Stories in Pictures

by Richard Douglass

COOPERATION IS NEEDED FOR QUALITY PROGRAM

Representing state level cooperation (upper left) is Larry G. Nelson, State Supervisor of Vocational Agricultural Education. A local administrator (left) is Mr. Gilbert Hastedt, Principal of Riggs Senior High School, Pierre, S.D. Teachers of Vocational Agriculture (lower left) are Gary Greer, left, and Larry Vermore, right. Both are instrumental in fostering cooperation at Pierre, S.D. They are developing the students for quarter units to be taught this coming year at Riggs Senior High. The finished product is shown above. (Photos from Larry G. Nelson)

THEME—INSTRUCTIONAL TECHNOLOGY
Multiplication is more important than division in many different settings. It is especially true for the teacher who is attempting to individualize instruction. An hour of group instruction for 15 students suddenly becomes four minutes each when students are allowed to learn at their own rate and study different subject matter. Allowing for different individual abilities, in those cases where it makes a difference, is a sound idea; therefore, the teacher should always be searching for support aids, both human and as a self-instructor, to assist with the instruction of the student.

Self-instruction is facilitated by devices as old as and as involved as the textbook and as new and complicated as the computer. Self-instruction is facilitated by commercially manufactured and prepared instructional aids. The hardware or equipment provided by commercial sources seem adequate and far exceeds what the typical high school student can afford and what materials for use with and without the machinery is not as adequate and is not likely to become as adequate. The market for teaching aids and materials in agricultural subject matter is relatively small and is diminished further by geographical influences upon much of agricultural subject matter. This fact increases the need for the teacher to prepare self-instructional materials for his students.

The teacher should organize and systematize what is available in such a way that the student can use it to instruct himself. Organizing and systematizing the subject-matter file cabinets so individuals can use them is a modest beginning. A departmental library and a curriculum center at the high school level at which students can find, use, and return equipment and materials should not be an impossibility.

Use of paid teacher aides received considerable attention a few years ago, but now is seldom mentioned in vocational education at the high school level. If a place cannot be found for paid teacher aides, there will be an even greater need to use instructional technology to expand the amount of teaching and learning that takes place per professional teacher.
Guest Editorial...

1. Many certain programs by the identification of "core" content. These courses must hold enough commonality to justify the homogenization of students from several program areas. Students may then delay their career choices until later in their instruction. Vocational courses can be effectively used for certain skill areas.

2. Grades must be given, affect a liberal withdrawal policy and the premise for awarding a non-attendance grade. The assignment of non-quality grades and the subsequent acrimums, are the better hours in pursuit of a degree parallel the student in time only. Frequently a student who returns to a course after receiving an N or W successfully completes the course with A, B or C. Not only does this provide a transcript blunder but also holds the advantage of double exposure to course materials. This may ultimately lead to greater understanding and a broader platform for technical competence.

Start a learning laboratory which caters to both the accelerated and the remedial student.

3. Start a learning laboratory which caters to both the accelerated and the remedial student. Such a lab should support the classes a student is taking and be manned with qualified instructors. Students should be allowed to visit the lab for individual help independent of credit or contract for credit through a variable credit structure.

4. Start a test center where students are responsible for scheduling their own tests. This has the advantage of erasing the time barrier for exams. Further, the center may offer protests which determine level of proficiency in subject matter. If mastery levels have been established, this could excise these students who have performed at the mastery level from some subject areas within given courses.

5. Develop some courses using a derivative of the computer-tutorial system—that being audio-tutorial instruction. Consider dovetailing this system with an open, unmonitored laboratory, where each is a part of the instructional system. Of course some "bet lads" and machine-oriented labs will require qualified instructors. Provide "pin-off" options for students who have acquired scorable skills but who do not meet academic degree requirements. Vocational courses will fill this need for certain skill areas.

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INCREASED LEARNING: THE GOAL OF INSTRUCTIONAL TECHNOLOGY

Jasper S. Lee
Virginia Polytechnic Institute and State University

The true measure of educational practice is best evaluated by determining the extent to which learning is enhanced. The area of instructional technology is for the specific purposes of increasing learning. In effect, through instructional technology, the teaching-learning process is to be made more efficient. Teachers in agricultural education over the years have made use of oral instructional practices. Yet, how many schools were considered to be leaders in areas of instructional technology?

In recent years, the area of instructional technology has grown rapidly and has become a major force in shaping the structure of education. New technology has arisen to describe an area formerly restricted primarily to individual media. Some of the new terms include "instructional systems," "adaptable learning packages," "innovative curriculum," and "interactive." These newer terms set the stage for broader and more inclusive use of audiovisual aids in instructional technology.

Innovative Curricula Defined

Instructional technology is a systematic planning process for teaching and learning, encompassing all the variables involved in the effectiveness of educational instruction. Instructional technology is process-oriented. As such, it is not the application of science-based knowledge to educational planning and problems. Instructional technology remains itself in the focus of study that is to understand the educational goals, philosophy and system of the school, and the instructional goals, philosophy, and system of the school. Instructional technology stems from the philosophy and system of the school, and the instructional goals, philosophy, and system of the school. Instructional technology stems from the philosophy and system of the school, and the instructional goals, philosophy, and system of the school. Instructional technology stems from the philosophy and system of the school, and the instructional goals, philosophy, and system of the school.

Innovative technology is a process which takes into account the philosophy and system of the school, and the instructional goals, philosophy, and system of the school. Instructional technology stems from the philosophy and system of the school, and the instructional goals, philosophy, and system of the school.

