

in this prospective less they become the dominant factor in decision making that affects the operation of the entire department. As farming operations become larger in size, they are usually more efficient. The economic decisions that must be made are of necessity more related to financial returns rather than educational benefits.

The most effective educational use of facilities comes only when students are permitted to utilize these operations in a meaningful way. The value of an agricultural facility is keenly apparent when they are utilized as teaching tools to supplement classroom experiences. This is frequently accomplished through laboratory exercises, field trips, or labor experiences. One of the most useful of these is the labor experience. A student who has as one

of his first labor responsibilities the mixing of feed for a livestock operation, and follows this work as an assistant in an animal nutrition laboratory is exposed to a meaningful educational situation. We in agriculture are fortunate in that there is a wide variety of farm-laboratory relationships that are possible teaching tools. Soil testing, plant tissue testing, and nutrient analysis of feeds are but a few of these tools that can be directly related to agricultural facilities.

Financial means frequently limit the kind and size of agricultural facilities that are practical for an institution to operate on its own. In these instances field trips to non-institution owned facilities offer unlimited possibilities for educational experiences. Commercial meat packers, good commercial farms, re-

search farms of chemical and feed companies, and land-grant institutions are usually very receptive to these outings.

The development of controlled environment growth chambers for both plants and animals affords the teacher another type of facility, that can be most effective in laboratory work in agriculture.

It would appear that we in agriculture should be concerned with the control and use of facilities. To this end an evaluation of our needs should be closely correlated to the type of educational program that is offered. With the variety of facilities that are possible and the definite advantages afforded by their effective use, we can afford to exert a great deal of time and effort in utilizing these tools to our greatest advantage.

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# Organizing at the State Level to Meet the Challenge in Vocational Education

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## *The Administrator.*

The administrator of state vocational education programs is being challenged to a degree unprecedented in his professional career. A mandate from Congress to develop programs, "so that persons of all ages in all communities of the state — those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps — will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training," constitutes his challenge.

The success an administrator might expect to enjoy depends upon how well he meets the challenge to serve the vocational needs of all the people in his state. Even though

the task is awesome in prospect, the rewards are commensurate with his accomplishments.

The increased duties and responsibilities charged to the state administrator under the new vocational acts make careful planning and priority assignment mandatory lest he become hopelessly involved in time consuming operational details. He must always keep in mind that *his* job is providing leadership for a state program that is probably developing faster and more extensively than anything he has previously encountered.

An administrative priority assignment at the state level might follow in this order:

- Staffing assignments and policy development
- Survey of labor needs and job opportunities
- Survey of potential enrollees, especially in economically depressed areas

## FOREWORD

The colleges and universities involved in some phase of vocational education in agriculture, or those who have interests in this direction, might well be apprised of the scope of the vocational education program and the magnitude of the responsibility resting on the chief administrator in his state. *Incidental* to setting forth the above facets of vocational education, the part that agricultural faculties may play in this endeavor and their relationship to the total plan is briefly intimated in this paper.

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- Review and evaluation of on-going programs
- Redirection of programs not meeting occupational requirements
- Development of new programs and pilot studies

## Curricular development

In-service training programs for instructional personnel and staff

Development of programs in research, vocational guidance and teacher training which should be in operation concurrently with other phases of the state program

As tremendous as the job may seem, the administrator should be encouraged by several conditions and factors that work in his favor. Generous financing under the liberalized provisions of Federal Vocational Acts, has made possible many innovations in traditional programs as well as the development of new ones. State legislatures in many instances have reacted well by providing additional funds for matching purposes, thus extending the benefits of the Federal Acts.

### *Administrative Staff.*

A successful administrator must assemble a well trained, experienced, and aggressive staff representing each of the major fields of vocational education. Dedication is not enough! Key staff members must have training and experience in the field in which they are employed and should be recognized leaders in their area of endeavor. They must be given authority to make decisions within their field of speciality, otherwise their usefulness will be seriously curtailed.

The state administrator must be very careful not to become involved in the operational phases of his vocational services. Likewise, his divisional directors must limit their involvement in the operational details of the local agencies with whom they must work. Administrative duties are ones of leadership, development, and, at times, persuasion. There should be well defined lines of authority from the chief administrator through the various levels of staff personnel. There should be equally well defined bounds which staff personnel must observe in their relationships with local agencies, institutions, and industries. Local agencies serve, and are responsible to, their governing boards for the types of programs they operate. State staffs must be cognizant of those peculiarities and respect them.

### *Cooperative Agreements.*

Provisions must be made for entering into cooperative agreements with the system of public employment offices in the various states to obtain occupational information regarding reasonable prospects of employment in the local communities. Information of this nature is

vital for making decisions and projections regarding vocational offerings.

Recent technological changes have created unprecedented employment opportunities for those occupations requiring special skills and training. The Vocational Education Act of 1963 authorizes the use of funds for research to determine job opportunities and labor needs. The lack of such catalogued information has been an area of major concern among vocational educators for many years.

The state administrative officer must be aware of and react to the needs and opinions of various industrial, business, and civic groups as well as the educational agencies within his state. Often special interest groups are more aware of specific vocational needs than educators by virtue of their close proximity with problem areas. Many industrial and labor executives have definite ideas of training needs and can be quite useful in an advisory capacity. However, their suggestions must be carefully evaluated and equated in terms of the total vocational program and administrative policy.

### *Evaluation of Programs.*

Persons employed to coordinate and evaluate vocational programs and policy should have the training, experience, and background which will provide an understanding of the total vocational program and make decisions accordingly. Traditional programs that have not responded to technological change and labor requirements must be discontinued or redirected toward that purpose.

