ON-JOB-TRAINING—Students enrolled in urban Agricultural Education programs derive considerable benefit from supervised occupational experiences. Here Brian Campbell, a student at Booker T. Washington High School, New Orleans, Louisiana, is receiving on-the-job supervision from his agriculture teacher, Sidney Jordan. Brian is receiving training in ornamental horticulture at The Royal Orleans Hotel. (Photo by J. C. Slidmore, Louisiana State Department of Education)

PET CARE IS BOOMING—Small animal care is a growing activity in urban agriculture. Millions of pet owners require treatment each year in the United States. In this photograph, Dr. L. W. Calle is being prepped for an x-ray examination. (Photo from Eastern Kodak Company)

by Jasper S. Lee

HORSES ARE FAVORITES—Large animals are popular with many urban students. Jane Cline, a student at Wilmington College, Wilmington, Ohio, is shown with one of her favorite animals. In addition to her personal enthusiasm for horses, she is planning a career in animal science. (Photo from Wilmington College)

AGRICULTURAL MECHANICS IS POPULAR—Many students like the hands-on activities of agricultural mechanics. In this photograph, Shirley Crockett, agriculture teacher at Kent County (Virginia) High School, is demonstrating the use of modern equipment. (Photo by Robert Veale, Photo Lab, VA & NC)

Theme—PROGRAMS IN NATURAL RESOURCES
NATURAL RESOURCE EDUCATION - PROBLEMS AND POTENTIAL

Rodney W. Tidwell
Teacher Education
University of Kentucky

"Natural resources," "conservation," "environment," and related terms are not new to American educators. Teachers of agriculture have taught the major principles and the related basic science of natural resources for years. Much of what they teach is relevant today. However, recent emphasis on the environment, "the energy crisis," increased use of recreational areas, and shortages of fertilizer and other agricultural inputs have greatly increased the emphasis on conservation and natural resources. The increased emphasis and the resultant desire to affect the profession to a comprehensive analysis of present offerings and what should be offered in agricultural education to the areas of natural resource education.

Problems

The impact of modern agriculture on our natural resources is significant. Fertilizer consumption for the fiscal year ending June 30, 1973 was: nitrogen, 8.2 million short tons; (1 ton = one short ton); 39,000,000 short tons; and 45,600 short tons. The demand for fertilizers is in excess of the supply and is taxing the natural resources of the United States. Of the estimated 59 billion gallons of water used daily in the United States about 30 percent is used for irrigation. Water is increasingly difficult to obtain for irrigation purposes. About 395 million acres of farms are classified as having inadequate water supplies. Farmsteads and roads. About 397 million acres of land are in cropland. With present food shortages, the importance and value of food production is multiplied.

Erosion remains a problem that is of concern. Sediment deposited by flowing water is the number one cause of pollution that affects water quality. Total erosion is estimated in excess of 4 billion tons per year in the United States. The sediment from this serious problem made worse by the fact that it contains chemicals, nutrients, sediments, pollutants, organic materials, and pathogens.

Serious problems in agriculture include: diseases, animal and plant pests, deforestation, use of agricultural chemicals; proper water use planning and management; and, most importantly, improving attitudes toward natural resources.

Present Situation

Most individuals in the agriculture education profession do not have a science background in natural resource. This is caused by the lack of course offerings that are appropriate for teachers of vocational agriculture and those preparing for the profession. However, within the past five years many colleges and universities have added both pre-service and in-service courses in natural resources, environmental education, and conservation which better meet the needs of teachers. The author is familiar with twenty new programs and has read about many others.

Until recent years there has been a lack of appropriate materials for classroom use. Several books and publications on careers in and related to natural resources have been published in recent years. There are also numerous books and materials on the quality and quantity of the Nation's natural resources. In addition, many states have prepared outstanding materials for teacher use. An excellent source of materials is the Superintendent of Public Documents, Washington, D.C.

Many teachers who indicate a willingness to do something about natural resource education are having difficulty, for one or more of the following reasons: (1) too few students to justify a program, (2) too many students to handle in a new course, (3) lack of adequate time to work on a new unit, (4) lack of financial support and/or resources to establish a new program, and (5) insufficient personal subject matter background or experience.

Considering all these problems, it is evident why change is slow. A positive attitude is necessary in planning for new and existing programs if progress is to be made. What are some positive steps that can be taken?

A Plan for Progress

The following suggestions will help in planning and developing a worthwhile emphasis on natural resources education.

1. Understand the aim of natural resources education.
2. See the need for natural resource educators.
3. Know the agricultural resources available in the community for training students in natural resources.
4. Develop and implement a curriculum in natural resources.
5. Develop training stations and training plans in natural resources education.
6. Organize and use an advisory committee.
7. Develop experience programs including selecting appropriate experience programs, planning the program, keeping records, and summary and evaluation.
8. Supervise the experience program by the teacher.
9. Secure and effectively use equipment and materials.
10. Develop a public relations program and keep everyone informed.

(Continued on page 174)
Guest Editorial

Howard I. Dower
Teacher Education
University of Tennessee at Martin

During the hurried and scurry of developing new programs for Vocational Agriculture following the passage of P.L. 87-210 in 1963, it became evident that standard terminology must be developed for occupational areas related to agriculture. A National Ad Hoc Committee was organized to tackle this very difficult task. The deliberations of the committee were brought to focus when a conference was held at the U.S. Office of Education in February, 1966, and resulted in the recognition of eight occupational areas. These areas were further codified and defined by Putnam and Charnesour and were included in the fourth draft, Volume 11 of the Standard Terminology for Curriculum and Instruction in Local and State Systems.

