Three obvious summary points can be drawn from the Agricultural Adjustment Center seminar on southern Iowa.

1. Change or adjustment to changing situations in Iowa agriculture is not new.
2. The accelerated change rate is new, and neither the people nor their institutions have been able to cope with this situation.
3. Further changes are apparently in the offing, both in character and rate of change as suggested by the indicated increase in farm size and subsequent reduction in number of farm units.

If these conclusions are valid then:

1. Public agencies need to rethink their missions.
2. Research agencies need to examine existing facts to see if information is available to aid in the adjustment trends.
3. Educational agencies need to re-examine their goals and methods to see if they are adequately serving the educational needs of the people of today and tomorrow.
4. Credit agencies need to evaluate their policies to determine if their policies allow them to fit the needs in periods of rapid change, and the anticipated needs of a changed agriculture.
5. Some consideration should be given to the development of an "umbrella" effort to consider the coordination of the facilities now available so that the obsolete can be eliminated and the unfilled needs met.

Public Agency Considerations

Most thinking people recognize that no program of any public agency deals with the full content of problems of adjustment, per farm or per area, in either re-

E. R. Duncan is professor, Department of Agronomy. Wallace Ogg is professor, Department of Economics and Sociology. Louise Rosenfeld is professor and assistant director for Home Economics. John T. Pesek, Jr., is professor, Department of Agronomy. Margaret Liston is head, Department of Home Management. Virgil Hurlburt is associate professor, Department of Economics and Sociology. Garold Parks is superintendent of farms, Department of Animal Husbandry. Geoffrey Shepherd is professor, Department of Economics and Sociology. Alvin Egbert is associate, Department of Economics and Sociology.
search or action capacity. Several programs deal with specific phases or particularized problems. There is no united front, with combined actions by local people, local governments, state and federal agencies, except on such special activities as watershed development or soil conservation districts—and these do not qualify as adjustment programs. Further, there is only limited opportunity for any community or area to get its problems of adjustment to economic and social change analyzed thoroughly and systematically. Both research and action are largely ad hoc and piece meal.

Progress in adjustment, area by area, requires the development and active functioning of a program planning process, in which local people help in the development and conduct of programs affecting them and their area. This will require many changes in patterns of thinking, about what can be done and how it is done in organized public programs. The big problem in agricultural adjustment in southern Iowa and elsewhere centers around the development of means and methods of adapting to change.

The planning activity will have to be something more than has been tried, but a few of the historical experiments have some of the necessary attributes. The work of the National Resources Planning Board in the early 1930s had the concept of local, regional and national requirements. County Land Use Planning made use of representative farmers, as did the work of the old AAA and the present ACP. But none of these went far enough. Thought and action was limited too much to strictly agricultural problems; too few laymen were involved; too much was expected too fast.

What the organizational framework would be for the planning activity is itself a matter for determination. Some of the requirements in content are easier to see than are the details of organization. Among other requirements are: full and careful analysis of alternatives; specific definition and identification of problems; widespread participation and debate of issues; and particularly, organizational and administrative separation of the planning function from the research function.

There is need in this planning and analysis function for an effective counseling service for communities interested in doing something, for active participation of local people, integrated efforts of different levels of government—local, state and federal, and especially for use of research results by the planning agency.

Among other results obtainable through the planning activity is the shifting from commodity price support as such to an adjustment concept, in which changes in technology, in methods and levels of income support, in food and fiber requirements, production area, size and organization of farms, and in
labor and other factor inputs are taken into account. This would make agricul­tural adjustment a process of factor adjustment instead of one of price ad­justment, and make it a continuing process rather than a "once over and done" job.

No attempt has been made in this report to appraise existing programs or to spell out the full content of those required to deal with the problems of adjust­ment in southern Iowa. There is evidence that the present array of agencies and programs is not solving the existing problems. The general content and direction of change have been stressed in other papers of the seminar. The what to do and how to do it remain to be worked out, over a period of years, and constitute the task of agricultural adjustment.

**Suggested Areas of Research**

As has been pointed out previously, farm and community adjustments in south­ern Iowa can be best approached through a realistic job of adjustment planning. Sound planning must work from sound research and includes a well integrated research program under full time leadership.

In this brief discussion on research it is assumed that:

1. The general objective of this research suggestion will be to aid adjustments by furnishing the people of southern Iowa with sets of alternative choices for action.
2. The level of farm income is to be the basic choice criterion.
3. A given level of farm income can be attained with at least several different types of internal farm organizations.

The suggestions for research have been drawn largely from the expressed or implied insufficiencies indicated by authors of the previous reports in this seminar and from thoughts expressed by other members of the staff. In some cases much research is already in progress in some of the areas which will be recommended, while in other cases little or no research is apparently underway. The different types of research which are needed imply planning horizons extending up to perhaps 20 years in some cases, and might most effectively be initiated at different strategic times between the present and the time of achievement of the primary objective.