November — Improving the Profession — The Job and the Teacher
December — Better Teaching and Learning
January — Urban Agricultural Programs
February — Programs in Natural Resources

Themes for Future Issues

March — Utilizing Resources in Teaching
April — Informing the Public
May — Teaching the Disadvantaged and Handicapped
June — Women in Agricultural Education

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CONCLUSION

The changed role of the teacher has brought with it new challenges. Attitudes in teaching are being shifted from the teacher as an information giver to the learner as the focal point. This process of education. This teacher student relationship is also changing. The student is increasingly being involved in the active direction of his own learning. The teacher is no longer the expert, but a guide, and as a guide, he must work to develop a more creative role. These changes have brought about the need for new instructional systems, as well as new school personnel, to have at least minimal level of the area of instructional technology.

Many school systems are employing specialized personnel in the area of instructional technology. These personnel are responsible for the organization and administration of the resources used by teachers in providing learning activities and assisting in designing appropriate instructional programs. Teachers of agriculture must use the skills and services that are offered to them.

The teacher of agriculture must also recognize another trend which instructional technology is fostering: the instructional activity can be individualized to meet the needs of each student. This means that the teacher no longer has to work with a group of students working at the same pace, and the teacher can now provide instruction to the individual student.

Learning resources centers are being established to meet the needs of students in various educational environments. Learning resources centers contain not only books, as found in traditional libraries, but also the newer learning tools, such as self-instructional systems and devices for the use of audiovisual media. Persons operating such centers must not only have training in library administration but also in the various aspects of instructional technology. The kinds of instructional materials available are also widely changing. The materials are often available for independent use by students at any time during the school day.
Leaders in education are sometimes difficult to schedule at convenient times. It is often very possible to schedule these people but not at the times they are needed for specific presentations.

The Department of Agricultural and Extension Education at the University of Maryland encountered a similar problem. On the staff of the University of Maryland is Dr. Kenneth Hoyt, Professor of Counselling and Personnel Services and one of the nation's foremost experts on career Education. Dr. Hoyt, currently on a leave of absence from Maryland, is serving as Associate Commissioner of Education for Career Education.

Therefore, the possibility of getting Dr. Hoyt to speak before an individual class seemed remote. However, the dilemma was solved without alteration of class schedules or Dr. Hoyt's busy schedule.

The solution was video taping an interview with Dr. Hoyt. The half-hour presentation, produced by the author and Mr. Ulysses S. Greer, Jr., another instructor in Agricultural Education, was taped in the audiovisual center of the College of Education. The interview covered career education in the total school curriculum. There was a special emphasis given to the place of vocational agriculture in the total school curriculum.

The tape was first viewed by a group of vocational administrators. Since its first presentation the tape has become very popular and there is a continual demand for usage.

Additional copies of the tape had to be prepared as sufficient numbers were available for showings. The tape has been used in education classes during the day and a community college in the same evening. A copy is available in the video-tape collection in the Undergraduate Library of the University for individual student viewing.

Presentation of the tape at the North Atlantic Regional Conference and Research Seminar on Agricultural Education at the University of New Hampshire expanded the demand even further. At the seminar the tape was presented over the New England Center for Continuing Education closed-circuit TV system. Additional copies of the tape have been prepared and sent as far as the University of Vermont.

After the original preparation of the tape, a new introduction was prepared because of Dr. Hoyt's change of description. His new position as Assistant Commissioner of Education makes the tape even more valuable as a teaching aid.

Implications for Education

Tape libraries can be developed at local high schools. Strategies similar to the above could be used by individual vocational agriculture departments to prepare presentations from extension specialists and others from around the state for specific classes and programs.

Teacher education departments at universities could make similar use of video tapes. National FFA Officers can be taped when they are on their "Good Will Tours". State public speaking winners, outstanding agriculture teachers, and national experts can all be taped, aired and shown to classes. Copies can be placed in a library where students can view the tapes again for study purposes. But most important of all, many of the experts can enrich the classroom presentations in agricultural education at the time the teacher wants them.

The experience of the University of Minnesota Techni
cal College-Weasca has been that there is a great deal of instructional material available for a technical college for agriculture. What then, is the

Learning Resources Center—
Instructional Support for Faculty

Jack Lindner, Supervisor
Learning Resources Center

The materials consist of television programs, 2 x 2 slide sets, transparency sets, posters, charts, line drawings, mounted pictures and photographic slides. Although time consuming, in the case of the programs prepared for the collection, allow instructors to continue to update materials and stay abreast of the changing technology which is affecting agriculture to such a degree. Other methods have also been used to provide reference and instructional materials.

An agreement with Mankato State College to provide government document services to Mankato State students was worked out. They are housed, on long-term loan, in the UMW Learning Resources Center. Mankato State officials found that they were running short of room and were considering dropping some government publications in the agricultural classification. Now the materials are still available for Mankato State College needs.

A wide variety of pamphlets and extension bulletins from Minnesota and other states are housed in the LRC as well. These are displayed in open shelving and through a vertical filing system.

Currently agricultural businesses and organizations are being requested to provide copies of their agricultural literature, house organs, and other publications to the LRC. There is a tremendous volume of material in this area which, too, is displayed in open shelving. Although the material is not indexed, it is being retained to establish a historical selection of agricultural materials. It will also provide a resource for the agricultural communication major and for prospective job seekers who want to know more about the field.

To avoid costly duplication of materials, the college has not purchased much in the categories of humanities, fiction and other general materials even though they are needed by students. Instead, the extensive collection of the Le Sueur-Weasca Regional Library is used by students and staff. The book-plate indicates that the LRC is able to bring some of these materials to the campus.

If certain materials are not available in the LRC collection or from the Le Sueur-Weasca Regional Library, they can be requested through MINITEX (Minnesota Investors Tele-

Left to right: Elvian Monaghan and Jack Lindner (Mankato State University) watching Dr. Hoyt's presentation on career education.

