teaching Program of the College of Agriculture - Webster Pendergrass, Dean, College of Agriculture, University of Tennessee

Discussion

Designing Future Programs and Procedures for Land Grant Institutions - Separate discussion sessions for Extension, Teaching, Research, and Overall Administrators: leaders, "whips," and secretaries to be announced. Assignment: List possible and probable programs and procedures; discuss and draw conclusions regarding proposals, ideas, and questions.

THURSDAY, June 29

Exploration of Effective Programs and Procedures for Meeting the Needs - (Continued)
7:30-9:30 A.M.

Applying Strategic Concepts in Administration - W. G. Stucky and Luther J. Pickrel, Center for Agricultural and Economic Adjustment, Iowa State University

Discussion

10:00-12:00 NOON

Discussion Groups (Wednesday groupings) continue discussion

1:00-3:00 P.M.

Group reports -

Presentation of Suggested Future Programs and Procedures - Chairman and Secretary of each Discussion Group

Discussion

FRIDAY, June 30

7:30-9:30 A.M.

IV. CONSIDERATION OF INSTITUTIONAL ADMINISTRATIVE STRUCTURES AND PROCEDURES FOR MEETING NEEDS

Future Administrative Structure of Agricultural Teaching, Extension and Research

Applying Principles of Public Administration - John H. Ferguson, Director, Institute of Public Administration, Pennsylvania State University

Some Overall Considerations - Paul A. Miller, Provost, Michigan State University
10:00-12:00 NOON

Designing Future Administrative Structure for Land Grant Colleges - Separate discussion sessions for Extension, Teaching, Research and Overall Administrators: leaders, "whips," and secretaries to be announced. Assignment: List all possible types of organizations and proposals; discuss, appraise and draw conclusions.

1:00-3:00 P.M.

Continue Discussion Groups

SATURDAY, July 1

Consideration of Institutional Administrative Structures and Procedures For Meeting Needs (Continued)

7:30-9:30 A.M.

Continue Discussion Groups

10:00-12:00 NOON

Group Reports - How We Organize for the Future - Chairman and Secretary of each Discussion Group

Fitting the Land Grant Institution Program to the Future - Joseph Ackerman, Managing Director, Farm Foundation, Chicago, Illinois
RESOURCE STAFF

Joseph Ackerman, Managing Director, Farm Foundation

E. C. Elting, Deputy Administrator for Experiment Stations, ARS, USDA

J. H. Ferguson, Director, Institute of Public Administration, Pennsylvania State University

R. E. Gallman, Associate Professor of Economics, Ohio State University

Gerry Hoffman, Deputy Administrator, Federal Extension Service, USDA

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O. F. Larson, Head, Department of Rural Sociology, Cornell University

P. A. Miller, Provost, Michigan State University

W. E. Morgan, President, Colorado State University

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L. J. Pickrel, Center for Agricultural and Economic Adjustment, Iowa State University

T. W. Schultz, Head of Economics Department, University of Chicago

M. G. Smith, Head, Department of Agricultural Economics, Ohio State University

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L. H. Watts, Director of Extension and Coordinator of Agricultural Programs, Colorado State University

F. J. Welch, Assistant Secretary for Federal States Relations, USDA
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This seminar was held to provide administrators of agricultural programs in Land Grant Colleges an opportunity to analyze and discuss the contemporary functions of the institution. The rapid adoption of new technology has brought complex economic and social changes in the rural community, state and nation. Changes of even greater magnitude are in prospect. Questions of obligation and implication are being posed. Are the resources of the colleges being reallocated consistent with the developmental needs of society? Are experiment stations defining clearly the clientele they serve and responding with programs to meet their needs? Is the Extension Service serving in the most effective manner the most important, though shifting, areas of need? To what extent has the instructional curriculum been altered to reflect the change in the range and depth of knowledge required of farm operators of the future and the professionals and businessmen in agriculture?

This seminar was not a workshop or training session but rather a conference to exchange ideas on what lies ahead and the steps which should be taken by Land Grant institutions to overcome existing weaknesses and adjust to the conditions and problems of the foreseeable future. This seminar was planned to stimulate thinking and to enhance the debate on the proper functions of the Land Grant College system.

The first two days centered on trends and prospective changes in agriculture as an aid in concentrating attention on the problems these raise and how best to meet them. The book "Adjustments in Agriculture--A National Basebook" was used as a background for study and analysis.

Land Grant Colleges and Universities were recognized for their important roles as "lighthouses and service stations" during the first century of their existence. But in looking to the future, stress was placed on the need to anticipate changes which lie ahead and to continue to enlarge their role of service to society. Refusal to face problems and to adjust to meet them was recognized as being self-defeating and therefore untenable.

Long-Run Goals

At the outset, emphasis was placed on the importance of having specific goals. Without long-run goals, Land Grant institutions are likely to drift and become absorbed with short-run activities which interfere with the development and attainment of the longer-run objectives. The difficulties in the world today and the speed with which changes
occur make goals more important than ever. Goals to be meaningful must be ever-receding. That is, while forward movement to reach them should be continuous, goals should constantly be moved ahead in order to provide guides and inspiration for perpetual growth and progress.

The long-run goals of society cited were: progress evidenced by economic growth, increased productivity and greater want satisfaction; equitable sharing in the gains of progress; improved security and stability at high levels; better opportunities for coming generations; strengthening of democratic processes; improved education, and the extension of the area of freedom and progress to less favored parts of the world. Goals of society are the goals of agriculture as well and are important to Land Grant institutions in their service to agriculture and society generally. These institutions need well-defined goals of their own to serve effectively and to meet the challenging opportunities which lie ahead.

Repeated emphasis was given to the extent and speed of change in the modern world and to the importance of the role of education in aiding man to grow with and adapt to change. Stress was placed on the importance of adjustments by Land Grant institutions in the nature and scope of their organization and functions if they are to fulfill their responsibilities and meet the challenges confronting them.

**Economic Growth**

Economic growth and rates of growth were explored and examined because of their outstanding importance in raising levels of living and improving our nation's prestige, role and strength in the world. The most common measures of economic growth are gross national product and the product per capita. The national product, representing the value of goods and services produced or received in trade by a nation during the year, summarizes in one figure a vast array of information. Rates of growth are measured by the year-to-year changes in the national product. Economic growth indicates how rapidly a nation is progressing in terms of material things. Comparisons of rates of growth for different nations are useful, but caution is in order since measurements are not exact and are affected by methods employed, adequacy and reliability of data, and by differences in the goals and priorities of different societies.

Food and clothing are essential to life. So a society of low productivity and limited economic capabilities employs a large share of total resources in meeting the basic needs. Such a society is primarily rural. As productive capacity improves, the society alters its priority scale because such progress enables it to use an increasing share of its resources in production to satisfy a wider range of wants. Societies which have not succeeded in making this change continue to keep large amounts of manpower in agriculture, and their progress, if any, is painfully slow.
Rising productivity leads to a continuous change in the structure of an economy. The relative (not absolute) importance of agriculture declines as production in other lines develops. As the amount and variety of goods become more plentiful, more resources can be devoted to service activities. Increased agricultural productivity permits release of resources (especially manpower) for employment in other activities. Under a dictatorship, shift in resource use may be decreed. In a market economy with freedom of choice and mobility, relative prices and returns are important directives. In any event, the changes create strains which can lead to considerable social unrest. (Agrarian discontent and political action are an illustration.)

