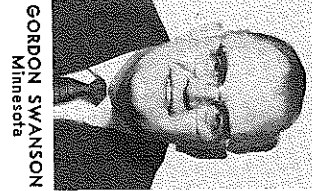


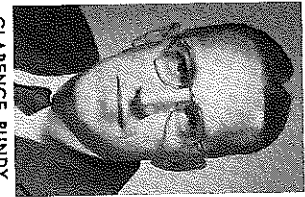
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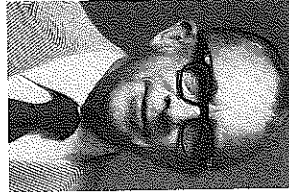
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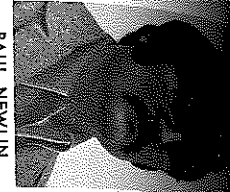
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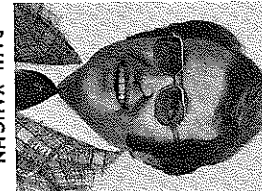
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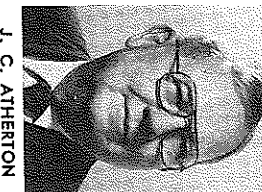
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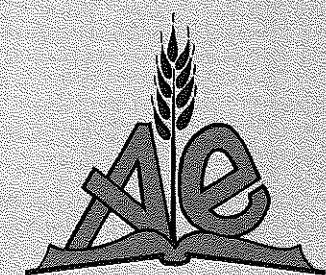
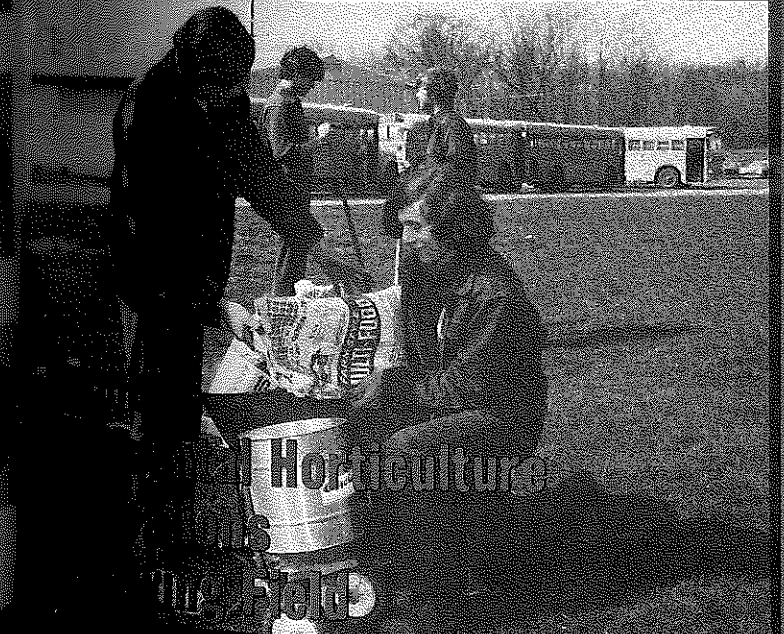
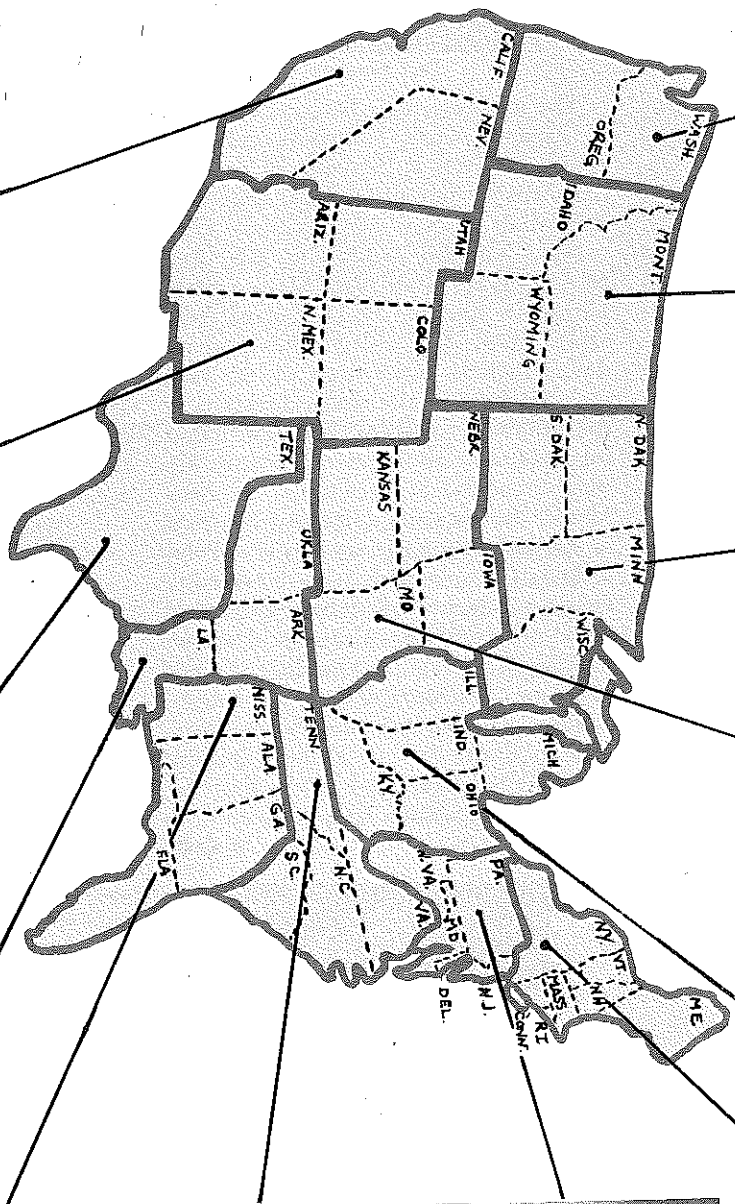
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AGRICULTURAL EDUCATION

