

DIRECTION IN TEACHER EDUCATION



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(The role of American agriculture is changing and agricultural education must be able to accommodate these changes. Prof. Bundy discusses the various implications affecting teacher education.
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As an ROTC cavalryman in the 1920's, I earned the distinction of being a "gunner". My responsibilities involved the setting of the mechanism on a French 75 so that the projectile when fired, would land on a predetermined target. I was good at the job. I pleased the commanding officer, but we never shot the gun with a loaded shell. The one time that we were permitted to fire the gun was during Veishea, our annual student celebration when a blank was fired and the concussion took out about half of the windows of the Presbyterian church nearby. To some extent I believe that my "gunner's" experience in ROTC is analogous to some of our experiences as teacher-educators in agricultural education.

The fruits of our efforts, as teacher-educators, depend primarily on four factors. They are (1) the objectives that we strive to reach, (2) the methods that we involve, (3) the skill developed in using these methods, and (4) the enthusiasm that we develop in our students to use what we have taught. Our teacher-education programs are no better than the direction toward which they are pointed. We may be "gunners" shooting at imaginary targets or we may be real "gunners" aiming at very real and important objectives. My remarks this morning will deal largely with direction in teacher education with emphasis on possible changes to be made in our individual programs.

The objectives of teacher education in agriculture must be in harmony with the objectives of American agriculture. There is some question in regard to the objectives of American agriculture. One viewpoint is that we have experienced during the last thirty years, and more particularly during the last ten years, an explosion in technology which makes it imperative that we remove approximately sixty-million acres of crop

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land from agricultural use, thus bringing production in line with anticipated consumption. The second viewpoint is that we are experiencing an explosion in world population which makes it imperative that we increase production and assume greater responsibility in feeding the peoples of the world. During the past ten years vocational agriculture instructors and teacher educators in general have been plagued with the problem of lack of prestige in farming and decreased emphasis upon the need for training in farm production. It appears that we reached the depth of pessimism and are now well on the way to an optimistic viewpoint concerning the need for trained personnel, both in farming and in off-farm agricultural occupations.

The second thesis recently presented by Dr. Louis Thompson, Associate Dean of the College of Agriculture at Iowa State University suggests that instead of systematically reducing our food reserves as we have done since 1960, we prepare farm people and the general public to look upon our position as the principal supplier of food for the world and to produce as much as is needed. Farm people and others have been reminded that storage costs of farm goods have been high. Actually, these costs have represented less than five percent of the National defense Budget.

The world population in 1965 is estimated to be about 3.2 billion and will reach approximately 3.9 billion by 1975. The increase in population of 700 million during the ten-year period will exceed the present population of India or more than the entire population of the western hemisphere in 1965. Basically, the problem of feeding the world comes from the uneven distribution of population among the various countries. Asia has about seven times the population of the United States and Canada, yet it has about the same amount of land in cultivation.

Studies have been made to indicate that drought periods in this country tend to come in cycles with drought periods in other large food production countries. It is important to the welfare of the world that production be maintained so the surpluses of food goods can be available at any part of the world when drought occurs. The development of industry in many of the undeveloped countries shows promise of increasing their gross income to the extent that they will be purchasers of food from this country. Exports of corn and soybeans have increased greatly during the past ten years. In 1964 we exported one-seventh of our corn crop and more than 50 percent of our soybean crop either in the form of beans or in the form of processed materials. If we accept the thesis that we have a responsibility of feeding the people of the world, we will need to increase production during the next ten-year period at an even faster rate than during the past ten-year period. World food production must increase 20 to 25 percent during the next ten-year period to meet the food requirements of the world.

It is commonly known that more food can be produced on an acre of productive land in the form of grain, especially wheat, corn and soybeans, than can be produced in the form of livestock. Cereal crops also can be transported and stored more easily and more conveniently than animal products. As a result, it is anticipated that we will see a great increase in production of cereal crops over the world and this change can

bring about a change in educational needs of the people of this country. It is anticipated that the numbers of dairy cattle and hogs produced in this country will decrease slightly even with increased need for consumer goods, but that beef production will increase. The latter will be the result of the ability of ruminant animals to consume roughage and forage crops that can be grown on land unadaptable to the production of grain crops.

The role of American agriculture as a supplier of foodstuff for the world is changing and with these changes we must make changes in our programs of agricultural education. These changes present many implications for us in teacher education.

The first implication has to do with the emphasis placed upon production agriculture both in teacher education programs and in the communities served by teachers. There has been a tendency in some states to retool the vocational agriculture program entirely around off-farm agricultural occupations, assuming that there is no need for training in production agriculture. In some states we have assumed that there is still a great need for persons in production agriculture occupations. According to the U. S. Department of Agriculture the gross income from farming in the United States in 1964 was about 42 billion dollars. Of this amount, approximately 13 billion was net income. With about 3.5 million farms in operation in the nation it would appear that we still have a great need for individuals trained in production agriculture. The need, however, will vary with the state and with the community in each state. Nearly 1.5 million farms in 1965 are considered to be non-commercial units. Of the 1.7 million farms that have disappeared since 1949, most have been small farms with total production less than \$2,500 worth of products. These small farms amounted to 88 percent of the farms that went out of existence during this period.