The economic growth of the United States has been spectacular. In the beginning it was an "empty" country. The land and other natural resources were here, but manpower and capital were limited. Immigration and natural growth brought the former, and loans from abroad and savings the latter. Growth has been especially marked since the beginning of American industrialization. Around 1840, our national product was only about two percent of what it is today, and the national product per head probably less than 20 percent of current levels. It is the growth since then which has made this nation the most productive in the world and thrust upon it responsibilities of leadership.

What are the prospects for economic growth in the future? The labor force which will be available is an important factor. Here the present and prospective rate of population growth gives assurance of an expanding labor force for the next 15 or 20 years and beyond. Gains in productivity, or output per worker, depend upon levels of worker skills, the length of the work week, levels of employment, technical changes and speed of their adoption. Public policies and political processes may affect growth. The race for world supremacy may not be without effect. A point to remember is that the make-up of growth may be even more important than its rate. Much of our productive efforts will go for defense, making them unavailable for more normal wants.

Estimates of growth prospects suggest that the rate during the balance of this century may be moderately above that of the period since the Civil War. The increase in national product may be somewhat less than one-half for each decade with an increase in per capita income of possibly 20 or 25 percent each 10 years.

Continued expansion in governmental activities is anticipated. If the cold war persists, expenditures on defense, armaments and space research, will remain high and may increase. Domestic needs involving governmental action will grow. Continued aid to underdeveloped nations is anticipated. Agriculture's share in the national product and representation in the labor force will become smaller with faster growth in
non-farm lines and with continuing reduction in human labor requirements on the farm as a consequence of technological progress. (It should be noted that this is expressed in relative terms. In absolute terms, agriculture's production will continue to increase.)

Education: An Investment in Human Capital

Many find it foreign to think of people as capital goods. To some, this connotes ideas of man as property, suggestive of slavery. However, human beings, after all, are the most important productive resource. Just as the productivity of other resources may be improved and increased, so may that of the human resource.

Studies show that increases in human knowledge and skills are important in economic growth and productivity. Some areas of the world with substantially equivalent material resources show wide differences in productivity, development and in the resulting levels of living. The human factor accounts for much of the difference. In fact, increases in human skills and knowledge are probably the major explanation for the increasing productivity of labor. Such skills and knowledge are a form of capital, and expenditures in attaining them are capital investments. This qualifies education as an investment rather than a form of consumption as it is often regarded.

This gives added meaning and importance to education. Land Grant institutions may well take special note of this in view of the outstanding advances in technology and productivity of agriculture in the United States, for these are to a large extent results of investments in education and research. The returns on such investments can be maintained and increased only if the educational endeavor is continued and constantly adjusted to changing needs and problems.

The need for capital investment in the human factor in rural areas is not confined to those who are engaged or expect to engage in farming. The larger share of farm youth who are destined to find places off the farm need educational investment as well. Without this, they will not have the best opportunities or reach their full productive capacities. For both those who remain on the farm and those who leave, quality and kind of education in which they and the public invest will have an important bearing on the returns to them and to the public.

The importance of additional investment in more and better education for farm people is pointed up by the fact that on the average they have less formal education than those in many other lines of activity. Differences in education are an important reason for differences in earnings among farmers. Limited educational opportunities are the lot of many low-income migratory workers.
Farm people still are low on the educational ladder while modern agriculture is increasingly demanding more skills and knowledge. Farm people often are handicapped in entering non-farm employment because of inadequate education and training. In fact, rural areas have been charged with dumping large numbers of poorly educated, unskilled people into cities. Better training would help overcome the present underemployment in agriculture by making available more rewarding opportunities elsewhere, would improve the returns of those who migrate, and would benefit society through improved productivity and better use of resources. In agriculture there may have been overinvestment in some resources, but there has been underinvestment in human capital. The answer to the question of whether people should be educated into or out of farming is dual. Better education should be provided for those who are needed on farms and also for those who migrate. The USSR has placed much stress on the development and improvement of skills in industry and adopting best techniques of others. The results have been an important factor in its rate of economic growth. Japan provides a similar illustration.

Education clearly has an important part to play in efforts to aid underdeveloped countries. Providing food and capital goods for countries in need is not to be decried. But the effective use of such aids to improving their productivity is directly related to their knowledge and skill. The human resource should also be upgraded through education. Sharing our knowledge and skills with such countries is important in their economic advancement.

Changes and Adjustments in Agriculture

Administrators in Land Grant Colleges and Universities all know the technological revolution underway in agriculture. This has been going on during most of our history but its rate has increased markedly in the last two decades. Farm production per man-hour increased 185 percent from 1940 to 1960. Crop production increased 203 percent while livestock and livestock products increased about 89 percent. Total farm production is more than twice that of 1910, half again as large as 1940, and about one-fourth greater than 1950.

Total amount of labor in farm production now is less than half of that in 1920. As there has been a modest decrease in total acres harvested, the enlarged production has come from greater output per acre and per animal unit. Shifts from animal power to mechanical power and more, larger and better machines have been important in the reduction of man-labor needs. They also have increased market supplies because land and labor formerly needed to produce animal power now produce for market.
Technological developments in farming have led to a decided growth in "agribusiness," that is, in firms supplying farmers with production needs and in marketing and processing farm products. Some of the reduction in farm manpower has resulted from the shift of work to others. For example, the adoption of mechanical power has shifted its production from the farm to the oil fields, refineries and distributors.

Technology and mechanization have added to capital requirements in farming and to current cash outlays in farm operation. This has increased farmers' dependence on the market for cash income and made them more vulnerable to the cost-price squeeze. It also has increased the importance of credit and financing services. In short, farming is becoming increasingly commercial.

Improved farmer productivity has stepped up output faster than population growth. The limited capacity of the human stomach means that food consumption per capita in well-fed countries is relatively stable. Consumers may shift the kinds and qualities of their food, with changes in income or food prices, but the total they consume per capita remains relatively unchanged. As food desires are met, added income is used for other products and services. Increases in consumption of farm products in this country result primarily from population growth.

Significant adjustments have been made in agriculture, but they have not solved the problem fully. A striking change has been the continuing decrease in the number of farms and an increase in their average size. Between 1954 and 1959, the number of farms dropped from some over 4.7 million to about 3.7 million. (About 200,000 of this one million drop resulted from a change in the census definition of a farm, while a decrease of 800,000 resulted from consolidation of farms into larger units.) In 1954, farms with sales of $25,000 and over provided 30 percent of the total sales; in 1959, this 30 percent was provided by farms with sales of $40,000 and over. During much of the last decade, farm prices have declined or remained relatively unchanged while farm costs have trended upward. During this period farmers have not shared proportionately in the rising national income. Reduction in the number of farmers has kept per capita income from falling as much, but this adjustment has not been rapid enough to offset in full the drop in prices and increase in costs. Clearly, a better job has been done in increasing physical efficiency of farm production than in coordinating such increases toward the prosperity of farmers.