It appears that the organization of Iowa State University and the Agricultural and Home Economics, and Engineering Experiment Stations, and the cooperative arrangements with the United States Department of Agriculture and other federal and state units, and with foundations and industry is adequate to handle the research task needed. However, the research in some areas can be ob­tained only by diverting personnel and resources from other lines of investiga­
tion or by adding personnel and research funds, but in other areas it may be achieved by integration of research among individuals working on interrelated problems.

Resources

Any adjustments which take place in any region will involve both physical and human resources of the locality and, therefore, an inventory of the quantity and the quality of each resource is necessary. This phase of investigations will require the enumeration and identification of the resources as well as additional research to help determine the quality factors which are important in characterizing the resource in question. The land resources should be considered from the point of view of acceptability for agriculture, forestry, recreation, and industry. Other physical resources should be considered in the same manner. Human resources can be considered in this way, but must also be characterized in other ways.

Productivity and Use of Resources

Proper planning of resource use demands realistic, and accurate estimates of the productivity of the resources. Yield potentials of various soil units for the products of trees, crops and cattle need to be estimated for different levels and types of management, and for different levels of input of variable resources such as fertilizers, labor and machinery. The problems of management under different combinations of resources have to be studied as well as means of making all resources more productive.

Even with higher precipitation than many other parts of the state, southern Iowa lacks water for household use, industry, recreation, and agriculture. More facts are needed on the conservation and efficient use of water. The components of drouth need elucidation, and probability tables based on past weather and new information on drouth components should be prepared.

Fluctuations in the production of physical products, leading to fluctuations in annual income is a major hazard in agriculture. Research in the broad area of crop production and climatology should yield information which could be used in planning the allocation of resources which would tend to minimize the variance of production. This may require new crops or new means of organizing and managing the production of those currently produced.

Better or different utilization of currently common crops might also require changes in the emphasis on plant breeding to achieve the desired results. Improved varieties of birdsfoot trefoil seems to be the most logical answer to a permanent pasture legume, and an accelerated breeding program aimed at the
production of a longer-lived more drought tolerant variety is needed. Varieties of grain sorghum should be developed specifically for this area and the adaptability of other species should be critically examined.

The size and shape of an area of soil will influence its utility and productivity for its optimum use. The efficiency of machinery operations and the efficiency and adaptability for livestock enterprises of variously shaped soil units or fields needs to be investigated. Four row equipment might not be of any use on a five-acre tract, but this tract may be very efficient for fattening steers on pasture. On the other hand fattening steers on a pasture as large as 40 acres may be very inefficient due to the long walking distances.

Basic studies in the inheritance of desirable carcass qualities by farm animals needs to be continued, or initiated where they are needed. Since many studies have suggested that pastures may be an important land use in southern Iowa, additional research should be conducted in the area of basic nutrition of reproducing females under these conditions. Other management and reproductive studies are also envisioned.

Diseases and pests of livestock and crops are likely to become more of a problem under conditions of intensive production than they are at present. Research in disease control, sanitation, and immunology has to keep abreast of any other developments. More effective and efficient controls for insect pests in crops and livestock are needed -- soil insecticides may be an effective means of controlling some livestock pests, as well as insects attacking crops.

More information should be collected on the field efficiency coefficients of various farm machines. These should be expressed as functions of field size, shape, area, slope, etc. The possibility of land-shaping in improving field layout is ready for investigation. This includes the use of parallel terraces, depression filling, smoothing of hills and surface drainage. The search for better drainage methods should be continued.

Recognizing that savings in production costs without sacrificing proportionately in production lead to larger profits suggests that minimum tillage methods, and the mechanization of other enterprises should be studied. New crops or new means of handling old crops may be less expensive than conventional methods.

Production Economics and Farm Management

That there is little information dealing with alternative farm organizations in southern Iowa is quite apparent in the previous papers presented at this seminar. The central objectives for farm management research should be to
specify the number of relevant farm resource organization patterns or types, the income potential of each different type, the income variability associated with each, the amount of capital needed, the optimum farm size, the level of technical and managerial skill needed for each type and the labor requirements of each. When each of these items is known, direction could be given for research outside the firm, and some specifications as to the number of people that could remain on the farms and those that would need to leave would give direction to educational reorganization needed in the counties.

The consequences of reorganization of farms on the extensive scale proposed by some of the reports would be different than consequences of reorganization along intensive lines which might also be feasible. The necessary element of a research program is to enumerate and spell out quantitatively the consequences of each pattern or farm resource reorganization.