A continuing follow-up study of former students is of considerable value at this point to orient program analysts. The administrator needs specific information concerning the number of vocational graduates, the number not completing their work, where they are, what they are doing, their pay scales, their rate of advancement, and their need for retraining or upgrading. This information together with an intimate knowledge of the labor market provides the administrator with the requisites for realistic program planning.

### *Ancillary Services.*

The allocation of funds for ancillary services to assure quality in all vocational education programs should be a source of lasting comfort for the administrator. Program expansion and development has been delayed in many areas due to a lack of trained personnel and reliable information concerning labor

needs. Too often expansion develops so quickly that important positions must be filled with persons who lack the background of training and experience necessary for an imaginative projection of expanded or redirected programs. In-service training programs for staff members should be organized early and conducted in a highly professional manner. Provisions should be made for cooperative training conferences including all vocational services to broaden the perspective and develop an appreciation for the total program in vocational education. These special funds will make possible a continuing evaluation of programs and services with provisions for pilot studies, teacher training, and research activities relating to employment opportunities, and labor requirements.

### *Curricular Materials and Teacher Training Programs.*

The administrator is charged with the responsibility for the development of curricular materials and teacher training programs to assure quality in vocational instruction and operational efficiency. Here again sound administrative policy is of extreme importance. Since many of these activities are conducted in cooperation with other agencies and institutions, care must be taken to insure that the distinct entity of each organization is maintained. Cooperative projects with universities and state colleges are desirable and necessary in many instances. Institutions approved by the state board have the staff, facilities, and experience that will provide a valuable extension of state vocational services. Many in-service training programs and curricular development activities should certainly be conducted in cooperation with these agencies.

Working agreements and plans for financing should be developed far enough in advance to enable the institution to make budget adjustments and schedule changes to include these programs.

Teacher training agreements clearly defining the areas of responsibility of each party should be drawn up and approved by the institutions providing such services. Contracts for vocational programs and special projects meeting state plan requirements should likewise be carefully drawn, outlining the responsibilities of each party. These documents are a source of much useful information for program evaluation and projection and should become a part of the permanent record of the office.

### *Summary.*

Any proper analysis of the myriad duties and responsibilities of the vocational education administrator

would involve a comprehensive treatise of considerable proportions. His job is big; its importance to his peoples' progress and the country's welfare can hardly be overstressed. An attempt to summarize his responsibilities in a brief resume can only point up the inadequacy of

such an effort. However, by outlining the areas of major endeavor, one can readily appreciate the scope of the administrator's job and realize the importance of priority assignment and efficient organizational procedure in administering state programs.

The administrator's success will be limited by his vision and measured in terms of how well he organizes imagery into reality.

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# Team-Teaching of Consolidated Courses in Animal Science

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One of the major trends that is current in undergraduate education in the agricultural sciences is the consolidation of courses and curricula. Courses have been consolidated, in both the animal and plant sciences, at the introductory levels as well as at the more advanced levels.

According to a study reported by Geyer (1966), approximately 70 per cent of the land-grant universities were offering a combined introductory course in animal science or had initiated plans for inaugurating such a course. Geyer further reported that very few of the non-land grant schools and departments had consolidated courses in progress or plans for such action.

A typical introductory course in the animal sciences, as outlined by Geyer, embraced subject matter relating to meat animals, dairy cattle, horses, and poultry.

Geyer, (1966) in the report on the consolidation of courses and curricula in the animal sciences presented to the conference on undergraduate education in dairy science, advanced several reasons for combining subject matter from two or more courses into one combined course. The reasons he gave were as follows:

- (1) to give the student a broad exposure to the principles of animal science, since it is not feasible for very many students to take separate courses in each of the three or four major species areas;

- (2) to reduce or eliminate duplication in subject matter;

- (3) to increase efficiency in the utilization of teaching personnel.

Geyer (1966) stated that the courses were either team or individually taught with an approximate fifty per cent distribution between the two methods. In many cases the teaching of the laboratory portion was divided among several individuals with one person responsible for the lecture presentation. Several courses were neatly divided into equal sections for the three major species groups with a specialist usually teaching each area.

It is possible that other plans for teaching consolidated, introductory courses have been proposed. It appears that some form of team-teaching would be necessary in most cases since very few individuals have the training and/or experience to adequately qualify as teachers of subject matter relating to meat animals, dairy cattle, horses, and poultry. This diverse teaching assignment should not be impossible for one individual, yet the extreme emphasis that has been placed on specialization for the past several decades appears to have created a sense of inadequacy on the part of most teachers of animal science when confronted with a teaching responsibility outside the very narrow limits of their graduate training. Certainly one should strive for depth in his speciality, but this training in depth should be accompanied by

training in breadth for the broad spectrum of the animal sciences.

Courses can be consolidated in an attempt to accomplish the broad objectives as outlined by Geyer, but as stated by Turk (1966) in a paper also presented at the conference on undergraduate education in dairy science, "The most essential ingredient responsible for the success in any proposed change is the *teacher*." Cowan (1966) in the opening address to the Conference on Undergraduate Teaching in Animal Sciences conducted by the Commission on Education in Agriculture and Natural Resources, National Academy of Sciences, National Research Council, stated that, "Great teaching is rare and good teaching is all too scarce on most campuses." He posed the question, "How do we stimulate teachers to greater effort?" He further added that if the conference delegates could in some manner generate improvement in the quality of teaching of the animal science courses listed in college catalogues that a near miracle could be accomplished in undergraduate teaching. Acker (1964) emphasized that the *beginning student* in animal science deserved top quality instruction and academic advising. He suggested that administrators choose, develop, and hold top faculty members for instruction and advising, especially at the freshman level. He proposed that attempts be made to recognize the values of a properly oriented introductory course in animal science by making sure that instructors know their fields and have reasonable and defensible goals clearly in mind.