Environmental Protection is a new agricultural occupational area recently recognized by the Division of Vocational and Technical Education of the U.S. Office of Education. As yet we have seen few, if any, guidelines as to what occupational activities are to be included in this area. I rather suspect that when they are developed they will duplicate or at least closely parallel those activities now attributed to the occupational area of Agricultural Resources. This will tend to dilute the lateral matter related to environmental protection that has been included in curriculum guides for the resources area by many states.

If we can assume that conservation, protection and regulation, and recreational utilization are still visible occupational activities of the Agricultural Resources area, then we would be hurt pressed to delineate occupational activities for the Environmental Protection area that would not duplicate these activities except at the professional level of preparation.

Having had a small part in the deliberations which led to the establishment of Agricultural Resources as one of the occupational eight occupational areas for Vocational Agriculture and in the establishment of the subject matter and planned learning activities for this area, I question the practicality of separating Environmental Protection from the occupational activities of Agricultural Resources (i.e., conservation, protection and regulation, and recreational utilization). There are so interrelated as to be inseparable and the duplication of the activities in more than one occupational area is confusing, to say the least.

Present curriculum guides developed for Agricultural Resources incorporate environmental protection concepts and practices needed to be an agriculturally related occupation in this area at the para-professional level. These guides emphasize conservation and management of the resources which is considered by the professional environment as being the most practical approach to environmental protection.

In reviewing the available occupational titles that are closely associated with environmental protection, I have found few that do not require a minimum of a Bachelor degree in engineering, chemistry, or biological science. This would indicate that occupational preparation in this area beyond the level of vocational-technical programs is in agriculture as established by federal and state policies and regulations. As yet there have been few, if any, justifications as to the need to substantiate the separation of environmental protection occupations from those in the agricultural resources area and still be able to classify them as being of less professional level.

We in agricultural education at local, state, and national levels must guard against the erosion of established agricultural occupations programs by the addition of occupational areas which duplicate or closely parallel these existing programs and for which there are few identifiable job openings not requiring a four-year degree. We must realize that environmental protection should be an integral part of the occupational preparation of each agricultural occupations student and not separated and not a separate occupational area.


Education for Work and Leisure

Thomas Morgan
Teacher of Natural Resources
Coventry, Rhode Island

Learning to be a con-
sumer of outdoor recrea-
tion is a prerequisite to learning to be employed in outdoor recreation.

Students at Coventry, Rhode Island test out-}
door cooking skills in the cool of winter as part of the Outdoor Recreation Component of the Natural Resources Program.

If you want to learn to read about them or watch the work of them, then you should do that. Our students wanted to learn to ride a horse, and they did. But they also gained insight into complex problems of trail management as well as human interest in horses and horseback riding. These insights are critically important to the effective and wise management of our resources for recreation.

Orienteering is "played on vast acres of God's tapestries, among great black oak and brown pine glades, beneath the melting gold of maple trees and over streaming fields of russet weeds, past staked stone walls and along gold, tumbling brooks" according to Bill Johnson of Sports Illustrated. Orienteering is a sport, a skill, a game, a method of learning, and a vocational.

(Concluded on page 177)
LETTERS

Dear Editor:

Once again, Professor Coyce Scarborough has “hit the nail on the head” in discussing professional organizations. He is, of course, chairman of the agriculture educator in Ag Ed, myself, (as much as one can be these days), my own experience in teaching and research work, and I have found your comments points in Professor Scarborough’s case.

First, I’m a “joiner.” That is I join my local state and state teacher’s organization, state and national vocational association, and A.T.E.E.A. These are all organizations for agricultural educators. As the Professor points out, being “active” in all is most difficult. However, members of organizations who are really “active” are that teacher educators have a self-identity only at the national level.

There is no state organization for vocational teacher educators in Agriculture where I work. With only six persons in the State in this capacity, there is no believable that such an organization. Attempts to organize all vocational teacher educators in the State have proven to be most difficult, but is now

Secondly, last year I noticed that the problems confronting these educators are very similar to those confronting teacher educators working on the other group’s problems will be recognized as serious. Teachers of agricultural education have their own unique problems to resolve, for which much work is needed.

This situation encouraged me to be engaged in the next few years in the state and national association of teacher educators, A.T.E.E.A., and an organization mentioned by Scarborough in his editorial. I was a “joiner” for J. E. Scarborough as the State President and attend the national meeting each year.

My experience was most gratifying in that all teacher educators in all states have problems. I noted that very few vocational agriculture or agricultural teacher educators are involved in a state or national organization. For what it is worth, it appeared to me that the real value education is to be a group A.T.E.E. Whatever we do for our state and national organization or any other in the world.

While I am not sure of the size of the group of teacher educators who take in caring for themselves, I am sure that being a member of an organization is an important part of being a professional. And this, I believe, is what Professor Scarborough means in his timely editorial.

D. W. Collier

Agricultural Teacher

N. C. State University

Raleigh, North Carolina

Natural Resources and Environmental Careers in Our Vo-Ag Program

Javell Collier

Teacher of Agriculture

Barnes County High School

Glasgow, Kentucky

For many years we have been looking to make Vocational Agriculture relevant to the needs of our community. This year our organization presented an opportunity for an exciting expansion with national trends. The number of people employed in production agriculture decreased by 50 percent from 1960 to 1970. In 1972 two million people employed in manufacturing, and 10.1 percent in government services. While agriculture is still undeniably vital to the region, the need for agricultural activity is changing. In an area where our group is located, there is a great need for more resources provided in manufacturing. Our school community is located in a rural part of the country, and this creates many job opportunities which fit in well with part-time farming in the area.