Farms are becoming larger and require greater amounts of capital and more technology. Management has become the key to success in most farm operations. It appears that this will be even more true in the future. It has been predicted that the farm labor force of 7.1 million in 1960 will be reduced to about 4 million in 1980. The number of farms will be reduced from 40 to 50 percent by 1980, making a total of perhaps 2 to 2.3 million farms. Investment in production capital items such as fertilizer, protein concentrate and agricultural chemicals will increase 40 percent by 1980. It is predicted that real estate values will continue to rise. Investment in farm machinery will increase, necessitating larger farms in order to make for efficient use of investment.

The predicted changes magnify the importance of trained farm managers and farm workers. The prediction is that family farms will continue. Corporate farms have been limited due to problems of obtaining efficient personnel. It appears that we, in planning our teacher education programs, must prepare vocational agriculture teachers to be efficient in helping farm operators and workers and prospective workers in meeting the challenges of agriculture of the future. We need in our state approximately 2,000 replacement farmers each year allowing for an annual decrease of about 1 percent in farm operators. Approximately 75 percent of the

lower income farms in the nation are in 13 southern states. Until the operators of these farms can find employment elsewhere, it is very important that they be provided instruction to assist them in improving their gross income and standards of living.

The second implication has to do with providing of educational programs to meet the needs of workers in off-farm agricultural occupations. In most states we have only made gestures in meeting these needs. With a high percentage of one-man vocational agriculture departments, we have found it very difficult to provide training programs to meet these needs. Jointly teacher-educators and supervisors must develop workable programs that can be used by instructors in both one-man and multiple-man departments. A recent study of nearly 8,000 graduates at Iowa indicated that 35 percent of the vocational agriculture graduates were farming from 9 to 14 years after graduation. Nearly 15 percent were engaged in off-farm agricultural occupations. It appears very probable that in the years ahead there may be as many farm boys seeking employment in off-farm agricultural occupations as seeking opportunities to farm. In some states the number entering employment in off-farm agricultural occupations will greatly exceed the number who will enter farming.

Since the instructors in our departments have not been trained to teach competencies needed in off-farm agricultural occupations, it is very important that we make provision for this type of instruction. Changes need to be made both in our in-service and preservice training programs. We have in Iowa about 120,000 workers in off-farm agricultural occupations compared to approximately 200,000 employed in farming.

The third implication of change in American agriculture for teacher education in agriculture has to do with change in curriculum content in agricultural education. A recent study completed by Dr. J. D. McComas of New Mexico State University indicated wide variations in curriculum requirements among the forty-six institutions studied, but little evidence that changes were being made to meet the changed conditions in American agriculture. Semester credits in technical agriculture required varied from less than 10 to more than 60. Semester credits in professional subjects composed of professional education, agricultural education and psychology varied from less than 10 to more than 50. Thirty-eight institutions required from 11 to 20 semester credits in agricultural education, 27 required from 6 to 15 credits of professional education, and 31 institutions required from 3 to 9 semester credits in psychology. Nine universities required no psychology. Twenty-eight of the institutions required less than 10 credits in the humanities.

In a study made by Jabro¹ in 1962, it was found that 31 of 43 institutions studied required courses in farm management and only 7 required courses in farm business records and business analysis. Only 3 institutions required courses in agricultural finance. At that time, no institutions were providing instruction in off-farm agricultural occupations as separate units of study. Only 25 institutions required courses in general economics and 15 in government and political

¹Jabro, Salim H., "Curricula in Agricultural Education at the Land-Grant Colleges and State Universities in the United States," Ph.D. Dissertation, Iowa State University, 1962.

science. It is possible that some improvement has been made since that time, but these data indicate a need for careful analysis of our various curricula in order that they meet the needs of our individuals as they become teachers of vocational agriculture.

The question arises as to whether it will be possible to provide at the undergraduate level, the competencies that will be needed by future teachers of vocational agriculture. Some states have moved toward a fifth year program. Others are adding an additional quarter or semester to the present program. It is my opinion that we need to have breadth in our educational program but this can be accomplished better through the inclusion of opportunities to take high level specialized courses rather than to fill the curriculum with survey and general introductory courses. As multiple teacher departments are developed we will need more flexibility in curricula in order that some students may become specialists. A careful analysis of curriculum content is very much needed. Changes can be made within existing courses or by the deletion or addition of courses.