Volume 50

Number 6

December 1977

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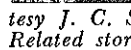
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COVER PHOTOS



Top Photo —
Floyd Yancy, Vocational Agriculture/Agribusiness teacher at Zachary High School, instructs students in the ability to properly identify ornamental plants. Assisting is Janet Harris, student teacher from Louisiana State University. (Photo courtesy J. C. Simmons, Area Supervisor, LA. Related story, pg. 130)



Middle Photo —
George Chavez, Vocational Agriculture Teacher at Belen, New Mexico, inspects plants with Raymond Gabaldon, one of New Mexico's Star District Agribusinessmen. Gabaldon completed three years of horticulture instruction and is now in charge of the nursery and floral department of a large supermarket. Belen High School operates both a production and horticulture program, and has the largest FFA Chapter in New Mexico with over 225 active FFA members. (Photo courtesy Bill Morrison, FFA Executive Secretary, New Mexico)

Bottom Photo —

Students in the Landscaping course at the Rockland Co., NY, BOCES Center of Occupational Education perform grounds maintenance. The course instructor is Gordon White. (Photo courtesy Olaf Studios and Art Berkey, Cornell University)

This publication is the monthly professional journal of agricultural education. The journal is published by THE AGRICULTURAL EDUCATION MAGAZINE, INC., and is printed at the Lawhead Press, Inc., 900 East State Street, Athens, Ohio 45701.

Second-class postage paid at Athens, Ohio.

Send articles and pictures to the Editor or to the appropriate Special Editor.

SUBSCRIPTION PRICE: \$5 per year. Foreign subscriptions \$10 surface mail, \$20 air mail (except Canada). Student subscriptions in groups (one address) \$3 for eight issues. Single copies and back issues less than ten years old are available at \$1 each. All back issues are available on microfilm from Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. In submitting subscriptions, designate new or renewal and address including ZIP code. Send all subscriptions and requests for hardcopy back issues to the business manager: Charles W. Lebo, Business Manager, RD 2, Box 639, Halifax, PA 17032.