Our staff felt the need for providing training in the area of natural resources and environmental careers. We are looking to teach it because of my interest and background. That background included serving on the past twenty-two members of the Conservation District Board of Supervisors, presently serving chairman of both the city-county Planning Commission, and having 20 years of experience as a teacher of agriculture in the country.

After the decision was made last spring to offer the course in Natural Resources, and with a request from the county, I submitted a proposal to the county, and Barnes River Dam control center, a private mental health facility, city recreation and planning treatment plant, and sanitary landfill. Resource people who have visited the class include the city water manager, county Jane, Secretary, and the President of National Park Commission, Inc., who employs over 600 people. Others scheduled include representatives of National and State park service, and the Manager of Resource of the U.S. Corps of Engineers. (Concluded on page 180)

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In this day of rapidly changing agriculture, McCreary County, Kentucky is faced with a decline in production agriculture both in terms of people engaged in farming and total sales of farm products. To make the high school program of vocational agriculture visible, it becomes necessary to make a serious analysis of the situation determine what the future role of the department should be. In Kentucky, a major emphasis in program planning has been to meet the needs of the community and the training needs of the students.

During the school year of 1974, teachers who were enrolled in a class at the University of Kentucky conducted local surveys to determine the actual farm situation, including: 1) station possibilities, 2) resources that can be used for field trips, demonstrations, and in other instructional activities, and 3) employment opportunities in agriculture for high school graduates.

The survey for McCreary County revealed the need for: 1) in-service training in agri-

Foraging Education for Work and Leisure

(Continued from page 173)

The predominant use of land in McCreary County for forestry and recreation purposes is intensive. There is a strong potential for training possibilities and employment opportunities in the years immediately ahead. There may be an emphasis for training that fore

The philosophy underlying the plan for a specialized course in forestry is sound and well suited to the situation in McCreary County. The program is building on knowledge and accomplishments of the past, while incorporating new ideas and subject matter. The course of study being developed will allow greater completion of the program that has been specifically prepared for entry level jobs and advancement in the occupational forestry categories.

The course should be interesting to the students and of vital worth to the community.***

...log interesting, exciting, and unforgettable. Perhaps best of all, the students complete this outdoor recreation course eager to learn more and to make use of these resources more a part of their lives.

These are some of the forms the outdoor recreation component of the Coventry Natural Resources Program can take. There are many on how to become involved in such as flying, skiing, archery, hunting, safety, and activities. There are many more outdoor recreation activities we have not yet become involved in. And, there should be a host of valuable outdoor recreation activities possible for any Natural Resources program.

...the other side of the outdoor recreation component that is probably more readily understood than this. All of these activities themselves are managing resources for recreational use. The two facets of outdoor recreation are complementary to one another.
THE NATURAL RESOURCES MANAGEMENT OPTION
IN VIRGINIA

Glenn Anderson
Supervisor
Richmond, Virginia

History
The need for instruction in conservation and forestry was recognized early by the state leaders of agricultural education in Virginia. As early as 1938, special courses were offered to keep the instructors of agriculture up-to-date on new developments in conservation and forestry.

During the "forestry" programs in farm forestry, wildlife conservation, and soil and water conservation education, received their greatest boost. In 1943 the State Forestry Education Committee (Advisory Committee) was formed. This committee was composed of representatives from forest related industries and various educational agencies.

In 1965, a survey of conservation and forest related industries and agencies revealed a substantial need for employers to work with contracted instructors in these areas. A committee was appointed and a curriculum guide was prepared for an optional cluster course.

The curriculum guide has been revised and revised by representatives of prospective employers, agricultural education instructors, and by members of the state staff.

Following the publication and distribution of the guide, the major emphasis was placed on assisting instructors in their total Natural Resources Management program. The members of this article is devoted to a discussion of the Natural Resources Management Advisory Committee, the development of teaching materials, and the workshops planned for instructors of the Natural Resources Management Option.

Using Natural Resources Management Advisory Groups
All leaders in agricultural education have recognized the value of an advisory committee in planning an instructional program. The advisory committee for this option has been named "Natural Resources Management Advisory Committee" and has representatives from all areas of natural resources. Approximately thirty members are present at the annual meeting, and members of various sub-committees usually meet additional times during the year. The various sub-committees include:

1. Forestry Committee
2. Outdoor Recreation
3. Soil and Water Conservation
4. Wildlife Conservation

This committee has provided the impetus for many outstanding advancements in this option. Members have participated in workshops and assisted in preparing various publications and teaching aids for the agricultural education instructors.

Developing Curriculum Material
A concentrated effort has been made by the state to provide teachers with the necessary aids to improve instruction in the Natural Resources Management programs. As early as 1945, a publication entitled "Forestry in Virginia" was prepared and published by the Agricultural Education Division, State Department of Education, with the substance of representation from the Virginia Division of Forestry, the Forestry and Wildlife Department at VPI and SU, and instructors of Agricultural Education in the State. This publication received a major revision in 1970 and the title was changed to "Forestry in Agricultural Education in Virginia." Films were prepared to complement the publication. Teachers have used these teaching aids most successfully.

Today similar teaching aids are being developed in Wildlife Management by the Committee of Game and Inland Fisheries in cooperation with the Agricultural Education state staff. This material will include a publication and workshop materials for wildlife management will be developed.

The close coordination of teaching materials by the Advisory Committee has assured the production of quality and useful teaching aids.

Workshops
In our Natural Resources Management Option, a special effort has been made to provide teachers with in-service education which would enable them to accomplish the objectives in their total instructional program. From 1967 to 1974, a total of eleven workshops were held for this program. These workshops included most areas covered in the Natural Resource Management Curriculum Guide.