I have already referred to the fourth implication: We must greatly expand the in-service training program for teachers of vocational agriculture. We have evidence that it isn't possible to provide all competencies needed in the preservice program. With changes that are coming about in agriculture, teachers of vocational agriculture must have an opportunity to continually improve their competence both in regard to subject matter and methods. Several forms of in-service help may be provided. Up to the present time we have provided help largely through credit courses offered during the summer or off-campus during the year. These methods should be continued but we also need other types of in-service programs. Specialized workshops for small groups should be made available throughout the state as the need arises. Conferences for larger groups of teachers may make for more effective use of the time of teacher educators. We need to provide more consultant assistance than we have done in the past. Several states have provided specialists in subject-matter fields as means of improving the instructional programs in local departments. The five or six men in Illinois doing this job and the 10 or 12 men in the State of Texas are examples of this type of endeavor.

It is my opinion that one of the chief causes of the departure of teachers of vocational agriculture from the field has been the workload. A recent study completed by Dr. Hoerner of our staff indicated that those teachers in Iowa who left the teaching profession did so because of workload, lack of advancement and to improve income. We have scarcities of teachers in each of our states. It is possible that we could alleviate the situation by giving teachers more help so that their work would be more satisfying to them.

Instructors are very much in need of assistance in developing programs related to competencies needed in off-farm agricultural occupations. Unit and course outlines, references and instructional materials should be made available to them either by the teacher education or supervisory staffs. I will not quarrel with supervisors in regard to who should

provide these services. Teacher educators are associated with colleges of agriculture in most cases and have ready access to both resource persons and resource materials. The job needs to be done and if we do not add staff and do it in our teacher education departments, it will have to be done by someone else.

All signs point to greater emphasis in post-high school educational programs in the future. In practically no state have we reached more than 10 percent of our farmers in adult school classes. In most states we are reaching a considerably smaller percentage in Young Farmer classes. The development of area vocational-technical school facilities is just getting underway in many of our states. The attitude of school administrators must be changed in many cases before we will be able to develop comprehensive programs in these fields. Local school districts have been hampered financially and have been able to provide only the minimum essentials of elementary and secondary education. Our public schools must assume greater leadership in providing educational opportunity at the post-high school level. This means that we will have to up-grade our training programs, both at the pre-employment and in-service levels. Jabro found in 1962 that only 17 of the 42 institutions studied provided special methods of instruction for the Young and Adult Farmer phases of the program. It is assumed that some instruction was provided in other courses. It has been said that there has been more new technology developed in agriculture in the last 30 years than in the 200 years previous. It has also been said that knowledge is being doubled each ten year period. This means that it is imperative that we develop vocational agriculture teachers who can help men acquire this new information and new technology and adapt it for use on their farms or in their places of business. We must assume responsibility for providing training for workers in off-farm agricultural occupations.

New directions in teacher education imply some changes in criteria for the selection of students in agriculture education and also changes in supervised teaching experience. In the study made in 1962, 30 institutions required no more than six weeks of student teaching. At that time 12 departments required ten weeks or more. With increased emphasis on participating experience with Adult and Young Farmer classes and experience in teaching post-high school technical agriculture, as well as experience in teaching off-farm agricultural occupations, it appears that the student teaching period will need to be lengthened, or a part of this training made post-baccalaureate.

Since it will be difficult to find student teaching centers that can provide all desired experiences, it may be necessary for us to send trainees to some centers to obtain certain experiences and to other centers to obtain other experiences. Multiple-man departments probably can best provide the experiences desired but may not be the best training centers particularly in states where most beginning

teachers will not become associated immediately with multiple-man departments. With heavy workload in the agriculture department, it would seem desirable for us as teacher educators to do everything possible to increase greatly the number of multiple-man departments.

The targets that I have enumerated in describing a new direction in agricultural education point to an expanded program of vocational education in agriculture and increased demands on the part of teacher-education facilities. Enrollments in agricultural education will need to be greatly expanded and we will need to develop programs for the certification of special instructors particularly for the post-high school technical school programs. The new direction will greatly increase the workload, both at the undergraduate and graduate level in our teacher training institutions. We will need to add staff and to retool staff. Specialists from other disciplines may be valuable additions to our agricultural education staffs in the retooling process.

To summarize, it seems to me that we need to take a good look in each of our states at our existing programs in vocational agriculture and teacher education to determine the extent to which they are parallel to the new philosophies concerning American agriculture. We need to greatly develop our research, pilot study and evaluation programs to determine the proper balance between production agriculture and training for employment in off-farm agricultural occupations. We need to carefully evaluate the curricula in agricultural education and the content of each of the courses included in the curriculum. We must greatly expand our in-service training programs to teachers of vocational agriculture both in the form of instructional programs and the supplying of instructional materials. We may need to draw upon personnel from other disciplines to meet future needs. Adult and Young Farmer programs must be greatly expanded and more attention given to post-high school technical training programs. With these changes and increased enrollments, we can provide adequate personnel for an expanding program in vocational education in agriculture.

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When you reach the point in life where you no longer question, you have either arrived or are a fool, the latter being most likely.

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We have met the enemy, and we are no more.