From left to right: Mr. Elwyn A. Greer, Instructor, Department of Agricultural Education and Assistant Student Aid, University of Maryland.

Dr. Kenneth Hoyt, Associate Commissioner of Education for Career Education, U. S. Office of Education.

Mr. Jeffrey A. Owings, Graduate Assistant, Department of Agricultural Education, University of Maryland.

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C(Conclusion on page 92)
Extend Your School to the Community and the University

C. L. Nelson and A. J. Klavon

University of Maryland has one answer to the “enemy-critics”—extending the University by phone. In the spring of 1973, the Department of Agricultural and Extension Education initiated the use of the conference phone in graduate course offerings and during the fall of 1973 to extend course to another part of the State.

Conference phones are available for rental from the telephone company. These units have a built-in amplification system that is suitable for a large classroom. They have two microphones for listeners to ask questions of the speakers, and they are portable for use at any location having the necessary phone jack. It is possible to have people from various parts of the country or state available on a pay-as-you-go at a cost of a conference call only. Individual and panel presentations have been made at the University of Maryland from as far away as Wisconsin.

The initial cost of a conference phone is the installation of a phone jack. This is easily accomplished in most cases. Long distance calls are considerably cheaper than making mileage for in-state people to visit an individual class. For example, it has been found much easier to have people take part in classes and meetings when their time will be limited to their presentation only and when they can remain in their offices. This has been the case while utilizing personnel on the Maryland campus. It is possible for the guest speaker to present multiple or consecutive presentations. This can be accomplished from one office or home.

Easton High School, on the eastern shore of Maryland, was the site in the fall of 1973 of the extension of RLED 427, Group Dynamics in Extension and Continuing Education, also being taught at College Park 73 miles away. The class was taught at Easton during all but two of the classes to conduct discussion and to answer questions. The course professor, Dr. Emerz R. Rybien, conducted the class from Easton on one occasion.

The principal and vocational agriculural instructor of Easton High School saw additional opportunity in the addition of the conference phone to their school. The phone has been used to hold meetings of high school students with University of Maryland admissions and student aid officers. The students at the University and high school conduct the meeting from a phone in College Park. Additional presentations are being scheduled with volunteer specialists from the College of Agriculture on topics of general interest to high school students and of special interest to individual classes in the high school.

Agricultural Education classes at the University of Maryland have used the conference phone to enhance class content. Calls to individual agriculture teachers around the state as well as to national officials have been used to receive opinions and answers to student concerns. When a series of questions arise during a National FFA program last spring, a call to Mr. Coleman Harris, National FFA Associate Executive Secretary, was made and the questions answered in a two-minute discussion. It would have been impossible to invite Mr. Harris to visit the University of Maryland campus for the input needed in the introductory class. However, the conference phone allowed students to get the benefit of Mr. Harris’ expertise without imposing unduly on his schedule.

Use of conference phone has great potential at the university level as well as at the local school. High school could make use of the phone to talk to people in their own community.

IN-SERVICE TRAINING FOR THE FORD 4000

C. O. Jacobs, Professor  
Agricultural Education  
University of Arizona

A shortage in the supply of materials has forced the management of Ford Tractor Operations, Ford Motor Company, to temporarily discontinue the practice of providing the Model 4000 tractor to power unit classes at all training schools. Since the concept of the program, it is expected that some 1,767 units, valued at $7,400,000, have been provided to vocational agricultural programs in high schools, area vocational schools and community colleges throughout the United States.

In an effort to deliver to the local educational bodies of the University of Arizona, a new and improved model tractor, the Model 4000, was recently tested and introduced to educational directors.

A department of materials was made by giving the tractor to educational directors in order to provide the necessary information. Plans are available (see article).

Although temporarily discontinued, Ford Tractor Operations has scheduled the 4000 tractor in schools. The unit is made operational and functional for mechanical training by constructing a support framework to accommodate the necessary accessories. Plans are available (see article).

University of Maryland personnel are carrying on a meeting for college-bound students in the Eastern Shore area. Left to right: Alan J. Klavon, Instructor, Extension Service, University of Maryland; and Edward J. Eggles, Agriculturist, Extension Service, University of Maryland.

Agricultural Education is the coordination of the many activities that make agriculture possible as a way of life. This coordination is important if the individual is to be successful in his work. Agricultural Education helps the individual to develop the skills and knowledge necessary for his work, and it helps him to understand the social, economic, and political aspects of agriculture.

The agricultural education program is designed to provide the individual with the knowledge and skills necessary to succeed in agriculture. The program includes instruction in the sciences, mathematics, and social sciences. It also includes instruction in the practical aspects of agriculture, such as bookkeeping, machinery, and livestock management.

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The trend toward increased use of instructional technology is definitely a significant area of change in education.

In a recent survey in Virginia, David M. Moore and the author found a definite trend toward the increased employment of personnel in instructional technology by the public schools and community colleges. The study revealed that the number of such persons employed would almost double in the next five years. (There are currently 132 persons employed as technologists and computer technicians in Virginia.) Many of these persons are employed by school systems which also have agricultural education programs. If the trend indicated by this study is true nationwide, there will be a considerable increase in the use of instructional technology over the next five years.

Important Areas for Agricultural Education

Several areas of instructional technology are emerging in agricultural education. Some of these have been used in various formats over the years and are changing in accordance with current trends in education. One of the most important areas is self-instruction, a procedure in which students progress through a learning activity or series of activities, at their own rates of speed and more or less on their own time.

This is sometimes known as individualized instruction, but the two are not necessarily synonymous.