Some of the areas covered in the following workshops included:
1. Tour and Discussion of Recreational Enterprises
2. Tour and Discussion of Wildlife Management Projects
3. Use and Discussion of Equipment in Forestry
4. Tour and Discussion of Virginia Division Forest Nursery

Method
The agencies, organizations and institutions that were considered when selecting the population included the Soil Conservation Service, Montana Soil and Water Conservation Supervisors, Montana Poultry Inspection Program, Montana Fish and Game, Montana Fish, Wildlife and Parks, State Forestry Commissions, the Bureau of Sports Management, and federal and national crop insurance agencies.

Results
Because of the large number of competencies identified for each job title, only some significant findings are being reported. A complete copy of the report is available upon request from the Department of Agricultural and Industrial Education, Montana State University, Bozeman, Montana 59715.

Douglas Bishop and Max L. Anderson
Teacher Education
Missouri State University
Bozeman, Montana

Job titles included in this study were identified with the help of persons in agricultural education agencies which hired graduates of the State's agricultural training programs. The initial investigation revealed that agricultural education agencies, as defined for the study, were generally characterized by the need for a professional staff. However, several educational positions existed among the selected agricultural agencies.

The final list of job titles included the technician level positions of Civil Engineering and Soil Conservation Technicians, Land and Crop Inspectors, and Dairy Health Supervisors. These technical level positions were studied in detail in an effort to identify competencies needed by employees in these four positions.

The initial list of competency statements was synthesized from the job descriptions found in the Dictionary of Occupational Titles and job descriptions and training manuals available from federal and state government agencies. Additional competencies were obtained by interviewing persons employed in the selected job titles. When the competency lists were used to arrange the job titles and work supervisors reviewed the competencies for each job title included in the study. Following the validation process, 120 employers were asked to react to the competencies on a rating scale from 1 to 4 and none rated a competency as "not important" to "essential." The data received from 92 employees in the various job titles were used to arrange the competencies from the most important to the least important on the basis of a mean rating.

Personal qualities received the highest mean rating among the 182 competencies rated. The competency that "Demonstrates the ability to get along with people" received the highest mean rating.

Other competencies included in the upper 25 percent of competencies dealt with the actual handling and use of survey equipment. Competencies requiring detailed knowledge of specific conservation practices and crop cultural practices seemed less important to this group of employees.

Civil Engineering Technicians
The Civil Engineering Technicians who were surveyed felt that "Recognizing survey data was the most important competency. Employees in this title placed more importance on the use of the survey equipment and recording data than on the interpretation and police importance of professional competencies than the Soil Conservation Technicians.

An understanding of agricultural practices was considered of less importance by the respondents. The bulk of the competencies related to production practices were in the lower 25 percent of all competencies rated.

Competencies calling for the employees to make recommendations about use of certain conservation practices were given lower priority. This might indicate that Civil Engineering Technicians generally perform assigned tasks given them by a supervising professional.
The factors which should receive the most credit in the success of the program include:

1. Careful planning by state staff.
2. The guidance received by the Advisory Committee on Natural Resource Management.
3. The coordination of program ideas from Agriculture Education.
4. The provisions for the production of teaching materials which are articulated with the teachers' guides.
6. The workshops which enable instructors to stay up-to-date.

One of the most successful options offered in agricultural education in Virginia is Natural Resource Management. The results for its success have been outlined and have been successful. The format of careful planning used is as follows:

Natural Resource Management was followed in its development in the state.

The total involvement of representatives from educational agencies, related industries, agricultural education instructors, and state staff has created a successful program.

THE AGRICULTURAL EDUCATION MAGAZINE

February 1978

A Paradise for Natural Resource Education

Norman J. Sadler
Vo-Ag Instructor and Voc. Director
Randle, Washington

Forestry students at Randle, Washington during a logging equipment orientation sponsored by Lintner and Sons Logging Co.
Effective Occupational Experiences for Students Enhance Learning

J. David McCracken
Teacher Education
Ohio State University

In the long history of education, we have noted how skills and knowledge that were originally learned in and around the home have moved into the schools. Parents and teachers, and fellow workers, under modern industrial conditions, have found it more efficient, more economical, and less troublesome to hand these tasks over to people called teachers. Yet in the search for good education we have tried more and more to recognize the natural learning situation. So, the most effective teaching in agriculture is done on supervised programs where a boy makes out a project on his father's farm and takes full responsibility for it under supervision of an agricultural teacher. This takes education right back to where it started, with, of course, the very important added facets—the well-trained teacher.

Teachers who develop applications of instruction through occupational experiences are increasing the probability that their students will learn more effectively. "The teacher of a vocation should have participation in all the areas in which he hopes to secure learning." A combination of classroom instruction and supervision of student experiences is essential. Neither instruction without practice nor practice without instruction is desirable. Teachers who develop applications of instruction through occupational experiences are increasing the probability that their students will learn more effectively.

Classroom instruction in vocational agriculture can normally be applied in three different settings: 1) School laboratory experience, 2) Cooperative education placement in a farm, business, or industry, and 3) Supervised experience programs utilizing farm, home, or community resources. As experiences are provided in more diverse occupational areas, the rural and the urban student, the challenge to the teacher is to be more creative than ever before in designing such experiences and utilizing them to enhance learning.

Teachers of vocational agriculture will find below a list of questions designed to challenge their thinking concerning the occupational experiences they provide for their students.

Food Forest Service surveyed the scene. To reduce the spread of the bark beetle the timber must be surveyed, sold, cut and logged but the temperature reaches the 70's in the spring, Puckwood Forest Service Ranger William M. Traut, was invited to the county to discuss the back beetle and its impact to our community. Field trips related to this problem will be taken later this spring.

