THE ROLE OF AGRICULTURAL RESEARCH IN NACTA COLLEGES

Editor's Note:
This article is from the 1960 Report of the Research Committee of NACTA and was written by Dr. Burton W. DeVeau, Chairman of the committee. Dr. Hal B. Barker, Associate Editor of the Journal has prepared this article by excertping Dr. DeVeau's original article and by adding a few thoughts.

Dr. Burton W. DeVeau

Previous surveys made by research committees of NACTA indicate that most members are not expected to conduct research, and that several member colleges are actually prohibited from conducting research by their administrative authorities.

We, as an association, can only encourage original research by those who **can** conduct it and certainly we can encourage the utilization of information made available by other researchers. We would not want to encourage all members to conduct research. If such a position were advocated many research projects would be undertaken just for the sake of conducting research and not because of a genuine interest in research. In regard to this position the following quotation is given:

"There is also a tendency for educational agencies to take over research functions. In the case of graduate instruction, research and teaching appear to complement each other enough to justify having a given person employed at both kinds of work. Even here, however, the press of regular teaching assignments breeds inefficiency in the use of research resources. In the case of undergraduate teaching, joint appointments are less justified as complementarity tends to be less valuable while the inefficiency seems more pronounced."

One of the most important responsibilities of the teacher is to help students clarify their values and to teach them to think critically more effectively. A technique which may be used to accomplish this responsibility, particularly with the more gifted student, is the utilization of student research projects.

One purpose of student research is to provide an opportunity for the able student to achieve a greater depth in learning than is possible in an ordinary classroom situation. Providing an opoprtunity for students to achieve a greater depth of learning is vital in teaching them to think critically and in developing versatile minds capable of dealing with the social, economic, and political problems of our era.

There are many other values of student research projects. Such participation provides an opportunity for the imaginative student to test his ability. It helps develop a creative mind. It also creates an interest and a desire in the student to continue his formal education beyond the baccalaureate degree. Student research also provides an opportunity for the faculty research adviser to participate in research projects that he might be unable to conduct alone due to his acdemic load or administrative responsibility. Results of certain student research projects may be used in the classroom situation to support or supplement a principle being taught. These values, among others, should encourage teachers of agriculture to assist and promote student research projects in their field.

There are many types of research projects in which a student may participate. Short-time production projects, such as fertilziation rates for crops, livestock feeding projects, nutrition and light intensity experiments in the greenhouse, and production testing programs provide many varied research opportunities which could be conducted successfully by students with an appropriate amount of guidance. Projects involving historical reviews, surveys of practices, reviews of literature or compilations of existing research would prove to be of considerable value to the student and may be of importance to the adviser involved. Seemingly, there is no area of research in which a student with a keen mind and with appropriate guidance could not make some contribution.

Many universities and departments of agriculture are attempting to encourage their better, advanced undergraduate students to conduct research. There seems to be a growing effort to stimulate students through individual research projects in all areas in many colleges and universities throughout the country. This is evidenced by an increasing number of honors courses for students, an increase of articles in the literature devoted to the superior student ,and the establishment of The Inter-University Committee on the Superior Student which publishes the journal, **The Superior Student.**

The values derived from student research projects by the student and his adviser are unmeasurable. As a teaching technique, student research projects have a very important role and could be utilized to great advantage. If supervised properly, they will contribute greatly towards the student's depth of learning and understanding.

Research programs in most colleges represented by NACTA cannot depend generally upon state and federal support, however, research supported by private enterprise has made a major contribution to farm technology. Much of this research has been conducted by staff members of private companies, however, in several instances these firms have supported research projects in educational institutions, including non-land-grant departments of agriculture.

There are probably very few private enterprises which have organized assistance programs for research. However, many organizations will assist in research projects by furnishing materials, technical advice, and, in some cases, funds, if the anticipated research project seems to merit financial support. The NACTA member who is developing a research project in which funds, technical

assistance, and or materials are needed should contact private enterprises in his area which he thinks might be interested in his project and submit a proposed plan to them indicating his needs. Such contacts may prove very fruitful.

There are several non-profit organizations that have regular research assistance programs which may be of interest to NACTA members contemplating research. Assistance from these organizations is usually difficult to obtain. However, assistance is available. If the proposed research project has adequate depth and breadth it will be given appropriate consideration.

The National Science Foundation, Washington, D. C. has a regular research assistance program for technical research projects. Contact may be made through the national office concerning the type of projects for which financial assistance is provided and the requirements for assistance.

The Small Business Administration, Washington, D. C. has an annual research assistance program for research projects affecting a region and concerned with the managment of a business enterprise. The type of research projects supported by the SBA may also include some technical research. The SBA generally grants funds for one research project in each state each year. Therefore, competition for a SBA research grant may be very great, particularly in states where there are Business Colleges seeking such a grant.

The Kettering Foundation, the Tennessee Valley Authority provide funds and other assistance for research related to crops and soils. The Kellogg Foundation and the Ford Foundation provide funds for research projects in general education. Contact should be made with these foundations concerning the requirements for grants and the conditions for conducting research projects with the foundation grant.

Although funds and materials for research are not available to NACTA members to grasp at all times for any research project they may wish to conduct, funds and materials are available if the researcher desires to seek them. The writer, (Dr. DeVeau), believes that sources for materials are virtually limitless and that funds for research are available if the researcher takes the necessary time and effort to seek appropriate sources of funds.

In the opinion of the associate editor, our continuous communication with one another in NACTA, and our favorable relationship with other agriculture colleges is dependent upon the development of a publication of high calibre that will merit a wide circulation. The editorial staff must have available some stable source of constructive information and it is the opinion of the associate editor that these research manuscripts could constitute one desirable source of material for publication. The Publication and Research Committee will continue to encourage the development of the third purpose as defined in the constitution of NACTA. .. . to encourage and promote research in agriculture among members of the association.

Education for Management Of Agricultural Business

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Perhaps the six words which form the title of this paper embody the goals of most students and teachers who have strong interests in agriculture. The panorama of events in agricultural industries which has occurred during the lifetime of the students and the working career of most agricultural educators is a story of high adventure. The risks, the ruthless competition, the obstacles, the failures and the successes furnish a real life drama second to none. The curiosity which every individual has concerning his environment adds further suspense to the tale.

Such adventure was forecast by Karl Pearson in his "Grammar of Science" by his definition of science.

> "Science may be described as a classified index to the successive pages of sense impression which enables us readily to find what we want, but it in no wise accounts for the peculiar contents of that strange book of life."

In this paper, I shall concentrate on two types of changes in agriculture and suggest some of their implications for educators in the field: (1) changes in on-the-farm production, (2) changes in farm supply and in the marketing structure for farm products. Limitations of time and space prevent exhaustive examination of even two areas and implications for educators are tentative and subjective. References at the end of the paper are listed to encourage the reader's further investigation.

The agricultural fundamentalists, and a few soil conservationists, have frequently taken the alarmist view with such titles as "Standing Room Only", "Our Plundered Planet" and similar warnings of population's race with production. However large the demand side for farm production appears in the next few decades, the supply side seems even greater. Rate of increase in farm production has consistently exceeded the rate of population growth in the last decade. The average rate of increase in farm production was 2.4 per cent over the 10 year period 1950-59. The average rate of population growth in the United States was only 1.7 per cent in the same period.

This difference in growth rate is small but the margin seems to accumulate substantial surpluses. Too, the low price elasticity of demand for major farm products accentuates the difference in growth rates and causes severe depression of farm prices and income. The low price elasticity of demand causes large supplies of a crop to bring less total income than a small supply. If prices only fell 1 per cent when supplies rose 1 per