There is considerable diversity in the way in which self-instruction is administered. Written learning packages which can be completed at school or at home may be used. Many local school systems have established workrooms where students use audio tapes and a variety of support materials. The success of existing instructional programs utilizes a form of individualized instruction developed specifically for the student to engage in learning activities designed to develop the competencies needed to achieve job entry in pursuit of his occupational objective.

Another aspect of instructional technology currently increasing in use is the computer. Students are being taught to develop and establish a level of acceptable performance students must achieve before advancing to the next level or area of education. The development of the computer is a major step forward for students with special needs, especially the disadvantaged and handicapped, are best served when instructional technology is applied. Learning activities can be designed around the individual needs and capabilities of students. Activities which improve the learning capabilities of such students can be developed and at the same time provide needed remedial instruction.

Summary

The goal of instructional technology is to increase learning. Through a systematic approach to education, objectives are specified and the necessary teaching-learning activities are developed to ensure achievement of objectives. The system described here is one which has been developed through the use of a single approach — the identification of procedures which are required to achieve the goals of the instructional system. It may be that agricultural education will undergo some change in order to accommodate the newer technology across the education system.

The spray calibration demonstration provides a unique portable and adjustable visual aid for teaching machine calibration.

James H. Whiteaker*

Drifters are faced with several calibration problems every year. Fertilizer and lime must be applied at a suitable rate, but the calibration must be accurate and checked to get optimum results. In order to check these equipment, there is probably no other job on the farm more critical than that of calibrating the sprayer. If the calibration is incorrect, the results are not satisfactory and the money has been wasted. If the rate is too great, the results may be catastrophic. The sprayer can be made to over- or underdeposit and waste a significant amount of the spray material.

The demonstration is assembled with a cone-half hopper 1750 rpm electric motor, a nylon roller pump, an adjustable pressure regulator and a pressure gauge. A high pressure jet agitator and a waterless wetting agent return reduces the effect of varying flow rates on the pressure. The cone roller tips are easily interchanged and the boom height and nozzle spacing are readily adjusted.

In using the demonstration, the only assumption necessary is field speed. All the others have been determined accurately or a value may be determined to fit with mixed parameters. As the demonstrator has all of the components found in an actual field sprayer, it serves to illustrate the function of each part of the sprayer and the interaction between those parts.

Finally, in learning to calibrate a sprayer, the same principles used in calibrating other farm implements are involved. Consequently, the sprayer calibration demonstration provides practice in a procedure of rather broad scope.
Fitting Vo-Ag Programs into the School Organization

Gay K. Cain
State Supervisor, Vocational Agriculture
West Virginia

There are probably as many different school programs as there are states in the United States. All of these have strengths and weaknesses, and I am sure no one state follows a particular plan. One plan may fit a local situation, while another plan might be more desirable in another community. Some states are divided into local school districts, while others have county-unit systems. Some of these school districts and county-unit systems operate on a 5-3-5 plan others on a 5-3-4 plan, and still others on another plan.

With the increasing number of area vocational schools come problems of organization with the local school systems. Students' interests are divided between their home high school and the vocational school. The school counselors also have to decide which course the students are going to take. This makes giving up participation in the local or athletics. Every effort should be made to help the students in these activities since they are important in the total development and growth of the individual.

Vocational Agriculture has traditionally been a four-year program, while other subjects have had two- and three-year programs. The State Board of Education and the Department of Education have been geared to a four-year program. It has been necessary to make changes in the FFA to accommodate students who may be enrolled for one, two, or four years. The awards program has been broadened to provide incentives for students in the specialized training programs.

A four-year production agriculture curriculum is required to operate efficiently in a comprehensive high school. There are numerous problems involved with a four-year, production agriculture program in a vocational school where students are transported to the school for one-half day. It is difficult and in some cases impossible for freshmen and sophomores to get their required courses and attend the vocational school for a three-hour block. It is highly questionable whether they need this amount of instruction in the first two years. It seems to be most desirable to keep the production agriculture or basic vocational agriculture program in the local high school and organize and fit specialized courses in agriculture and agriculture into the area vocational school.

There are many problems involved in the proper planning of a program in agriculture, where agriculture programs are established in the local high school and also in the vocational school. One of the greatest problems is a meeting tint which is convenient to both the morning and afternoon students. Most vocational schools want vocational youth organization chapters and in many instances this clashing is from the FFA.

Purdue School of Agriculture, Office of Residential Instruction, AGAD Building, West Lafayette, Indiana 47907.

If you are planning to go to college, take high school physics and French if you can, but don't neglect to enroll in vocational agriculture.
Nigerian Agricultural Students Have Poor Image of Agriculture

John U. Okorie

The major occupation of a majority of the Nigerian population is farming. A characteristic farming pattern in the area is what many authors have designated as "land rotation cultivation." Each plot of land is cultivated to exhaustion after which it is abandoned and left to fallow for a period of 3 to 5 years.

Generally, most of the farmers cultivate only small- or moderate-sized plots, usually scattered in different locations. The major farming implement is the hoe and machete. Thus, the amount of land under cultivation in a given year is greatly limited.

This humid rain forest area is characterized by the following commercial crops: oil palm, cocoyam, and rubber; and the principal food crops consist of cowpea, soybean, maize, rice, cowpeas, beans, banana, and plantains as well as a number of tubers and roots. Apart from the foregoing, there is no other crop grown. Agriculture is generally looked down upon, hence, the youth have no inclination to associate themselves with farming. Rather, the young men of today are willing to follow in the footsteps of their fathers who have failed in other occupations. Noticeably, there is a passive feeling by the younger generation towards the elderly citizens who have little or no alternatives other than farming.