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GUEST EDITORIAL

ORNAMENTAL HORTICULTURE MUST
GROW TO MEET CHANGING NEEDS

by
Robert T. Johnson
Horticulture Instructor
Dutchess County B.O.C.E.S.
Poughkeepsie, NY

In the past few years our depressed economy has reduced the job market considerably. This situation has put a greater burden than ever before existed on occupational educators in placing their students in good jobs. Being an ornamental horticulture teacher for five years at Dutchess County B.O.C.E.S. in Poughkeepsie, New York, I began teaching and placing students at the tail end of "the good years" and have seen the change in the job market occur.

I have modified, but more importantly, broadened the subject matter in my course and my methods of assisting students in obtaining jobs.

These ideas should be useful to others and will bear out my theory that ornamental horticultural occupations and the methods of obtaining them is a growing field.

COURSE MATERIAL MUST BE CURRENT

It is essential that ornamental horticulture subject matter, as well as subject matter in all occupational courses, keep up with current ideas and procedures. This will make students more employable in existing businesses, as well as open up new jobs to students in new businesses specializing in current trends. Three horticultural areas which have recently gained a great deal of popularity are: (1) home vegetable and fruit production, (2) organic gardening, and (3) environmental beautification. I have found it very easy to incorporate this subject matter into my previous course of study; in some cases it required little more than a change in vocabulary. These changes in subject matter do make a difference in student employability.

PLACEMENT EFFORTS MUST BE EMPHASIZED

The increased effort of ornamental horticulture teachers in assisting their students in obtaining jobs is now a necessity. Horticulture teachers cannot afford to leave any stone unturned. There are numerous ways that this can be done, all of which should be utilized. The advisory committee is extremely useful in many respects. The ornamental horticulture teacher gets input from his advisory committee on subject matter that should be stressed in the curriculum, the importance of which is often indigenous to that locality. When advisory committee

members see this is being done, word spreads from employers (advisory committee members) to other employers that the graduating students from the horticulture program are well trained. Having receptive employers certainly improves students' chances of obtaining good jobs. During this past year, my advisory committee recommended that a greater emphasis be placed on container grown woody plant production and maintenance. As a result of this, our school has purchased a greenhouse frame that we will use specifically for this purpose.

PUBLICITY HELPS GREATLY

All methods of keeping the horticulture course's name in the public eye should be utilized. This aids students who are seeking jobs from employers as well as students who will be self-employed as landscapers, etc. This can be done in many ways. Newspaper articles are probably the most common; but participation in fairs, where flower arrangements and landscape displays may be exhibited, and civic ceremonies such as Arbor Day tree planting ceremonies are equally as effective. This past year, my horticulture class participated in the Eastern States Exposition as well as a local FFA fair. We also planted a tree donated by our County Horticultural Association in a city park on Arbor Day. The ceremony was attended by many public officials, including the Mayor. The publicity created by these events was further improved by newspaper articles with pictures and names of the students involved.

PROFESSIONAL ORGANIZATIONS ARE AN AID

Membership and active participation of students and instructor in local professional horticultural organizations may be the single most important means of obtaining students employment. I have certainly found this to be the case here in Dutchess County. I am currently Vice President of the Horticultural Industries Association of Dutchess County. Some of my students have become members of this organization. They have obtained jobs by meeting potential employers at our monthly meetings, as well as enjoyed the many other benefits of being members.

As I stated at the beginning of this article, ornamental horticultural occupations and the many diversified methods of obtaining them is certainly a growing field.

NATIONAL AGRICULTURAL EDUCATION ADVISORY COUNCIL REPORT

With the increased emphasis on advisory committees in current legislation, I felt it important to relay this report of our National Advisory Council to you. Therefore, I donate my editorial space to this important report. — Ed

The National Agricultural Education Advisory Council met March 3, 1977 in Washington, D.C.