Marketing

Two types of marketing research will apparently be needed: one to evaluate the present marketing system in southern Iowa for efficiently handling the types and quantities of products forthcoming from alternative farm reorganizations and another type to suggest and evaluate alternative marketing organizations not presently in use. The supply as well as the outlet side of the market will need to be analyzed. For example, an intensive feed-lot type of agriculture would require that an adequate supply of feed and livestock is readily available.

Credit

Available information suggests that whatever type of farm reorganization is followed to achieve higher incomes, each will require increased capital investments in the farm firm. Loan deposit ratios in southern Iowa banks indicate that the banks have capital that could be loaned. Whether this low loan-deposit ratio is due to a reluctance to make risk type loans by bankers or an aversion to the use of credit by farmers or a combination of both needs to be investigated. Research is needed to determine the ability of present institutions to supply the credit needed for various farm reorganizations and to specify alternative sources of credit that might be needed. It is emphasized that different kinds of internal farm reorganization may require different types of credit and hence different sources of credit.

Education

Numerous sources of information indicate that farm people do not know what can be done to improve their position even though this information has been available for a long time. This suggests that the communication line between the research workers at the experiment station and the farmer is interrupted, and the points at which the discontinuities or delays in the communication lines occur should be determined by adequate research and procedures should be developed for speeding the general dissemination of knowledge.

Research is also needed to devise means of identifying the individuals or families who will eventually remain on the farms after adjustment has progressed to any degree of completion. This identification would be of most value if the individuals could be identified in the early teens, so that the educational system could better prepare those who remain to be agriculturists, and those who leave to excel in other occupations. The type of reorganization which takes place will influence the relative emphasis which the high schools will have to place on courses in the agricultural arts, as compared to courses in business and industrial arts.

There is a great need for getting to the people information on employment opportunities in other areas. Information is also needed on what people can expect in terms of job security, personal adjustments required and community life in areas where jobs are available.

Industrial Development

Any research dealing with industrial development is more independent of the basic farm organization in southern Iowa than the other categories mentioned above. However, the basic farm organization will determine the number of people leaving agriculture and the quantity of industrial development possible will in turn determine how many people can be employed in the community. Previous papers presented at this seminar have not shown any quantitative information on what and how much industrial development in the southern Iowa area is feasible. Research designed to provide the answers to the "what" and "how much" questions is obviously needed. Only when this knowledge is available will it be possible to state specifically how many people will need to find jobs elsewhere and to assist these people in finding alternative employment.

These suggestions have been on types of research which should provide information on income alternatives rather than on research to specify "how people ought to do the things that they ought to do". The emphasis is on acquiring knowledge relevant to the problem rather than knowledge for knowledge's sake.
Public Educational Agency Considerations

A concept of education not commonly emphasized in our existing educational system may well be a basic consideration to meet the challenge of our rapidly changing agriculture. This concept has been defined as the "acquisition of the art of utilization of knowledge" and this should be apparent in changed habits of feeling, thinking and acting.

If the people of southern Iowa, and others who work for their interests, are to be truly educated for participation in the adjustment process, there must be much more than the dissemination and diffusion of information. There must be education in the skills of using information intelligently for reflective thought, discussion, decision-making and action with respect to individual and group situations which seem out of balance.

In addition to information, reflection and decision-making, still another broad task must be handled by education if knowledge is to be utilized productively. That task is motivation to action. ACTION by the people is essential if economic and social adjustment to change is to be accomplished by democratic processes OF the people, BY the people and FOR the people. To arouse our people from apathy, to help them consider probable consequences of inaction, and to motivate them toward intelligent action probably is and will be THE NO. 1 job of education for some time to come.

Because learning takes place and is increasingly essential throughout life, we were agreed that the educational needs of all ages should be provided for. Diffusion research recently has made it clear that individuals vary as to the sources from which they accept information as well as in the manner and speed with which they adopt practices. Thus, it was recognized that public agencies of education must operate through numerous media and by various methods of communication in order to "touch" effectively all social and economic classes in all geographic and residential areas.

No new public agencies of education should be needed to do the job ahead if public and private school systems and the Cooperative Extension Service would have dynamic leadership and adequate resources (personnel, research findings and technical devices as well as physical plant and operating funds.) There is of course, need for cooperative effort by extension and the public schools for leadership in capitalizing on the educational potentials of non-public and voluntary groups such as private schools, churches, study clubs and other organizations which influence the feeling, thinking and acting of the citizens.