Looking back at our beginning in light of where we are today in Natural Resources Education at White Pass our progress is impressive. The future looks even brighter. Some of the things presently in the winds of change and progress are to expand the offerings in Forestry and Natural Resources.

Such areas under consideration are: propagating native species of forest plants for commercial use, starting a trap line for cubs and bears, and developing a water testing facility to determine amounts of pollution in our rivers, stream, evaluating the recreational value of the area, experimenting in crossbreeding of trees, and exploring various birds and trees with special resistances for forest tree improvement.

These are a few of the paths one might follow. Many more will open up as each agriculture teacher looks to the environment where he teaches and lives.

Our very own land, water, wildlife, natural forests, or prairies are unique. We must create the awareness within our students of the natural resources around us, and how they can be used, restored, and best maintained for our future needs.
A NATURAL RESOURCES MANAGEMENT PROGRAM

Daniel D. DeJauregui  
Agricultural Education Instructor  
William Campbell High School  
Norwich, Virginia

Agriculture instructors must remain alert to make necessary changes in program offerings, if needed, to meet the current agricultural education needs of the school, community, and area. Every opportunity should be taken to improve the instructional program. Have you ever thought about using the school grounds as a land laboratory for Natural Resources Management? The teachers in the William Campbell High School Agricultural Education Department not only thought about it, but did something about it.

The school is located in the southeastern part of Campbell County in a rural setting. Campbell County, located in South Central Virginia, consists of general crop and livestock farms. Tobacco is the chief cash crop in the area, followed by small grain, corn, and forest products. The forest products industries in the county, up until recently, have experienced a tremendous growth.

During the 1960's, Agricultural Education instructors across the State recognized their program needs. They realized that there was a need to see if community and area needs were being met. Prior to the 1960's, William Campbell offered Basic Agricultural Science and Mechanics I and II, General Mechanics and Agricultural Production. The additional school land, which is now used as a land laboratory for Natural Resources Management, was acquired in 1968 when the school was provided with funds to support the natural resources activities of providing agricultural students "at school experience" in agricultural programs.

A concentrated effort was made in 1968 and 1969 to evaluate the local program offerings to see if an additional option course or two was needed. A community survey conducted by the Agricultural Education Department revealed a large opportunity for placement and prospective employment in Natural Resources Management, as opposed to other options. Eleven businesses, employing a total of 37 workers, created a demand for students with experience in natural resources management.

During the summer of 1965, a conference with the Principal, guidance personnel, and agricultural instructors was held to discuss the possible addition of the Natural Resources Management Option to the program. After receiving a favorable reaction at the conference, a meeting was held with prospective students to determine their interest. High student interest and availability of prospective students in the community and area indicated the need for the addition of a program in natural resources at William Campbell.

Once it was decided that the addition of the Option would require the effectiveness of the total Agricultural Education Program, final plans began to take shape. A decision was made to expand the program offering at the school through a joint meeting of the Superintendent of Schools, Area Supervisor, and Agricultural Education, the Principal and the three Agricultural Education instructors.

The School Board finally authorized the additional land as a laboratory for the Natural Resources Management Option. The laboratory, consisting of approximately 60 acres of land is one of the Department's most important assets. Naturally, it is managed by the members of the William Campbell FFA Chapter and the Natural Resources Management Option.

The school is located near a stream, facing the Broad River (known for its Scenic Area) and close enough to Smith Mountain Lake, Stauton River State Park, and Jamestown, that the students may take full-credit trips. Along with the school laboratory, this outdoor laboratory provides the opportunity for natural resources management activities.

Contact with prospective students of the Option is made in the Agricultural Science and Mechanics I and II, Agricultural Production I, II, III, and IV, and Natural Resources Management I and IV.

The Natural Resources Management Program is one of the most promising and rapidly expanding of our state's educational and employment opportunities. Individuals with a knowledge of personal farm, home, and housekeeping, and guidance by the profession, natural resource management problems such as new home development, land use, natural resources management, and forest and water conservation problems.

Prospective students of the Natural Resources Management Option have the opportunity to learn about personal farm, home, and housekeeping, and forest and water conservation problems. The student must complete 14 credits in Natural Resources Management and 10 credits in Agriculture Science and Mechanics. The 4-year program includes specialization in natural resource management and marketing timber, land and water conservation practices.

Natural Resources Management topics will include the following: Natural Resource Management, soil and water conservation, and marketing timber, land, and water conservation practices.

Option provides many opportunities for high school youth to develop skills in forestry and wildlife management, outdoor recreation, and wildlife, and water conservation. The Option is designed for 720 to 1,000 hours of in-school instruction using 110-minute class periods. Due to the large number of students enrolling in Basic Agricultural Science and Mechanics, only one 55-minute period for Natural Resources Management IV is provided. First three classes, the additional class includes soil and water conservation and marketing timber, land and water conservation practices.

A three-year program is available for students interested in only one 55-minute period for Natural Resources Management IV is provided. First three classes, the additional class includes soil and water conservation and marketing timber, land and water conservation practices.

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D. Puckett, agriculture teacher, and two Natural Resources Management students plant the pine and White Pine in the Christmas tree plot.

Some of the related activities carried out on the school land laboratory and in the surrounding community provide the link between theory and practice, reinforcing classroom concepts.

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INTERNSHIPS IN NONFARM AGRICULTURE FOR PROSPECTIVE TEACHERS

Charles W. Smith
Teacher Educator
Louisiana State University

The purposes of the course are to (1) familiarize students with the operation of agriculturally related businesses through observation, instruction and work in related agricultural businesses and to (2) familiarize students with the cooperative agricultural education program as conducted in Louisiana through related classroom instruction.