What of the future? Projections suggest that the domestic use of agricultural products may be about 11 percent greater in 1965 than in 1959, mainly from population growth. A 21 percent increase in agricultural exports in 1965 over 1959 is seen as a possibility on the assumption that commercial exports will continue at a high rate and that special government programs of foreign disposal will remain in effect.
The domestic market, however, will continue to be by far the dominant outlet. Projections on the production side indicate that production will keep pace with the expansion in outlets so that by 1965 there still may be 15 to 25 million excess crop acres.

Clearly, the surplus situation in certain farm products is not a short-run problem which will disappear by itself. It is one calling for adjustments not only by farmers themselves but by those who serve farmers, including Land Grant Colleges. A suggestion that all feasible outlets for farm products should be fully explored is generally accepted. Likewise, there is strong support for the idea that no American should go hungry in this age of abundance and that the food-for-peace program should be fully developed to the extent it fosters the end implied. While the differences of opinion over applying government restraints to farm production may continue, prospects are that some form of government farm program will be in effect during the 1960's and perhaps longer.

Continued changes in the structure of farming are inevitable. The number of farmers and farms will decrease further. There may be another reduction of seven to eight hundred thousand farms by 1965 and a similar one by 1970. The reduction in the number of farms shown by the last census resulted mainly from consolidation of units into larger family farms rather than from creation of large corporate units. How far is it desirable for such consolidation to go? The fact that our knowledge about economy of scale in farming is rather limited suggests a need and an opportunity for additional research in this field to provide better guides for farmers and for public policy.

The large number of units still listed by the census as “farms” but which produce too little to contribute appreciably to market supplies or to provide an acceptable income for family living call attention to other problems. To a large extent these are social rather than farm problems. Should efforts be made to help develop non-farm opportunities in areas where such units predominate? Should encouragement and help be given to migration from such farms to non-farm employment? Should training be provided to fit breadwinners for other jobs? These questions have particular significance for Land Grant College administrators.

### Changes in Marketing

Changes taking place in the marketing system concern farmers. Since the late 1940's, declines in prices to farmers while the food marketing bill has increased have resulted in a declining share of the consumers' dollar going to the farmer. Farm spokesmen have tried to overcome the erroneous assumption by many consumers that the farmer is responsible for higher food prices at the retail level. The decline in the farmer's share by itself does not necessarily mean that the farmer is hurt
unless it results from lower returns to him. Unfortunately, part of the decline has been of this nature. Part of it has come from rising costs of services, part from increased volume handled, and part from added services. The food marketing bill has increased about $30 billion over a period of recent years, of which about one-half has been caused by rising costs and about $8.5 billion by increased volume and $7.3 billion by increased services. Larger volume and more services have increased the number of workers engaged in the handling and distribution of foods while the number of farm workers has declined. There have been gains in efficiency in food processing and distribution but not enough to offset the increase in costs and services. This suggests additional research with Land Grant College responsibility clearly indicated.

Prospects are that these trends in food distribution will continue. The food marketing bill in 1970 is expected to be well above that of 1960. Specification buying is increasing. This will make it increasingly important for farmers to produce and deliver the kinds, qualities and uniformity of products wanted and for the marketing system to provide incentives for this by premiums and discounts. Upgrading of farm management, in which Land Grant Colleges have a part to play, is called for.

The development of integration has been spectacular in the case of broilers and has made headway in some other farm commodities. How general integration may become in the future is a question on which there are wide differences of opinion. Indications are, however, that the family farm will continue to predominate and also continue to grow in size. Education and research activities of Land Grant institutions should be directed to continued improvement in efficiency of operation and management of farms.

Research and Farm Surpluses

The justification for continuing agricultural research which increases output in a period of farm surpluses is questioned by some. Doubts are expressed over the wisdom of appropriating public funds for agricultural research at a time when the government is incurring a cost of several billion dollars a year in farm programs to cope with surpluses. Several very important points need to be recognized in this connection.

One of these is that research is important in building up a stock of knowledge. Continuing research is needed to add to that stock and to keep it up to date in view of ever-changing conditions. The lag between the time of new discoveries and their general application often is considerable. Agricultural output could be expanded very greatly were the facts in the existing stock of knowledge put into general use by
all farmers. The effect on supplies of eliminating production research would be very small for a decade or more. Such action, hence, would not overcome present surpluses. In view of the uncertainties of the future and the importance to society of continued progress, would anyone seriously contend that such a step should be taken now to affect supplies in the 1970's and beyond?

Another important consideration is that research is not an activity which can be turned on and off at will. If the present facilities devoted to technological research in agriculture were dismantled, it would take years to restore them at some future time and the expenses involved would be large before any appreciable returns would accrue. A "soil bank" may be used for holding farm land in reserve until needed. Such a program would not fit agricultural research because a research activity cannot be kept out of use in this manner.

The returns from investment in agricultural research are in its contribution to economic growth through discovery and development of new and superior resources, that is, resources which produce a higher rate of return in relation to costs than is true of resources previously employed. The evidence available with respect to the returns on investment in agricultural research is that they are high, showing that this activity is very much worthwhile from the standpoint of the public.

Recognition needs to be given to the fact that the changes flowing from agricultural research may impose losses on some. This is one of the costs of progress. That agricultural research has been an important factor in increasing agricultural productivity is undisputed. Likewise, it is recognized that this productivity is an important cause of current price-depressing farm supplies. The answer does not lie in ending progress in agriculture and discontinuing research on which such progress rests. Nor does it lie in placing all of the costs of the consequences on farmers. It is a situation which calls for assistance to farmers in making the adjustments in agriculture balance the productive resources assigned to farm production with the available outlets for the product. The assistance may logically include suitable contributions to farm income, not in lieu of needed adjustments, but to aid in achieving them. Education and research programs of Land Grant institutions can and should contribute very decidedly to attaining these adjustments.

Social and Community Adjustments

Changes have occurred and will continue not only in farming methods but likewise in rural social and community institutions, activities and relationships. Changes on the social side follow changes in agriculture. Thus, mechanization and technology which have reduced man-labor requirements in farming and increased non-farm jobs resulting
from industrial expansion, have led to migration from the farms with important social and community effects. Improved transportation and communication facilities have played a part in increasing mobility and making available more information on job opportunities.

Changes in numbers of farm people as a result of net migration are illustrated by census totals. The farm population in 1940 was nearly 31 million; in 1950 it was down to about 25 million, while now it is under 16 million. (About four million of the drop shown by the latest census resulted from the change in the definition of a farm.) The farm population now is down to 8.8 percent of the total and may drop to six or seven percent in the relatively near future. Farm population also is becoming a smaller proportion of the rural population which includes, in addition to the farm population, places of less than 2,500 and other rural non-farm. Only 11 of the states now have one-half or more of their population classified as rural, compared with 18 in 1950, and 28 in 1940. The number of non-farm people in the rural population is 3 1/2 times that of farmers.