An annual report of the Council's accomplishments was presented.

1. The National Agricultural Education Advisory Council was officially chartered by the American Vocational Association.
2. Members of the Advisory Council participated in the project "Standards for Quality Vocational Programs in Agriculture/Agribusiness Education."
3. The Council's concerns led to the development of a statement of "Philosophy for Vocational Agricultural Education," which was adopted by the profession at the 1976 national convention.
4. The Council's concern about the supply of teachers undoubtedly helped influence AVA to establish a task force on Teacher Education chaired by Gene Love, Chairman of the Agricultural Education Department, The Pennsylvania State University.

by
Gerald R. Fuller
Secretary

National Agricultural Education
Advisory Council

The Agricultural Education Division (AVA) Executive Committee presented the council with a proposed program of work for the current year. The goals and objectives for the Council's program of work are:

Goal: Maintenance and Development of Agricultural Education - Agricultural Industry Relations.

Objective 1: Publish information regarding Agricultural Education in industry/agency magazines and in-house news media.

Objective 2: Improve agricultural - agricultural industry articulation at national, regional, state and local levels.

The Advisory Council recommended to the Agricultural Education Division Executive Committee that the profession:

1. Continue to accept females into programs at all levels.
2. Encourage more minority group members and women to become teachers.
3. Establish a commission to examine the future role of Agricultural Education in providing adult education.

Complete minutes of the Council meeting have been sent to each head state supervisor and teacher educator.

(Please submit articles 2 1/2 months in advance of Theme to allow publication time.)

COMING ISSUES COMING ISSUES COMING ISSUES

- JANUARY** — Agricultural Supplies and Services — Supplying and Serving the Nation
- FEBRUARY** — The FFA — Training Leaders for Agriculture
- MARCH** — International Education in Agriculture — Serving Our Friends There and Here
- APRIL** — Serving Adults — Young Farmers, Adult Farmers, Agribusinessmen
- MAY** — Post-Secondary Education in Agriculture — An Emerging Partner
- JUNE** — Cooperative Education in Agriculture — Learning on the Job

- JULY** — Careers in Agriculture — Summer Employment Opportunities
- AUGUST** — Teacher Education in Agriculture — Laying the Foundation for Good Teaching
- SEPTEMBER** — Student Competition — An Incentive Approach
- OCTOBER** — Supervisors and Consultants — Important Members of the Team
- NOVEMBER** — Effective Teaching — What's the Basis?
- DECEMBER** — Professionalism—That's The Name of the Game

Persons present at the National Agricultural Education Advisory Council meeting, March 3, 1977, Washington, D.C. were:

Council Members

- Charles Dana Bennett, Foundation for American Agriculture
F. Raymond Brush, American Association of Nurserymen
Walter Jacoby (chairperson), American Institute for Cooperation
Wilson Carnes, American Agricultural Editors Association
Wray Finney, American National Cattlemen's Association
Steve Kimbell, Animal Health Institute
Wayne L. Sanders, Missouri Farmers Association
John M. Scott, The National Grange
William E. Towell, American Forestry Association
Ben Weitzel, National Young Farmers Educational Institute
Gerald R. Fuller (Secretary), Agricultural Education Division, AVA

Ex. Officio Members

- Dean Griffin, American Vocational Association
H. N. Hunsicker, U.S. Office of Education
Ted Amick (Representing Coleman Harris), National FFA
Richard Weber, NVATA

CONTINUED NATIONAL AGRICULTURAL EDUCATION

William Drake (Representing Floyd McCormick), AATEA
J. Robert Warmbrod, Agricultural Education Division, AVA
James Dougan (Representing Ralph Dreessen), NASAE

Guests

Harry Kiley, American Association of Nurserymen
Harold Crawford, national project "Standards for Quality Vocational Programs in Agriculture/Agribusiness Education."