Student Internship
Since an internship denotes a training period of actual service as an employee in a business, each student enrollees is placed in three different nonfarm agricultural businesses for a period of forty hours in each establishment. Nominal students work four hours a day, two days a week, for six weeks and obtain a total of 120 hours of work experience during the semester in the three businesses.

Cooperating businesses utilized in the internship program are located along the basis of Farm Machinery Line and Service, Farm Supplies and Equipment, and Ornamental Horticulture. Businesses selected for training (when are of sufficient size to employ persons in a number of job titles which are representative of some of the nonfarm agricultural job titles found in the state.

An agreement which details the responsibilities of the student, manager, and instructor, is signed by all three parties prior to the beginning of the internship. The working environment includes the following:

The student will receive no pay.

The student’s work schedule will be worked out between the student and the instructor, subject to approval of the instructor.

The student will observe all policies and regulations of the business.

The student will participate in the activities of each department to which he is assigned in the order in which he is asked to be rotated to several areas of the business to broaden his experiences.

The student will be assigned to a variety of departments, including selling and marketing.

The student will complete a final report of his activities.

The manager will report to the instructor periodically on the progress of the student.

The instructor will visit the business periodically to confer with the manager and the student.

Policy's image of the business
- Ownership organization
- General layout of the business
- Employment applications
- Training programs for employees
- Personnel policies
- Sales forms
- Customer services and conveniences (credit, delivery & others)
- Receiving (method of shipment, records - orders, invoices, etc. - return to vendors, and exchanges with other businesses)
- Market information supplied to employees
- Resident buying office (name, location, services provided for the week)
- Contributions of each department to the total operation
- Approximately sales volume and mark-up of marketable
- Methods of keeping and taking inventory
- Selling (psychological principles involved in persuasive aspects of selling)
- Advertising and promotion schemes
- Merchandise presentation
- Store protection
- Merchant and community relations
- Relationships of employee to fellow employees, employers, customers, salesmen, and others.

At the completion of the internship, the student is required to submit a written report to the instructor describing in detail the observations made in each business, an account of his work experiences, and a detailed job description of each job title found in the businesses which included the following:

Job title, Nature of the work, Training and background needed, Salary and benefits, Opportunities for advancement.

Related Classroom Instruction
Concurrently with the internship, students attend class for two hours a week for related classroom instruction. The instruction is focused around the cooperative agricultural education program as an important aspect of the supervised experience program in vocational agriculture.

The major objectives of the related classroom instruction are to acquaint students with (1) the basic and advanced program in vocational agriculture; (2) cooperative work experiences in general; (3) problems of youth in employment; (4) the nonfarm agricultural complex in Louisiana—opportunities and training needs; (5) problems of identifying occupational opportunities at the community level; (6) the guidance function of the teacher of vocational agriculture; (7) the vocational development process of students; (8) methods of using information in teaching and counseling; (9) vocational guidance activities of teachers; (10) the cooperative agricultural education program in Louisiana; (11) policies related to student participation in a C.A.E. program; (12) teacher responsibilities in conducting a C.A.E. program; (13) responsibilities of the training center in a C.A.E. program; (14) steps in implementing a C.A.E. program; and (15) labor laws related to a C.A.E. program.

Summary
The internship has been in operation for four years. Graduates in agricultural education who have completed the internship have been successful in initiating and administering agricultural education programs in secondary schools and have expressed satisfaction with the contribution of the internship to their professional training in agricultural education.

Since the successful development of the internship in nonfarm agriculture in the Department of Agricultural Education, other areas of vocational teacher education at Louisiana State University have developed an internship as a part of their curriculum.

The internship combines both the theoretical and practical and provides the prospective teacher with significant pre-service educational experiences. It focuses on areas of agricultural employment that will provide the greatest number of employment opportunities in the future for students having occupational interests in agriculture.
The Neglect of Vocational Agriculture in Eastern Nigeria

John U. Okorie* Iona State University

Vocational Education in agricultural education in the Eastern State of Nigeria appears to be losing its luster, especially with the youth. Many of the people still view it as a stepping stone on the road to higher education. Unfortunately, the government as well as the University of Nigeria does not seem to be active in this area. The agricultural education section of the Department of Cooperative Education, University of Nigeria, Nsukka, cooperates virtually a nominal role. It is disheartening to state that the agricultural education section has been in existence for the university for about one year with only one instructor. This demonstrates a keen neglect of vocational education in agriculture, and an apparent effort to stymie the advancement of agriculture in this area.

Prior to the Civil War which ended in 1970, students in Nigeria, as well as a number of unemployed youth were developing some awareness about choosing a career in agriculture. Today, however, there has been a considerable about pursuing agriculture in spite of its tremendous potential. Remarkably, there has been a considerable awareness about choosing a career in agriculture by the youth recently. The students look for direction either through their parents or the government. However, the teachers are not aware of the types of educational occupations available other than farming.

Nevertheless, some farmers do want their children to become farmers. More specifically, in a recent study conducted by the author, 60 percent of the farmers said that their children desire to become farmers, while only 5 percent of the farmers said that their children do not want to be farmers.

Out of a total of about 150 school age children in the study area, a list of 33 secondary schools was obtained from the Ministry of Education. This number represented all those that were listed in the national school directory. The list did not include all the children in the region offering agriculture in high schools. It was not possible to obtain the list of all the schools offering agriculture in secondary schools due to the time constraints.