In general, states which are primarily rural are losing people to industrial states. While urban population increased in all states during the 1950's, only 22 states gained in rural population. Half of the counties in the United States showed a decrease in population during the past decade. Population changes differ from area to area and among communities. Some communities have expanding population; some have a relatively stable population, while others are losing numbers. Population changes result not only from migration away from farms and from rural areas, but also from the movement from city to suburb, as well as from differences in employment opportunities, and climatic and other living considerations.

Communities once were largely self-sufficient. Migration and developments in transportation and communication have brought decided changes in community organization and services including among others, education, medical care, recreation, and roads. In some cases, the trend is towards larger units of administration as illustrated by schools. For the 15-year period, 1942 to 1957, the number of independent school districts was reduced from 108,579 to 50,440, or 53.5 percent. During the 40-year period, 1917-18 to 1957-58, the number of one-teacher schools declined from over 196,000 to less than 26,000, a drop of 87 percent. These changes suggest that educational opportunities for farm and other rural young people are being improved. However, they have not kept up with requirements of farm youth since a large proportion of them need preparation for non-farm occupations. There is room, also, for expanded adult education to help farm and rural non-farm people to adjust to changes in economic, social, community, governmental and other activities.
Governmental units show a high degree of stability in their boundaries while the problems they face have changed greatly. The nature of some of these problems calls for attack by larger than local units. The latter may be outmoded for some activities so, at times, they tend to be by-passed in decision making. The encroachment of metropolitan areas through suburban developments on adjacent farming areas creates problems for the latter. Increasing interest in the application of zoning and other regulations for dealing with such problems is evidenced in many areas.

Sparse population results in medical services available to farm people frequently being less accessible and adequate than for urban dwellers. The supply of doctors and alternative opportunities available to them mean that many rural communities may have to forego the idea of having their own doctors and hospital. Improved highways, transportation and communication have made medical services in larger centers more accessible to rural areas, but considerations of emergencies and added expense remain.

Migration from farms and improved transportation are affecting churches as well, with some consolidation resulting. Some changes in attitudes of farmers towards recreation are evident, and the gap between farm and non-farm people in such activities is narrowing. The number and variety of special community organizations and services are increasing. Changes are affecting general farm organizations as well, and it remains to be seen how well they will accommodate themselves to such changes.

Declines in the farm population affect the political power and influence of farm people. Redistricting and legislative reapportionment which eventually follow changes in population distribution become factors in farm influences in Congress and state legislatures. An offsetting factor is the expanding importance in what has come to be known as "agribusiness" -- those engaged in providing production supplies and service for farmers, and in processing and distribution of farm products. Persons engaged in these activities often have interests closely akin to those of farmers and farm people. (An illustration of concern with farm problems is found in non-farm resistance to adjustments in farm production to reduce surpluses.)

Panel and General Discussion of Needs for Adjustment

Resident Instruction

The effect of changes such as those reviewed above on Land Grant Colleges and Universities was one of the primary concerns of the seminar. It was emphasized that migration out of agriculture and the prospect that a large proportion of today’s farm youth will enter non-farm
occupations present some real challenges to education. The need to help those who leave as well as those who stay on the farm was recognized. Is adequate education and training being provided for both? Farming is becoming increasingly technical and its growing complexities demand high technical and management skills. More and better education will be needed by commercial farmers in the days ahead. One forecast is that the time will come when a large majority of farmers will have had a college education. More and better education likewise is indicated for those entering various fields of "agribusiness" to serve farmers.

If those who leave farming and related activities are not to be disadvantaged in obtaining employment, their training and education should be on par with those with whom they compete for jobs and for advancement. There was general agreement that more education for farm youth is essential for the future.

How do farm youth decide whether to enter farming or a non-farm occupation? In the case of the latter, where do they learn about job opportunities and the preparation and training they should have to make them eligible? The kind and quality of secondary and high school programs are important. So is an adequate program of occupational guidance. Could organizations such as 4-H clubs be made more effective agencies in helping farm boys and girls make occupational decisions? How can teachers be trained to become more effective sources of guidance?

Is agriculture in colleges getting the right students and its proportionate share of better students? Are the Land Grant Colleges supplying high school students with adequate information about the needs for trained men in agriculture and related fields and the opportunities for top students in these fields? How well are vocational agriculture teachers prepared to provide such information? It was pointed out that literature alone will not do the job but that personal contacts with teachers and school administrators as well as with prospective students are needed.

Extension

The issues discussed invited some self-examination by extension and other lines of Land Grant College work. One plea was for better trained and higher quality personnel for extension work. If men entering extension are inadequately prepared, resident teaching must assume a considerable share of the blame. One criticism levelled at resident teaching and research charged that there is a tendency to encourage the best students to go into research or college teaching rather than into agricultural extension. One extension spokesman remarked that "you
cannot play major league ball with class C players." However, this was not intended to convey the impression that the latter classification fits extension personnel generally.

Stress was placed on developing new programs and methods of attack on new problems, and marshalling available resources for this purpose. It is not sufficient for extension merely to list alternatives. It has a duty to exercise leadership in analyzing and ranking them.

**Research**

A number of questions and points were brought up with respect to agricultural research. One asked whether research workers have identified their clientele adequately. A related one suggested that researchers may tend to bury themselves in a shell. A problem to be resolved is the proper balance between research relating to agricultural production and that in such fields as agricultural programs and policies, marketing utilization, and social problems. Another balance to be determined is that between basic and applied research. The discussion made it clearly apparent that the problem of getting interdisciplinary research has not been fully solved. How to get more flexibility in research to permit ending projects of limited promise and shifting resources to more important and pressing problems also has not been fully answered.

**General**

All lines need to place emphasis on ways and means of adjusting to changes which are occurring constantly. Land Grant institutions must face change, not shy away. They cannot be effective if they limit themselves to safe, noncontroversial fields. Many problems are inherently controversial. For example, one of the surplus problems in agriculture which must be faced is that there are too many people engaged in farming and relying on it for their living. Returning to the need for economic growth, it is clear that agriculture cannot contribute fully to economic growth unless resource use is improved. Land Grant institutions are challenged to face this problem frankly and include in their programs, research, teaching, and extension which will develop facts and provide guides for corrective action.

Attention was given to some responsibilities of Land Grant College administrators. One of these is to exercise control over the budget to create, expand, and elaborate alternatives and to make wise choices among the alternatives. Changes often encounter resistance. One observation was that "progress rides in a hearse," meaning that passing of some individuals may remove road blocks to desirable changes. However, important changes should not have to await such events. What are
the specific activities which are truly strategic and most important? They are not necessarily the safe, the popular, or the politically expedi­ent ones.