Therefore, any attempt to curb the massive exodus of the youth from the farm area would require that, if their indifference to farming will involve making all forms of agriculture more attractive. Undoubtedly, this could be achieved by a variety of ways, namely, by the introduction of improved farming implements, high yielding crop varieties, improved livestock breeds, better cultural practices and by lessening the amount of physical labor involved in farming. The increased leave to the national economy at the hands of the elderly citizens without replacement by young farmers is the perpetuation of the inefficiency in production of the much needed food and fiber for the increasing population. Thus, without injection of fresh blood into the present system of farming, the development of agriculture will undoubtedly continue to be a hindrance to the development of other sectors of the country's economy.

A display of the principal food crops of Nigeria consisting of yam, cassava, maize, plantain, rice, and flaked papaw.

TIME FOR THE UNCONCERNED

J. C. Atkinson
Teacher Education, Louisiana

How much time and effort should one expend with the teacher who is cold and indifferent, and possibly resentful of the teacher, the educational programs and the school itself?

This is a problem which constantly worries educators. Especially is the young untrained student confronted with this situation. It is easy to rationalize that since a student is not interested in school the student merely consumes time that could be used elsewhere more effectively.

When one can rightfully say that enough time has been expended on the individual? Realistically one should continue to work with and cultivate the student as long as there is need for the programs can meet. The need of the student should be the basis for devoting upon the effort to expend, not the degree to which he responded to efforts put forth.

It is recognized that to make progress with the student the teacher must have a simple task. There must be a change of attitude which does not always come easily. Indifferency is not really broken down. A continuing effort is required of the part of the teacher to maintain the equality and even at times over-ability.

The student usually is not aware of his condition. It takes the teacher to see things that are not conducive to development of good citizenship or to the mental and physical advancement of the students. To do this they may have to be cultivated extensively. Those who play the role in "breaking the ice" and showing out the reluctant ones. Unscheduled events occur, also, in which one can find opportunity to show recognition of the individual and to demonstrate concern for him. One's actions and attitudes often mean more to the youth than do the spoken words.

Some of the problems faced cannot be solved by the teacher of agriculture alone. And realistically, he should not attempt to do the entire job. Advice, counsel, and material assistance should be secured from other teachers, and in some cases from persons in the community.

There is no guarantee that the one for whom we are concerned will ever respond affirmatively. It is to be expected that some will not, but it is our duty to try and do everything we can do for everyone.

The purpose of the instructor is to bring about a modification of the understanding, behavior, and attitudes of individuals. This requires effective instruction and inspiration. The presentation must be clear, understandable and related to the life of those receiving the teaching.

It often happens that a relationship between the attitude and the ability of a student to communicate effectively with those he is attempting to influence. It is most difficult to convey one's true feelings from those whom one is in close contact.

In working with the unconcerned as with any other group, the teacher needs some definite and specific goals. Without this, one direction is as good as any other. The good teacher, it is said, is known by his aim, not by his equipment. Ways and means required to reach these objectives should be devised once there is a clearcut end to be sought. The follow through is dictated by the results desired. It is imperative that the teacher knows each person's interests and personal background. It is the personal knowledge will indicate the methods to follow in reaching the students. Many of these youth have had experiences that are not understood by others and frequently not by themselves. Their adjustment may require much more than just sympathy. Ill-advised remarks although made with good intentions, may adversely affect the youth.

Meeting the needs of this "neglected" group requires patience, insight, and concern. Emotional assistance may be one's greatest need. This can best be expressed in a personal atmosphere of friendliness. Building unity within the class to include all is a stabilizing influence.

(Concluded on page 88)
Most agricultural educators are aware of and concerned about safety as it relates to their occupation, their students, and their institutions. Few very few agricultural teachers fail to include safety instruction in their educational programs directed to in-school and out-of-school students. Yet, the accident rate in agricultural occupations has increased in the last decade, while the rates in other major industries has decreased. Because of the increased awareness of the need for safety in agricultural occupations, teachers of agricultural students, introducing machinery and equipment for use, should be patient and make the teaching of agricultural students on graduation, and re-alignment of the agricultural curriculum meaningful and valuable in their overall agricultural programs.

In the study, agricultural students were requested to evaluate several occupations. The result showed that farmers, medical doctors, and engineers were ranked last. On the other hand, the results showed that the high ranking of farmers does not imply a willingness or desire to choose farming as a career. Farmers were judged principally from the standpoint of men in the society in their role as food growers and fiber producers. In contrast to the farmers, the high rankings of medical doctors and engineers were emerged from the high esteem in which students have the two professions. Their response included both willingness and desirability to become members of their professions.

On the question of occupational preferences upon graduation, 43 percent of the students expressed their interest in agriculture. In the author's opinion, this percentage seems too high. This is due to the lack of popular patterns for students to enter into farming upon completion of secondary education. Usually many parents desire their children to secure employment with the government or other agencies rather than farming. Others will continue their education beyond their educational training. It is the author's belief, that the re-vamping of the section of agriculture branch of the secondary education curriculum would not seek outside employment but would safely on-farm their livelihood.

A number of suggestions were made by the students for improvement of their secondary agricultural programs. There was a demand for well-trained agricultural teacher that can make the subject appealing to students. A great deal of emphasis was placed on the provision of textbooks, laboratory equipment, library and research funds necessary to conduct an effective and comprehensive final examinations.

While the market quality of these materials estimated, would affect other students and students who have the same in the community. In addition, they called for the introduction of a series of lectures to help develop the bad image of agriculture in secondary schools.

The need for government support should be increased by every means. In this study, however, there were variations of need. Among those frequently mentioned were, encouragement for student tours and trips, provision of irrigation water, financing and encouragement for research, and the introduction of new machinery and equipment for use in school farms, employment of agricultural students on graduation, and realignment of the agricultural curriculum.