Agricultural Patterns

More than 80 percent of the farmers in the region operate a mixed type of farming. Under this system, each family is engaged in the production of crops as well as livestock. The farmers cultivate various types of crops like rice, cassava, yam, beans, and vegetables. Furthermore, they keep a few goats and sheep. These practices of farming in addition to others have been characterized by the lack of pertinent training and insufficient knowledge of farming methods.

Parent's Views About Vocational Education

To many parents being a good farmer does not require formal education. Parents support children's formal education in the secondary school. The parents view their children as having a better chance of securing a job and making a living through formal education. They are not certain about the success of their children in farming, and they do not believe that modern farming is a viable career.

Evidently, farming is devoid of adequate financial rewards. The information gathered from the survey reveals that a majority of the farmers in Eastern Nigeria earned an annual income of $150 and $500. On the basis of this income, farmers are unable to meet the basic needs of their families, which is the main reason for the neglect of agriculture in Nigeria. Most farmers are unable to meet the basic needs of their families, including food, clothing, and shelter.

Furthermore, the education of their children is not a priority for the majority of farmers. The lack of education and the knowledge of modern farming methods are major concerns for the government. The government is trying to encourage farmers to adopt modern farming methods and to improve their agricultural practices.

Government Policies

Out of a total of about 150 school age children in the study area, a list of 33 secondary schools was obtained from the Ministry of Education. This number represented all those that were listed in the national school directory. The list did not include all the children in the region offering agriculture in high schools. It was not possible to obtain the list of all the schools offering agriculture in secondary schools due to the time constraints.

An invaluable 95.5 percent of the secondary school students blamed the government for lack of encouragement in the study of agriculture, especially as there was no emphasis being placed upon the vocational aspects of agriculture. It was comforting to find that 96 percent of the students agreed with the statement that farming is a good occupation, but maintained that farming in Nigeria needed improvements in all sectors.

The study showed that 90 percent of the students agreed that better trained teachers were needed to teach agriculture in secondary schools. Approximately 64 percent expressed the need for individual farm projects which are not required of the students according to the school curriculum, whereas 84 percent maintained that students could learn more about agriculture in the study of agriculture. The persistent usage of the text book and mock test for the school farm was an anathema to the students. For this reason, 92.5 percent expected the government to introduce modern farming machinery and equipment for use on the school farm.

Changing the Agricultural Image

Among the problems which allow the neglect of agriculture are a lack of information and education for the farmers. The farmers actually lack the knowledge and skills necessary to improve their agricultural practices. To overcome this problem, new agricultural education programs should be introduced in universities and schools. The use of audio-visual materials for instructional purposes should be encouraged. Instructional programs should be tailored to the needs of the farmers in the area.

An important aspect of meeting teachers needs involves training. More than 90 percent of the teachers in Nigeria are inadequately qualified to teach agriculture in secondary schools. Therefore, there is a need to improve the training of agricultural teachers in order to keep them current on agricultural techniques and developments. The use of audio-visual materials for instructional purposes should be encouraged. Instructional programs should be tailored to the needs of the farmers in the area.

As an example, the government should consider introducing a Vocational Education Department in the University of Nigeria or a similar institution.

*This article is largely based upon John O. Okorie's dissertation: The Impact of Agricultural Education on Agriculture in Nigeria. Dissertation submitted to the University of Iowa, Iowa City, Iowa. This article was prepared to study in the Master's Degree Program in Agriculture.

21. Surveying and laying off water drainage area on the land labor
22. Thinning 1/4 acre or more of timber on the land laboratory each year.
23. Conducting active building our American Communities (BOAC) Projects for the school and community
24. Cooperating and working with community citizens and groups

All successful programs have one thing in common—support on the community, an area, and a state-wide basis. The William Campbell Agricultural Education Department has the fortune to have had such support.
ASSISTANTSHIPS AND FELLOWSHIPS IN AGRICULTURAL EDUCATION, 1975-76

Paul Peterson
Coordinator, Agricultural Education California State Polytechnic University, Pomona

The 1975-76 survey of the Publications Committee of the American Association of Agricultural Education reveals a continuing availability of assistantships.

Key to Understanding:
Data provided are in the following order: Nature of assistantships (number available); number of months available during year; beginning month of employment; amount of work expected; position representation and other considerations such as remission of fees; whether aid is for master’s, advanced degree, or doctorate program; or doctoral students; source of funds; the 1975 deadline for application, and the person to be contacted. Eight variations in this pattern are due to the nature of the data provided by reporting institutions.

Alabama A. M. University
Research Assistant (1) 12 month; Immediately; 20 hr./wk.; masters, 9 months; Graduate Assistant (1) 9 month; Sept. 1, 1975; 20 hr./wk.; masters, 20 mos.; Contact: Dr. Taylor Boyd, Agronomy Education.

University of Arizona
Research assistantships (2) 0-12 month; $650-900 per month; assistantship and full-time employment, 9 month; M.S. candidates $770 per month; assistantship and part-time, 12 month; assistantship only for M.S. candidates; application deadline—April 15; contact: Dr. L. C. Qualls, Professor, Head, Agricultural Education.

Clemson University
Research assistantship (1) 12 month; August 1975; $600 plus maintenance in fees; masters, university funds; application deadline—March 1; may be renewed; contact: Dr. Thomas G. W. McGowen, Professor, Department of Agronomy, Clemson, South Carolina.

University of Illinois at Urbana-Champaign
Teaching assistantship (1); one-half time; $678.00; position is on M.S. or Ph.D.; contact: R. A. Overby; 20 mos.; masters, Ph.D.; contact: Dr. L. A. Smith, Department of Agricultural Education, Urbana, Illinois.