Agricultural Extension and Adjustment

Because of the close working relations agricultural extension has with farm people this branch of Land Grant institutions came in for special attention with respect to problems of agricultural adjustment and of public affairs generally. Stress was placed on the fact that agri­cultural extension in the states is a function of Land Grant Colleges and Universities and, consequently, its field is clearly educational in character. Work in this category being carried on in some other countries is under the direction of the Ministry of Agriculture, thus making it more directly the responsibility of the political administration in office. To be sure, the Federal Extension Service is part of the United States Depart­ment of Agriculture headed by a Secretary of Agriculture who is a political appointee. It is not too surprising if that official tends to think of the extension service as an arm of his department which should espouse the particular farm programs of interest to him. Were all activities under his immediate direction, pressures to do this could be very difficult to resist. Under such circumstances, grave doubts could well arise with respect to the claim of extension that it is educational, for education must ever remain free to seek out facts, to analyze problems, discuss questions and present conclusions without fear or favor. Its function is not that of "selling" programs.

Attention, however, was given to other aspects of extension work which tend to be specific services or "chores" rather than being educa­tional. This is especially true at the local level. Such "chores" may be tempting to workers in that they represent specific things which need doing and for which the reward may be direct appreciation. Unfortunately, they interfere with the more basic obligation of extension--education. Extension workers, hence, should be guided, inspired and aided to become so fully absorbed in educational work that they will shift the errand or chore-type activity to others employed for such duties.

Agricultural extension has accepted as one of its primary functions that of helping farm people improve their productivity and efficiency as a gain to society as well as a way to better living for farmers. Considerable credit should go to extension for the part it has played in making agri­culture more productive; but the situation in the last decade or so when the farmers' share of the national income has been shrinking while farm productivity has increased at a remarkable rate, has raised some serious questions. As indicated earlier with respect to agricultural research, such questions do not justifiably cast doubt on the value and importance of increased productivity. The point on which they actually should focus
attention is whether extension is doing all of the educational work it should in helping farm people and others understand better the nature and causes of adjustment problems and what the real correctives are. Not all of the short-comings can be laid on extension's doorstep. For it, in turn, can point to the fact that the research arm of the Land Grant institutions has not provided it with an adequate array of facts and analyses for doing the job. Extension workers may also note that the training they received while on the campus did not always prepare them for such an assignment.

An important part of the responsibility falls upon the shoulders of administrators who are entrusted with leadership in developing the guides and providing for the allocations of resources - manpower and funds - in a manner needed for this task. Some of this work is of broader scope and involves other disciplines than those for work in agricultural technology. County agents usually are not so adequately trained in some of these fields as they are in technical lines. Moreover, they may shrink away from such problems because controversies are involved. This calls for a marshaling of a greater variety of forces and talents to work with extension agents and administrative backing to give them a feeling of security in carrying on their legitimate activities.

**Adjustments in Resident Teaching Programs**

A review of teaching programs of Land Grant Colleges brought out some self-criticism. Observations that these institutions at times appear to be hide-bound and slow to adapt to changing conditions were not dismissed as without foundation. Objectives and goals do not always stand out clearly as guides. The college organization is not always capable of moving effectively towards the desired goals. Curricula do not always attain proper balance needed to prepare graduates who are able to meet problems effectively and adjust to change. It was suggested that college offerings at times are handed down through the years and that the interests of the instructor rather than the students may predominate. An extreme illustration of disregard of good resource use was the offering of a certain course in each quarter and in summer school, resulting in having 11 separate class sections during the year for a total of only 109 students. Many cases exist of similar inefficient use of resources. The presence of faculty jealousies and competition was recognized. While these at times may provide some stimulus, they tend to interfere with needed adjustments in programs of work.

Some illustrations of envy among broad lines of activity were included in the discussion. Earlier reference was made to a feeling on the part of extension that teaching and research have first call on the top-grade students. A similar view on the part of resident instruction expressed the opinion that the best men were steered into research and
also that too much emphasis was given to research in allocation of staff time. Researchers, naturally, may be expected to think otherwise.

Aiming for a proper balance between basic and applied courses was given an important place. The point was made that in this day of rapid change, applied courses soon may be out-dated while an understanding of principles will remain useful for the longer run. One observation was that while applied courses may help students get a position upon graduation, basic courses will help them grow and develop in such jobs.

Encouragement was given to detailed self-study on a university-wide basis looking to creating an organization which will be better able to get improvements. More specific direction at all levels should have the objective of providing a total program which will best serve the interest of students. Emphasis was placed on the importance of educational leaders keeping programs in focus on emerging problems and being ready to make decisions on how to meet them.

Administrative Structures and Procedures in Adjustment

Illustrations drawn from industrial and other experiences were used to demonstrate that education is not alone in having not only to keep up with and adjust to changes but also to anticipate and adapt to coming changes. One of these stressed that it is not sufficient to do this for only a year or two ahead but to do so for five, ten, or more years. However, it is not enough to be aware of change; awareness to be fruitful needs to be translated into action. The time lag in converting to action concerns Land Grant administrators.

The fruits of research and their application build on each other and accumulate in "technological revolutions." The number and difficulty of decisions increase. Failure to anticipate problems and the changes they call for leaves Land Grant institutions unprepared to meet them. Learning how to predict and adapt to problems is more essential than ever. The military and many business concerns have created special agencies or units whose function is to provide those responsible for decision-making with the intelligence needed. "Intelligence," as here used, relates to obtaining, analyzing, and interpreting information, developing implications, making forecasts, and transmitting the results to decision makers for their use and guidance. The public is expecting similar performance from educational institutions.

The 68 Land Grant institutions are charged with major "intelligence" responsibility because of their important rank in leadership. While they constitute only 4.9 percent of the 1,382 four-year institutions of higher learning (1958), they enroll nearly one-fourth of all students, confer nearly one-fourth of all degrees, employ 30 percent of all faculty and have about one-third of all total current income of such institutions.
A compelling reason why Land Grant Colleges and Universities need to anticipate coming changes and to adjust to meet them grows out of accelerated rates of change, continuing economic growth with pressures for increases, rapid technological advance, and the demands of world leadership which have been thrust on the nation. In fact, survival may rest on ability to adapt to change.

Agriculture has always occupied a prominent role in the program of Land Grant Colleges. The Morrill Act of 1862, from which these institutions derived their designation, and impetus, specified explicitly work in "agriculture and mechanic arts." The present "farm problem", hence, is one of direct concern. That problem is part of the larger problem of how best to allocate productive resources in the service of society. Land Grant institutions are called upon to define and recognize the primary adjustments necessary and also the adjustments indicated in their own programs and organizational structure.

Doing this is a complex job. To shy away from tackling it because some phases of the problem are embroiled in controversy would be to deny the essence of the traditions and the purpose of the existence of these institutions. To default here would be tantamount to resigning from educational leadership.

Administrators sometimes take the position that action needed to meet changes cannot be taken because the people are not ready for it. Educational institutions, of course, have no monopoly on this state of mind because it shows up frequently in political life, in industry and elsewhere. The answer is not to shy away from action but to keep leaders and the general public informed regarding changing conditions and programs needed to cope with them. If educational institutions do not make changes until they are forced by public demands, they will be followers, not leaders. They may also find themselves in the position of having to accept specific directives from special pressure groups.