What outcomes should the educational agencies strive toward so that people may be effective resources and instruments of progress instead of impediments to adjustment? The traditional THREE R's of education (Reading,
'Riting and 'Rithmetic) must be supplemented in several ways. For effective communication and social action, skills of speech and discussion are essential along with reading and writing. Moreover, skills of communication and numerical calculation are barren without knowledge and understanding of facts and principles related to one's physical, biological and social world. Further, four additional "R's" of education will be required if people are to function soundly in adapting to change. These are Reason, Resourcefulness, Responsibility and Relationships. It seems that our changing times will test those qualities of man which distinguish him from most other mammals; (a) reasoning potential, (b) resource opportunities, (c) responsibility and empathy for other than one's kin and (d) relationships with the human, material and spiritual elements of one's environment.

In the light of the foregoing interpretation of public responsibility, this committee believes that efforts of educational agencies should be focused toward at least four objectives.

1. **Tool skills of communication and mathematics**

   Teaching of the art and skill of reading, writing, speaking, figuring and calculating must continue but should be improved in quality and made available to (perhaps, required of) larger proportions of the population.

2. **Knowledge of facts and principles**, not only of the physical and biological world, but also of the social sciences and humanities.

   In this connection, we must stress much more than we have the WHY of situations, as a compliment to the WHO, WHAT, WHEN and HOW. We must help people see cause-and-effect relationships and to think in terms of principles and probabilities.

3. **Ability to analyze situations**: skills of questioning, critical examination, acquiring information, weighing probable gains and losses to be expected from alternative lines of action, and application of principles of choice-making.

   In order to reduce strains and imbalance arising from changes of various kinds and to promote adjustment through informed and intelligent action, people must be helped to become more alternative-minded with respect to values and goals sought, potentially relevant resources (human and non-human), and ways of analyzing problematic situations and arriving at decisions. Among the kinds of situations involved in agricultural adjustment which call for increased analytical and decision-making ability are the following:
a. vocational and avocational choice;
b. place of residence;
c. production opportunities within selected occupations;
d. consumption opportunities within selected occupational and residential environment;
e. potential complementarity of production and consumption decisions and activities; and
f. community organization and purposeful community participation.

Through education we must encourage introspection, self-evaluation and rethinking. We must help people recognize the importance of facing up to problems posed by their changing environment and to seek long-time as well as emergency and short-run solutions.

4. Attitudes and understandings concerning the world we live in and our relation to it.

Persons involved in the complex problems of adjustment within our own state and nation must be helped to understand the circumstances involved and to develop attitudes which facilitate enlightened decision and action. Some of these attitudes and understandings which have been specified are listed as follows:

a. Acceptance of change and a desire to make the most of it. Certain of these changes involved appear particularly relevant. Organization and function of such social institutions as the family, government, schools, churches, and business (including farming); roles of individuals and families as producers, consumers and citizens; personal security stemming increasingly more from human resources and relationships than from financial and material status -- and relatively more from the qualitative than the quantitative aspects of life.

b. Increased sense of the mutual relationships of self and community institutions -- of self responsibility as a role player in the institution as well as of the ways in which institutions help and hinder accomplishment of personal and family needs.

c. Discussion as the backbone of the democratic process. Confidence that there will be progress in social and economic adjustment rests on our faith in the democratic process -- and the democratic process depends on education and the art of intelligent discussion.
With respect to the adjustment of southern Iowa, education for intelligent participation in discussion, policy-making and action is essential for selection of relevant goals, efficient utilization of resources, arriving at decisions and bearing responsibility for the consequences of action or inaction, as the case may be.

The foregoing is a broad and general interpretation of the task of public educational agencies with respect to agricultural adjustment in southern Iowa. It does not provide detailed blueprint for immediate educational action. Such a task would be far beyond the abilities and outside of the responsibilities of your committee. It is hoped, however, that our interpretation will help to set guideposts for evaluating present education functions and for adjusting the organization, content, method, and clientele of educational programs in the near future. If this is not done, we will not have kept faith with the tax payers who support the educational agencies or with the people whom public education is designed to serve.

In summary this committee believes that

1. Present programs of agencies were not primarily designed to bring about changes and adjustment in the broad sense. They have been designed as "limited areas" programs, and little, if any, conscious effort has been made in analyzing broad problems first, then designing the sub-programs to attack in a systematic way the broad problem.

2. Agriculture's capacity to produce exceeds demand requirements, will continue to in the foreseeable future, and for this reason present agricultural programs cannot accomplish the needed adjustments in agriculture.

3. It is likely that broad problem centered research may be the required course of action to supply the needed background for proper problem identification and attack.

4. Present research facilities with certain adjustments appear adequately constituted to do the necessary job of supplying the needed adjustment tools.

5. Educational efforts probably need major re-orientation, more visionary leadership and some intensification of effort to accomplish the needed ends.

6. With more effective coordination, present educational facilities can do the job which needs doing.

7. It appears that present credit institutions with certain policy changes can handle the short time credit needs. Long range credit needs have not been adequately examined, and the identification of the broad problems will be necessary before a determination of necessary credit needs can be made.