University of Minnesota
Research assistantship (4); 12 month; $2,000 or $3,000, plus room and board; master’s, university funds; application deadline—Sept. 1; contact: Dr. T. O. Peterson, Professor, Department of Agricultural Education, St. Paul, Minnesota.

Kansas State University
Teaching assistantships (1) 2 positions; 12 months each; $710 per month; assistantship and full-time teaching, 12 month; assistantship only, 9 month; assistantship and part-time, 12 month; assistantship only for M.S. candidates; application deadline—March 1; may be renewed; Contact: Dr. T. O. Peterson, Professor, Department of Agricultural Education, Manhattan, Kansas.

University of Missouri
Research assistantship (1); 12 month; August; $500 plus fees; Ph.D. candidates $600 per month; assistantship and part-time, 12 month; assistantship only, 9 month; Ph.D. candidates $620 per month; fees and fees are waived; application deadline—March 1; contact: Dr. A. R. Blazek, Professor, Department of Agricultural Education, Columbia, Missouri.

University of Missouri-Columbia
Graduate assistantships available; for the 1975-76 academic year—two teaching and two research assistantships, 12 month; master’s, $1,000, plus room and board; assistantship and full-time employment, 12 month; assistantship only for M.S. candidates; application deadline—April 1; contact: Dr. H. W. Morgan, Professor, Department of Agricultural Education, Columbia, Missouri.

University of Oklahoma
Research assistantship (1); 12 month; August; $600 plus fees; assistantship and part-time employment, 12 month; assistantship only, 9 month; Ph.D. candidates $625 per month; fees are waived; application deadline—March 1; contact: Dr. F. R. Manley, Professor, Department of Agricultural Education, Norman, Oklahoma.

University of Oklahoma
Graduate assistantships available; for the 1975-76 academic year—two teaching and two research assistantships, 12 month; master’s, $600, plus room and board; assistantship and full-time employment, 12 month; assistantship only for M.S. candidates; application deadline—April 1; contact: Dr. H. W. Morgan, Professor, Department of Agricultural Education, Norman, Oklahoma.

University of Texas at Austin
Graduate assistantships available; for the 1975-76 academic year—two teaching and two research assistantships, 12 month; master’s, $600, plus room and board; assistantship and full-time employment, 12 month; assistantship only for M.S. candidates; application deadline—April 1; contact: Dr. H. W. Morgan, Professor, Department of Agricultural Education, Norman, Oklahoma.

University of Wisconsin
Graduate assistantships available; for the 1975-76 academic year—two teaching and two research assistantships, 12 month; master’s, $525, plus room and board; assistantship and full-time employment, 12 month; assistantship only for M.S. candidates; application deadline—April 1; contact: Dr. J. E. Schott, Professor, Department of Agricultural Education, Madison, Wisconsin.

Virginia Polytechnic Institute and State University
Research assistantships (1) 9 month; Ph.D.; contact: Dr. W. H. Breyer, Professor, Department of Agriculture Education, Blacksburg, Virginia.

BOOK REVIEWS
ENVIRONMENTAL CONSERVATION EDUCATION BY THE COMMUNITY. By F. L. Dymond. Redwood City, California: Interstate Printers & Publishers, Inc., 1974, 70 pp., $25.00. Reviewed by Dr. R. E. Frick, Associate Professor, Department of Agriculture Education, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

The purpose of this book is to explain the need for environmental conservation education. The importance of this subject has increased over the last few years, especially with the advent of environmental protection laws. The book explains some of the myths of gardening to the inexperienced. The book explains some of the myths of gardening to the inexperienced. The book can be used as a reference as a comparison as a progressive step-by-step guide for the beginning gardener. The book is divided into five sections. The first section covers preparing the garden, the second section covers planting and caring for the garden, the third section covers harvesting and preserving the garden, the fourth section covers conservation, and the fifth section covers future conservation. The book is well written and is well organized for easy reading. The book is highly recommended for use in environmental conservation education.

The book is well written and is well organized for easy reading. The book is highly recommended for use in environmental conservation education.

To order a copy of this book, please contact the publisher at the address below:
Interstate Printers & Publishers, Inc., 3000 Westpark Drive, Redwood City, California 94062.

HOW TO GET BETTER AND SPEND LESS. A COMPLETE GUIDE TO VEGETABLE GARDENING. By Eddy Ray. Reston, Virginia: Reston Publishing Company, 1974, $7.95 Cloth.

This book is an easy-to-read, plain-language guide to vegetable gardening. It is well organized, easy to read, and easy to follow. The book is highly recommended for use in vegetable gardening education.
STUDYING TEXTS—Setting up a lightweight tent, in this case in the classroom, is a first step in studying camping trips for vocational or recreational purposes. (Photo by Thomas Maret, Coventry, Rhode Island)

FELLING TREES—Students enrolled in natural resources learn how to fell trees. These students have a forestry technician near their school. (Photo from Max Amberson, Manassa High University)

STUDYING WATER—The area of water includes maintaining and improving water quality. Here technicians conduct tests at a tree farm in Kentucky, and courtesy of the Weyerhaeuser Company.

USING INCREMENT BORER—Glen Kilg of the U.S. Forest Service demonstrates the use of an increment borer in determining the age of a tree in Lee Wilson, agriculture teacher at McCrory County (Kentucky) High School. (Photo from Rodney Tullib, University of Kentucky, and by Lue and Ladd Studio, Whitney City, Kentucky)

DITCHING—Improving and maintaining the soil is an integral part of the instruction in natural resources. Here a ditch is served operating on the E. V. King Ranch, Silverton, Oregon. (Photo from Rodney Tullib, University of Kentucky, and U.S. Department of Agriculture)

Theme—UTILIZING RESOURCES IN TEACHING