Three responsibilities of Land Grant Colleges were outlined as taking steps to "(1) develop a strategic concept for education as a basis for defining their educational mission; (2) develop tangible component programs which give substance to the definitions; and (3) make such adjustments of resources, staff and procedure necessary to develop new dimensions of extension responsibility for continuing education while maintaining essential elements of traditional work."

The point was made that Land Grant Colleges lack as part of their structure an internal process for keeping up precisely with changing needs and providing for a dynamic and continuous adaptation to them. Slowness of change in university programs is a source of criticism. Difficulties of modifying and changing curricula are illustrative. (Someone has said that "it's easier to move a cemetery.") Lack of flexibility
and adjustment in research programs are referred to an another problem. Extension has been criticized for continuing to focus attention on county programs for which the need is past. The observation was made that "opportunities pass by not because there is lack of understanding and vision on the part of university leaders, but because of the lack of the formulation of adequate alternatives to which to move." Resources need to be assigned to develop meaningful program alternatives.

All changes are not necessarily good, nor is little change inherently bad. Change in programs should grow out of careful weighing of alternatives. Resistance to program changes may be based on uncertainty as to what is really essential and significant or doubt over ability to serve new areas. The tendency within institutions is to continue programs with little or no change. Traditionally, most changes have come from addition of new funds, making expansion into other lines possible. The general focus of programs has changed relatively little. But now opportunities to obtain additional resources are far from unlimited. Any major shift in work from lesser to greater social significance requires a change in the allocation of resources already available and also a change in the primary focus of programs. This can be done effectively only when the changes needed are clearly recognized.

If Land Grant institutions fail to make adequate and proper adjustments, they could, as someone said, enter the centennial year "with a glorious past and a pallid future." Requests for funds might be denied and budgets reduced. Society would suffer loss of education for action. Another pertinent observation was to the effect that "the greatest threat to democracy's goal of individual freedom is ignorance. Not ignorance in the sense of the lack of all knowledge - but in this fast-moving age, the possession of the wrong knowledge, or the right knowledge too late."

The primary responsibility for achieving the required institutional adjustments rests on the administration. However, to make administrative decisions fully effective, wholehearted cooperation of staff is required. This calls for a well informed staff whose members understand the meaningful alternatives developed as guides for allocating their own resources.

But how shall the administration marshal all the information needed, analyze it and come up with meaningful choices among alternative lines of action? It must be crystal clear that no administration can successfully abdicate its right or responsibility for making the final decisions.

The methods for doing this employed by some business concerns and military forces may provide some leads. The specific arrangement at any given institution naturally will depend on its administration and the resources available for assignment to this task. Employing resources
for this purpose will reduce those available for the primary functions of research and teaching - resident and extension. This calls for careful evaluation of the returns from alternative uses. The prospective gains must offset the costs in terms of reduced output elsewhere. This calls for careful selection, effective direction in the assignments made, and highly productive performance, with utilization of the results for real improvement.

The assignment, which may be made to a special unit or task force, will involve two major lines of responsibility. One relates to a continuous study of changing needs of society, looking to a delineation of these needs and the establishment of priorities. Included in the appraisal will be an evaluation of the ability of the institution to contribute to these needs through its research and education. The second function will be that of developing ways in which these needs may be met, including recommendations for changes in the organization to achieve the intended purpose. Identification of activities from which resources may be shifted will be part of the operation. These two functions may be assigned to different units in the light of the special competence desired. If this is done, active cooperation between them is essential because one will have the responsibility of delineating the problems and changes in the programs while the function of the other will be to arrive at ways of putting these changes into effect.

Some resources may well be reserved to employ outside aid when there may be need to draw on special talent or when an outside view of some aspect of an institution's program and plans may be helpful. While it is recognized that ad hoc committees can be very helpful, these assignments will require the full time of the staff members involved rather than being an incidental and temporary side-line. A caveat or two may be in order. The operations of such units must be kept on a high level. If they become mere mechanical or routine reviews of programs and operations they will fall short of providing the guidance and stimulus expected of them. Another is that such units confine their operations to study, analysis and recommendation, that they ever be on the alert against trying to usurp the authority to make decisions.

The strength of a university or college lies in its faculty and staff and their freedoms of choice consonant with the overall guiding policies of the institution. Effective change to meet new situations and needs cannot be ordered from above and put into fruitful operation without staff understanding, acceptance and cooperation. Intelligence units must keep in close contact with the faculty as well as the administration and see that both are kept fully informed regarding the bases for the recommendations for change. Failure to do so will invite resentment and resistance which could spell failure for the undertaking.
The administration, as indicated above, will continue to be held responsible for making decisions and for seeing that adjustments are implemented. The administration must be ready to give serious consideration to the recommendations of the intelligence units; otherwise, the activity will not be productive. The administration has responsibility for seeing that these units function but this does not mean taking over their functions. The administration has an obligation to provide the leadership and develop the spirit of give and take without which the program will fail.

Agricultural extension programs, as exemplified by the county extension program, were drawn upon for some illustrations of the need for change, the process of change and limits of achieving change. Note was taken of changes in extension subject matter with the expansion in technology. Ideas unheard of a few years ago have become commonplace in everyday farm conversation. The field of work has grown from concern only with specific production practices to include management, outlook, family living, community problems and many others. There have been shifts away from service activities such as culling poultry, distributing pesticides, vaccines and the like, to educational work leading to a better understanding of underlying principles which farm people can apply to working out solutions to their problems. Emphasis has been transferred from individual farm enterprises to the farm business as a whole.

On the other side, priorities assigned to lines of work fall short of ideal. Activities of minor importance occupy resources which should be assigned to lines of major significance. Some activities have become institutionalized and continue to make demands on the county extension staff’s time and energies, impeding shifts to other activities. County and state fairs are cited as illustrations, not to deprecate such institutions or to question whether they are worthwhile, but to raise doubt over whether the inroads they make on extension resources are consistent with a good educational program. The county extension workers are not provided with any well-constructed guide for allocating their time and energies. Extension administration may emphasize the need for shifts to more fundamental programs. Unless the county agent has clear operational guides for selection among alternatives, he may remain occupied in a reward pattern which has developed from involving local people in a continuing series of activities under the sponsorship of extension.

The extension administration has prime responsibility for establishing the goals and priorities to guide the work and for leadership in instituting the adjustments needed to focus the program on vital problems. The extension administration needs the help of the overall college or university administration in doing this and also can use intelligence units to this end.
Public Administration Principles Applied to Adjustments

Certain basic principles of administration applicable to Land Grant Colleges were discussed. Among those given particular attention were:

1. Good administration requires that grant of authority and status be unambiguous; otherwise uncertainty and confusion will handicap administration at every turn.

2. Goals need to be clearly conceived and precisely stated.

3. Roles of the principal parties concerned should be clearly identified.

4. Institutional arrangements, organization, and procedures should support and facilitate the attainment of goals expeditiously, efficiently and economically.

5. Financial and other resources should be sufficient to achieve the stated goals.

6. Effective methods are needed for holding parties of interest accountable for the exercise of their trust and performance.