Why Should Agricultural Educators Be Concerned With OSHA Regulations?

The uncontroverted trend toward safety regulations by the Federal Government is increasing. The act is designed to provide for the safety and health of employees. The regulation of farm machinery and equipment for use in school farms, employment of agricultural students, introduction of new machinery and equipment for use in school farms, employment of agricultural students on graduation, and realignment of the agricultural curriculum.

The OSHA standards provide a comprehensive guide for the safety and health of employees and employers, and may be considered a safety and health "Bill of Rights."

To ensure a safe workplace, severe accidents will occur as a result of OSHA standards having been met. This should be a high priority goal for agricultural educators. In addition, it is probable that teachers and employers will be less likely to be injected in incidents of accidents involving students the OSHA standards for safety and health. 1

Sixth, individual state is encouraged to enact its own OSHA legislation. Before federal control is relinquished, however, several regulations must be met. One is that each state must establish and maintain an agency for the purpose of enforcing the OSHA standards. An agency should be established for the purpose of enforcing the OSHA standards.

Considering the above statements, it seems that compliance with OSHA standards on agricultural educators and institutional goals is now desirable and could soon be compulsory.

How Can Agricultural Educators Implement OSHA Standards?

According to a study by the U.S. Department of Labor, 1010,470 public school teachers and 1,000,000 private school teachers are employed in the United States. The study found that 57% of teachers are employed in public schools, 43% in private schools, and 65% of teachers are employed in secondary schools. The study also found that 39% of teachers are employed in urban areas, 27% in suburban areas, and 34% in rural areas. The study found that 65% of teachers are employed in primary schools, 34% in secondary schools, and 1% in special education schools.

It is the responsibility of the agricultural educators to ensure that the safety and health of their students are protected. This can be achieved by implementing the OSHA regulations. The agricultural educators should be trained in the procedures for implementing OSHA regulations. They should also be aware of the OSHA standards that apply to their specific field of study. The agricultural educators should be prepared to handle accidents and incidents that occur in their classrooms and on their farms. The agricultural educators should also be familiar with the procedures for reporting accidents and incidents to the local authorities. Finally, the agricultural educators should be prepared to handle legal issues that may arise as a result of OSHA regulations.
Horticulture at Deming, Washington

By Grace Munsie

Mr. Jay Booth, a Vocational Agri-
culture teacher at Mount Baker High School in Deming, Washington, had a dream for his students. He wanted to teach horticulture in a workable greenhouse-classroom, with a career educa-
tion dimension. Mr. Booth presented his plan to the superintendent, William Castile, who directed this achievement and helped it become a reality.

The structure is a thirty by ninety feet commercial facility, but only from the outside can you discern it is a greenhouse; the entire facility was designed by Mr. Booth to facilitate student traffic, to be student oriented. Mr. Booth feels, “that a greenhouse is a tool itself to propagate plants, and in the best possible way by students.” Here a class of twenty students can work together.

The way commercial greenhouses are designed would not suit classroom needs. “For one thing,” Mr. Booth explained, “the aisles are too wide and do not lend themselves to stu-
dent traffic.”

Mr. Booth jointly referred to Mount Baker’s "growing" process, but in horticulture and related nursery skills.

Inside the building, Mr. Booth divided the space into separate growing areas, both of which are separated by heat and moisture controlled. The former, kept cool, is used for growing seeds; the latter, kept warm, is used for growing larger plants.

Mr. Booth planted the soil in the oven at a temperature of 140 degrees Fahrenheit. Mr. Booth explained, "the oven sterilizes the soil, but not sterilize the soil. A temperature of no more than 140 degrees Fahrenheit will kill diseases, but not sterilize disease organisms.

The second larger area contains twenty-four propagating benches which Mr. Booth built overhead plumbing designed to spread water evenly through the benches are growing roots. These two benches have overhead wooden frames from which plant sheets have been hung under easily removed bolted sections. The plastic sheets help to control hu-
midity. Mr. Booth and his students are growing the best height and weight for maximum student convenience. Just under the table surface are heating cables to prevent the plants from growing root.

The width of the bench is 52 inches, and the area between each bench on the concrete is forty-eight inches. The height is thirty-two inches. These propagating and growing benches were designed and built by Mr. Booth and his students. They decided the best height and width of the bench, so the majority of students, who stand at the
top of the bench could reach comfortably to the center of the bench. They also had to consider plants and space for the design to support the flat and large growing plants. The size of each bench is a function of layer of coarse gravel. The gravel itself has greater surface area, as compared to solid cement, and gives off moisture to help maintain the need for humidity. Mr. Booth explained. Also the gravel channels drain-
age water coming down from the bench and provides water to the plants. Six students have ample working room at one bench, with three on a side and two on each side, between the two rows for movement by students. A central aisle is widest of all and gives greater space for mobility.

The students grow everything from seeds. After a plant such as the Coleus or carnations, sections are pinch off and placed in the propagating bench for rooting.

Mr. Booth planned and ordered fifty varieties of seeds to be grown by the students. These plants include marigold, lettuce, tomatoes, and other outdoor plants.

An individual student starts working with each bench by six inch flats of soil, a student will transplant the rooted plants into other flats or small containers where they will be less crowded. A student will plant was-
to sixty six inch flats, Mr. Booth explained. "Many of the seeds such as melons, cucumbers, and lettuce do not thrive in flats, so the number of plants in rows are dependent on the seed size.

Some of the seeds which grow into healthy plants may be transplanted to the land laboratory. A well planned outdoor area will shortly become reality on two acres of land. "This is not as much to what we can grow in this class room," Mr. Booth explained. "But the boys and girls in this class should be proud of the progress we have made so far."