Authority and status of Land Grant institutions are defined by federal and state laws. The original Land Grants were for prescribed educational purposes without spelling out conditions in detail. More variations exist in state laws, particularly in the fact that not all states made clear that these institutions are public bodies. This affects the make-up of governing boards, the attitudes of state officials, administrative relationships and tax support. Clarification ought to be sought where needed.

The Morrill Act did not spell out goals clearly and this may have been a handicap. (On the other hand, if Congress in 1862 had laid down detailed specifications, they probably would not have foreseen changing conditions so that handicaps today might have been still greater.) The Act referred to promoting "the liberal and practical education of the industrial classes in the several pursuits and professions in life." Left to interpretation are such questions as what learning is "related to agriculture and the mechanic arts?" What division in emphasis between "liberal and practical education" was contemplated? Who are included in "industrial classes"?

Changing conditions require flexibility. Population will continue to increase; science and technology will grow; world interdependence will increase; farm population will continue to decline; cities will grow,
and life will become more complex, leading to increasing attention to public affairs. These changes call for more emphasis on a liberal education. Service to society appears to call for a broad interpretation of the general directives in the basic legislation. Some question the compatibility of liberal and practical education. Some see in the situation a form of Gresham's law under which "the practical tends to drive out the liberal and routine to drive out the creative." For an institution to achieve distinction in both, the dangers involved need to be recognized. Questions arise whether leaders in Land Grant institutions have been fully aware of these hazards. Decided changes in outlook and organization will have to take place in some institutions before they can provide top-level liberal education.

Questions of compatibility between the liberal and practical likewise arise in connection with adult education by extension services. This was referred to as a "new frontier toward which all of us can steer."

The compatibility of research with liberal and practical education also is open to some questions. "Pure" research and liberal education present no problem and the same may be said about applied and practical. The other combinations may lead to conflict. Contract research which often seeks results for specific application may not fit in too well with liberal education and may pull resources away from more fundamental research.

Regulatory assignments provided by law for some institutions raise decided questions of incompatibility with truly educational activities.

The parties of interest (referred to in the above principles) include the general public, the state legislature, state officials such as the governor, the governing board of the institution, its administrative officers, staff, students, and alumni. The roles of each of these vary widely from institution to institution. The legislature and state officers play an important part in some and a minor role in others. The methods of selecting governing boards vary. Administration of some institutions is authoritarian with limited opportunity for staff and student participation. Uncertainty over academic freedom exists in some of these.

One line of reasoning is that Land Grant institutions belong to all of the people and consequently the people should have the means to express their will expeditiously and effectively. This favors short and direct channels of communication, service and control. This frequently is not the situation.

Separate governing boards for Land Grant institutions where there is more than one in a state were questioned. Trend in public administration is toward single heads, rather than plural executives.
Increasing concern is being shown over the extent to which Land Grant institutions should have administrative autonomy. Some believe in practically complete autonomy while others favor making them subject to the same state administrative controls which apply to departments of the state government. Trends in state governments have some bearing on this issue. In recent years over half of the states have established departments of administration. Governors are looked to for streamlining operations in the interest of efficiency and economy. These trends may affect the position of Land Grant institutions in the years ahead.

It was suggested that administration based on industrial management patterns should give way to arrangements to lessen tension between the parties involved and to develop respect and cooperation. This might be stated as replacing the "master and servant" concept with one more representative of "colleagues" or "fellow workers" relationships between administration and staff.

Institutions of higher learning were described as being frugal and parsimonious, but it was stressed that these attributes should not be mistaken for efficiency and economy. Some marks of efficiency and economy suggested may be summarized as follows:

1. Authority and status must be clear. Goals need to be defined and be compatible; assurance of adequate financial support available and effective accountability prescribed.

2. Internal organization should be pyramidal with occupational groups identified in their roles.

3. The president's control should be restricted. Too much specific control in his hands may explain much of the slowness in adapting to change. Similar limits are in order for deans and department heads. Consolidation of units into fewer and larger ones may be needed.

4. Staff and line functions need to be clearly identified.

5. A workable balance between centralization and decentralization is important.

6. Land Grant institutions should make full use of modern administrative techniques such as capital and performance budgeting, modern accounting, centralized purchasing, processing equipment, continuous surveys of organization and methods and program and performance evaluation. (Outmoded administrative practices were referred to as "friction-producing.")

7. Effective communication within the organization is essential. There must be cooperation, coordination and in cases, integration.
Sloppy administration is inexcusable. Administration, while using the best techniques available, should be guided by humanism. "Institutions are run by and for human beings."

While Land Grant Colleges need more financial support, improvement need not and should not await added funds.

It was noted that if federal supports increase, the problem of federal controls will take on added importance. This could be either a handicap or an opportunity. The former might lie in encroachments on institutional and academic freedom and creativity; the latter could be in the form of improved standards. Accountability is essential. Public audit and full disclosure of finances are important. "Ultimate accountability is to the people of the state and nation."

Some Overall Considerations in Adjustment

This seminar points up the importance of recognizing the problems facing Land Grant Colleges and Universities and of submitting to rigorous self-examination in order to meet and solve these problems. Of deep significance to this conference is the rising importance of science and technology and the uses to which these may be put. The close tie-up of programs in these fields with colleges and universities means that they have moved "up-stage." They are involved in the conflicts which arise. Miracles are expected and this should induce humility, for room must be left for uncertainty and doubt.

The adoption of the Land Grant College idea represented a move from the classical concept of higher education to the broader view that all people should have equal opportunity for education. It recognized the fact that all work is dignified and that education is related to development. Thus, the Land Grant system has been related directly to the changing and growing needs of society. The phase now emerging is one in which problems are becoming larger and more centralized with increasing interdependence, while the application of educational resources remains decentralized. The rise of the United States to a position of leadership in the world is a factor in creating situations in which an increasing share of problems are not bounded by local units. The estrangement between the genius of scientific developments and dealing with their consequences is adding to problems. These situations call for new disciplines and for changes at decision-making levels and in policy making.

Education is called upon to stress the basic and the importance of continuing adjustment to change. There is a real place for men who know how to apply "wisdom to knowledge," who can think abstractly but
act concretely. There are changes in what we mean by "learning" and some revolutions in education are in evidence. What is taking place in business education and the pressure for more liberal education in such fields as engineering, were cited as illustrations of this ferment. All higher education is involved, and agricultural colleges cannot escape.

Agricultural colleges are learning centers for students. Their multiple purposes and functions led to organization into departments along commodity and functional lines. However, the organization also is affected by discipline groupings. The organization adds to the difficulty of undertaking realistic, internal self-examination, having as its objective improvement and adjustments to changing demands and opportunities. There may be too many departments, too many alternatives, and too few students. Serious doubt was expressed about continuing the present emphasis of undergraduate majors and the specializations they involve. It was noted that agricultural colleges are not the only places to prepare for agricultural pursuits. Unless colleges recognize this fact by adjustments in their offerings and requirements, more and more students may be forced to seek routes which provide the flexibility and the emphasis on basics so important in their preparation. (An illustration was of a student who registered in liberal arts with emphasis on botany as preparation for entry into work into agriculture.) An important and expanding function of agricultural colleges is that of providing graduate training.