Some of the more prevalent students, who are growing plants, are potatoes, lettuce, radishes, spinach, lettuce, and peas. These are all started in flats and then transplanted into the outdoor area.

Students who wish sold may have their plants at the all-school Spring Festival. Other students had very busy "greenhouses" and did not want to sell their plants. Mr. Booth felt that the re-

The tree seeds which were planted included: Colorado Blue Spruce, Scotch Pine, Sugar Pine and Mr. Booth. These seeds were started in flats, and will be transplanted into river pots and finally transplanted outside into the trees on the land lab. Eventually these trees will be planted around the buildings.

In planning the overall curriculum, Mr. Booth remarked, "My number one objective is building positive and de-

Mr. Booth's dream is to build a greenhouse that will enable the students to learn from and take advantage from it, including their own plants. This will give the students more status.

Growing plants can become a career for interested students. Mr. Booth's class work provides skills relative to an assorted number of occupations. Different occupations are studied and in-
troduced to students such as: outdoor turf occupations which include: high-

ways, parks, golf courses, landscape design, horticultural management, and forestry. Mr. Booth also intro-
troduces civic lecture or vegetable plants, or green-

Horticulture teacher, Jay Booth of Mount Baker High School at Deming, Washington, stands by the new tree cylinders. He is ready to explain how they will give the students more status.

An important concern here is education. For example, an agricultural mechanics shop may get all OSHA regulations, but students are not adequately instructed regarding their responsibilities in carrying out these regulations. OSHA, accidents are likely to occur. Safety instruction should be included into the total agricultural curriculum and should be given in the classroom. The best educational opportunities for workers in the most ideal conditions will have trouble with their work. This practical work should be also examined. Charts and records will be kept and studied.

Mr. Booth is a gentleman and his current and re-
guests, an adult class may be organized by this quiet and soft-spoken man with a dream that came true.

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STUDY PLUS EMPLOYMENT EQUALS HIGHER EARNINGS

George W. Forsey
Teacher Education
Illinois State University

This study was attempted to determine characteristics of work situations which led to a greater number of hours earned by junior college graduates. These characteristics, if defined, could be helpful in counseling students in planning cooperative educational work programs for the purpose of securing maximum wage earning power of junior college graduates. The work reported here represents a follow-up study, conducted in 1973, of 151 junior college graduates who were employed while attending junior college. The original study (Forsey, G. W. Selected Economic Benefits From Illinois Junior College Programs, 1971) revealed that those who were employed while attending junior college had significantly greater mean earnings than those who were not employed during college years.

Further investigation showed that the significant difference in mean earnings of those who were and those who were not employed during college years was found in the occupational and college group. There was no statistical difference in mean earnings between those who were and those who were not employed during college years in reference to occupational females, transfer majors, and transfer females.

At this point, it may be appropriate to remind the reader that the subjects included in this study embraced only those junior college graduates who entered the field of work immediately after graduating from junior college in 1968. In this sense, the transfer program graduate was abandoned as the original goal, that is, to go to a four-year college or university. Also, the subjects included only those who graduated from high school in 1966 and began their junior college work in the fall of that year.

The hypothesis explored in the follow-up study was: "Junior college graduates who were employed in jobs related to their post-college occupations will have greater mean earnings than those graduates who were employed in jobs unrelated to their post-college occupations."

The hypothesis was first examined by comparing the 1970 mean earnings of those who were employed in jobs related to their post-college occupations to those who were employed in jobs unrelated to their post-college occupations.

The same procedure was followed for all male subjects and all female subjects.

The data revealed that the hypothesis was tenable for the entire group. Further, the data support the hypothesis in reference to the female subjects. However, the hypothesis was not supported by the data in this study where male subjects were compared, i.e., males employed as students in jobs related to their post-college employment did not receive significantly higher mean earnings than those males employed as students in jobs unrelated to their post-college employment.

In order to determine more clearly where significant differences occurred, the data were divided into groups; by sex and grades.

Interestingly, with the exception of male graduates from transfer programs, males, whether or not employed in 1970, who were employed as related to their 1970 occupations, earned significantly greater mean earnings than those of the female counterparts. There was no significant difference in the 1970 mean earnings of those male majors and transfer majors. However, there was no significant difference in the 1970 mean earnings of those male majors and transfer females. This leads support to the conclusion that earnings were largely determined by type of programs males and females followed. Those data also support the conclusion that sex is a significant determinant of earnings. The strength of the sex variable is further indicated by the observation that males earned significantly greater 1970 mean earnings than females whether or not their student employment was related to their post-college employment.

In this study, as in the original study, it was clear that those who were employed in jobs related to their post-college employment will have greater earnings than those employed in jobs unrelated to their post-college employment. This conclusion was supported by the fact that the 1970 mean earnings of junior college graduates was significantly greater for those who were employed in college students in jobs related to their post-college employment than the earnings of those who were employed in student jobs not related to their post-college employment.

1. Sex was a main determinant of earnings as evidenced by male junior college graduates having significantly greater 1970 mean earnings than did female junior college graduates.

2. Pursuit of an occupational program increased the earnings of male junior college graduates. Male occupational program graduates had significantly greater 1970 mean earnings than did female occupational program graduates who entered the field of work immediately after graduating.

3. The number of hours employed per week as a student contributed to the earnings of junior college graduates. Those who were employed more than 20 hours per week as students had significantly greater 1970 mean earnings than those who were employed less than 20 hours per week. Extreme employment during college may have had a beneficial effect since occupational competencies were gained or seniority was acquired with a subsequent escalation of the wage.