A need for greater flexibility in budgeting and use of research funds in agricultural experiment stations was stressed. An observation was that projects may have become more important than the human mind. Present-day problems call for some abstract thinking about changing needs and methods of attack. Directors are not coming to grips with the intellectual problems involved. Not enough consideration is being given to new and developing issues, calling for research attention. Adjustments in research, however, must continue to provide freedom for the workers needed for productive performance.

Agricultural extension faces both internal and external problems of adjustment. Internal problems grow out of both its divisional (agriculture, home economics, 4-H, and commodity groupings within these) and zonal (district supervisors, county chairman) organization. External problems involve the scope and nature of its program. The job to be done by extension presumably is as broad as the field with which it deals, but it should be recognized that this encompasses a wide range of activities and disciplines.

The cooperative extension service grew out of the grass roots problems more than from stimulus from the academic university environment. General extension activities of universities, on the other hand, received more of their impetus from within. A question which may be appropriately raised now relates to the adequacy of the provisions of the Smith-Lever Act, the basic authorization for the
cooperative extension service, for the wide range of activities in current programs. Another important question relates to the appropriate division of work between the cooperative extension service and the institution's general extension. One suggestion was that the cooperative extension service should be the field arm of the institution, while general extension could serve in the capacity of general staff. Regardless of the particular institutional structure which may be found most suitable in a given instance, it is clear that extension activities in the future will need to draw more generally on available resources, and representatives from more disciplines will need to participate.

Panel and General Discussion of Adjustments in Administrative Structure

The discussion groups and the open discussion sessions of the seminar covered a wide range of problems, issues and points of view. Many of the points brought out in the general discussions were outgrowths of more formal presentations during the seminar. While the more formal parts of the program centered largely on changing needs and problems of adjustments in the structure and programs of Land Grant institutions to fit these changes, a significant share of the general discussion related to more immediate "house-keeping" matters. This is not to be interpreted as indicating a lack of interest in or concern over the larger adjustment issues. Rather, it represented a normal tendency of dealing with the immediate and the known as a starting point with the idea of moving from there into newer fields where neither the problems nor the solutions come as clearly or easily into focus. Amidst these discussions, however, was evidence of rather general acceptance of the need for adjustment and a willingness to consider and explore lines of action. How fruitful the seminar will prove to have been will depend in a large measure on the stimulus it gave to thinking about the problems and the results of that stimulus in action.

Resident Instruction

The discussions of resident teaching problems recognized the role of Land Grant Colleges not only in preparing students for the increased demands of modern agriculture for technical knowledge on the farm and on the part of those serving agriculture, but also in the broader fields of living and citizenship. Concern was expressed over the relatively small proportion of farm youth receiving high school training and over the quality of rural high schools. This was reflected in the view that rural youth come to college less well prepared academically than is true of the products of city schools. It was recognized that we have a responsibility for developing flexible programs adaptable to students with a very
wide range of capabilities. We will continue to have many students with only average ability, but we should also plan modifications in curricula to challenge the most capable students.

Considerable discussion centered around the preparation of undergraduate students for foreign service. The real obstacle to development of this area of education is the lack of job opportunities for young people (just out of college) for foreign service.

There appeared to be strong agreement with regard to continued examination and revamping of curricula as a way of improvement. The same may be said of increasing the emphasis on basic sciences and broadening the work to include more and better preparation in social sciences and humanities. Strong, over-all preparation of undergraduate students was favored over specialization in some major field. It was recognized that improvement here involves the cooperation of departments to overcome competition for students as majors.

Research

Among questions raised concerning research were the following: Have experiment stations defined clearly the clientele they serve? Should research be devoted only to farm problems or deal with the entire agribusiness field? Is research too heavily weighted on the side of technology and production with inadequate attention to marketing, utilization and other economic and social problems? Have agricultural adjustment and farm policy received adequate attention from research? How shall work on some current research be shut down to make shift of resources possible? Shall new research replace existing projects or does it need to await additional funds? What are the most effective ways of stimulating interdisciplinary research where that approach is called for?

Difficulties in arriving at a scale of priorities in research were recognized. While station directors can influence this in allocating funds, there is little opportunity or desire to dictate from the top. The work is done by individuals, groups and departments, and the director works with them. In this capacity he can help keep in focus the overall goals and guide and inspire workers to fit their activities into the overall program.

The sources from which research funds come were said not to influence the nature of the research work unduly. Pressures from farm organization, commodity groups, and legislatures cannot be ignored completely in planning research. At times, they may culminate in appropriations and grants for specific uses and to that extent
limit the institution in efforts to direct resources to lines of highest priority. Experiment stations need to move away from testing and other routine services and to slough off less significant activities. Duplication should be avoided. Each station cannot hope to be strong in every line. A need for doing more research in economic and social lines and in international problems was recognized. Agricultural policy research was accepted as being more suitable for some state institutions than for the United States Department of Agriculture in view of that Department's direct participation in farm programs. As in the case of teaching, stress was placed on not overlooking basic research. Effective coordination between research, teaching and extension should be developed and maintained. It was suggested that the administration of research be kept as simple as possible.

Extension

The primary function of agricultural extension was said to be that of working with farm and rural people. However, as the discussions brought out clearly, the lines of division between rural and urban are becoming less and less distinct with movements of population to suburbs with farm people taking jobs off the farm and urban workers finding homes in the country. This is affected also by increasing demands for adult education. One suggestion was that the question of whom to serve ought to be settled by subject matter rather than by geography. This would work well if agricultural extension were confined to questions of technical farm production. However, the interests and problems of farmers are not confined within line fences. They encompass a wide variety of economic, social and other questions which involve outside relationships and citizenship responsibilities. With competence in the wider fields, should extension be restricted to working only with rural people? One aspect of this relates to effective use of funds. If agricultural extension uses resources for work among nonfarmers, less will be available for its obligation to farmers. Another aspect is that of relationships and division of responsibilities between agricultural extension and general extension activities in the same institution. The cooperative extension service is functioning in every state and follows the same general pattern. The general extension shows greater diversity and less extensive development at this time. Some states have embarked on a program of coordination between these two activities, either by bringing them under one administrative head or by developing a division of responsibilities. However, in many places this involves a growing problem for which a solution is needed. That solution will vary with the particular set of conditions existing at each institution.

Whatever the arrangements may be, it is clear that the scope of work in extension is ever widening. If demands are to be met adequately, participation by a number of disciplines is needed.
Strength of agricultural extension rests on its leadership in providing its clientele with information and understanding which lead to decision-making. Extension's function is education. This is much more than supplying information and facts which may answer specific questions. It involves building understanding which can be used in solving problems and in decision-making. Administration has a direct responsibility to see that the work centers on this function and does not become over-burdened with service and other noneducational programs. Administration has the responsibility to find the best available personnel and to help staff members keep abreast of changes and progress, including opportunities for refresher courses.