Recommendations

It is possible that the findings of this study would not be found among junior college graduates and in other times or places. The following recommendations are given:

1. Follow-up studies of this type should be conducted, to follow college employment in the original study as quickly as possible. The extremity of the general population makes it very difficult to re-establish communications after a lapse of two years.

2. The compilation of essential competencies for each occupation should be made and constantly revised as technology dictates. This would greatly benefit the assessment of hours of work as a basis for determining the specific work situation, counseling of students, and formulating educational programs. Educational programs should be developed which will, where possible, incorporate general competencies common to a cluster or family of occupations. The program should strive to make the transfer of learning to a more adequately meet the needs of those students whose occupational choices may change either during college or during post-college years.

(Taken from page 95)
An American Farmer
Success Story

Don Weston and Charles Knight
Vocational Agriculture Teachers
Franklin, Louisiana

Don Weston

Building on his FFA training and his early work experiences on his father’s dairy farm, Gary Bond owns and manages one of the most successful dairy farms in Washington Parish, La. At 25, Gary feels his dairy herd is large enough and now intends to increase efficiency while reducing labor and time costs on the Steppony Farm. His dairy herd’s average production is 60 to 65 pounds per cow per day, averaging 10,000 pounds per cow per year. The Louisiana statewide average is 7,500 pounds per cow per year. He feels that good grass and feed play a major role in maintaining his herd’s good production. Gary<br>owns 30 acres in permanent pastures and 150 acres in winter pastures. Dace and eye grass are the backbone of the winter pastures and Bahia dominates his summer grazing, totaling 6,000 to 10,000 bales of hay a year. Gary's goal is to have a winter weight of 1,500 pounds round out the grass diet. His herd is fed according to production, and he feels that the key to producing cows lies in breeding them. He is now experimenting with the Chilianiana breed in an effort to establish a successful beef herd.

About a year ago, several Holstein—Walworth cows went to work on a new farm. They are now the foundation of the herd with two Holstein—Walworth and four Holstein—Brahman cross cows and will soon be bred to half Holstein-—Brahman Chilianiana back to pure Chilianiana.

Gary began experimenting with Chilianiana because they are big, fast growing, and suitable for a beef herd. Since he feels his dairy herd is large enough, he is considering going into the beef business as an additional source of income. For example, he is considering joining the beef herd in a beef and milk operation or raising either beef or dairy cows in conjunction with his dairy herd. He is also considering joining the beef herd in a beef and milk operation or raising either beef or dairy cows in conjunction with his dairy herd.


For this new edition the authors, all of whom are well known agricultural economists, expand the latest available information in the agricultural sector of the economy with regard to production, marketing, consumer, farm agencies and institutions, and government involvement.

The book is divided into two parts. The titles of these parts are: The Production Sector: Marketing and Prices; Toward an Understanding of Farm Prices.

Don Weston

Gary begins this story from the viewpoint of a typical dairy farmer. Gary owns and operates a dairy farm which has a herd of 200 milking cows and a total of 350 cows. Gary has been active in FFA and has served as chapter president and as a state officer. Gary is an outstanding FFA member in his high school years and now holds the American Farmer Degree, the highest degree awarded for a dairy farm. Gary has been active in FFA and has served as chapter president and as a state officer. Gary is an outstanding FFA member in his high school years and now holds the American Farmer Degree, the highest degree awarded for a dairy farm.

From the Book Review Editor's Desk...

BOOKS TO BE REVIEWED

AGRICULTURAL GENETICS: SELECTED TOPICS

INSECTS IN RELATION TO PLANT DISEASE
By Walter Czaric

TEACHING VOCATIONAL AGRICULTURE IN THE PHILIPPINES
Edited by Delores Harris, Harlow Chouette, and Robert Beza, Jr.
University of the Philippines (1975).

APPROVED PRACTICES IN RAISING AND HANDLING HORSES
By Donald Ulmer and Edward Jurgenoff

LAW FOR THE VETERINARY PRACTITIONER AND LIVESTOCK OWNER
By H. W. Hannnah and Donald F. Bourn

AGRICULTURAL WASTE MANAGEMENT: PROBLEMS, PROCESSES, APPROACHES
By Raymond C. Lockh

ENVIRONMENTAL CONSERVATION EDUCATION
A Selected Annotated Bibliography
By Robert H. Johnston and Donald R. Dawson

HOW TO EAT BETTER AND SPEND LESS
By Edith R. Riese
Department of Home Economics, University of Nebraska, 1975.

SWINE PRODUCTION IN TEMPERATURE AND TROPICAL ENVIRONMENTS

Dairy Cattle Breeding: Origin and Development
By Raymond B. Becker

If you feel qualified to review one of these books, please contact the Book Review Editor and he will send the book for your review. The Editor will keep a record of the books that come the property of the reviewers. — James F. C. Becket, Jr., Review Editor, Agricultural Education Department, University of Wisconsin, Madison, Wisconsin 53706.
Stories in Pictures

Motivated Student — Kenny Jones, 12, uses a 1½ volt battery to induce "shock treatments" in experiments which alter the growth of plants. It's one of the many career education research projects at Harbor Heights Elementary School in Washington D.C. (Photo by Alex Corshon, Voc. Ed. Program Specialist, Washington State Council for Occupational Education)

A Centennial Idea — Pennsylvania children observe 1776 on an 18th century farm in Chester County. They learn by doing and teaching not simply lecturing. While watching Hoppe House (left) they enjoy 1776 food. The children help prepare the meal. They also try their hand at "shucking" flax (right). Shucking is drawing the fibers through metal spikes to comb the fibers. Additional information is available from Anne Cook, 455 Schoolhouse Lane, Devon, Pa. 19333. (Photo from Pennsylvania Centennial Commission)