THE NATIONAL AGRICULTURAL EDUCATION ADVISORY COUNCIL ASKS IMPORTANT QUESTIONS

A profession should be in a strong position to influence its future. One way to develop a position of strength is to identify key questions which must be answered and then to seek the answers. The National Agricultural Education Advisory Council (AVA) raised a series of important questions during its March 3, 1977, meeting.

Can the Agricultural Education profession answer the following questions raised by the Council?

- A. Secondary and post-secondary programs:**
1. What is the placement record for graduates of high school Agricultural Education programs?
 2. What is the per pupil funding for Agricultural Education? How does this compare with other vocational programs?
 3. Is sex stereotyping occurring within Agricultural Education?
 4. What do state FFA alumni associations do?
 5. What are the sources of students entering post-secondary programs?

WORLD SOYBEAN RESEARCH, By Lowell D. Hill (Ed) Danville, Illinois: The Interstate Printers & Publishers, Inc. 1976, 1074 pp., \$16.50

This book is a collection of more than 50 scientific papers that were presented at a World Soybean Research Conference held at the University of Illinois in 1975. More than 600 people from 50 countries attended. Some 50 scientific papers concerning all phases of soybean research and production were presented. These papers were grouped into five major categories and published as a book. The five categories are production, protection, economics of marketing and

6. What is the percentage of non-farm students vs. farm students entering four-year agriculture colleges?

7. How close are post-secondary programs coming to meeting employment needs?

B. Adult and young farmer programs:

1. What types of adult education leadership are available at the state and national levels? Does business and industry have a role to play in providing leadership?

2. What funding is available for young farmer education? What problems are faced at the local level where budgets are limited?

3. Is young farmer education a part of the total Agricultural Education program? Are strong statements being included in state plans? Should the young farmer program be included in the National FFA Foundation support program?

4. What does Agricultural Education really want to do regarding the concept of life-long learning? Is separating people by age groups the best approach?

5. Where is agricultural education headed regarding adult education?

6. Should groups interested in specialized adult education be willing to contribute financially? What is the best way to provide for adult education?

7. What funds are, or will be, available for adult education?

C. Supervision and teacher education:

1. How is local level leadership in Agricultural Education developed?

2. Would business and industry provide expertise to help implement a local, state and/or national professional leadership development program?

3. What role should business and industry play in teacher education?

4. What "measuring sticks" are used to assess professional and technical competencies of teachers?

5. What are the real reasons for the teacher shortage?

6. Are FFA alumni associations tackling state leadership problems?

The profession must be prepared to listen to the answers to the questions it asks, and . . . there should be follow-up action taken when appropriate. For example, during the Council meeting it became apparent that business and industry perceived that large numbers of horticulture programs are being offered nationwide. Through discussion it was found that business and industry questions whether the students in these programs are receiving adequate preparation and occupational experience prior to graduation.

Similarly, during discussion it was ascertained that business and industry perceives post-secondary programs as involving industry and carrying through on industry's suggestions. Both local secondary programs and four-year college programs are seen as lacking adequate articulation with industry.

The Agricultural Education profession must make a decision regarding how it wishes to invest its time. It appears that the National Agricultural Education Advisory Council believes there are areas vital to the future of the profession that need immediate attention and require considerable investment of the profession's time. ♦♦♦

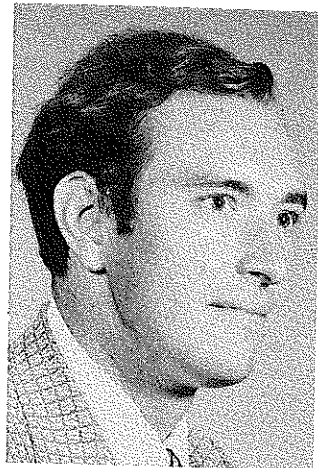
production, utilization and summing up. Each major category except the last category is subdivided into several subcategories such as world trade and competition, storage and transportation, insect control, equipment, growth habits and cultural practices and techniques of research and selection.

Each subcategory is a collection of papers that are related in general to the topic. Some of the papers are very scientific and complex while others are somewhat general. The following are titles of some of the papers: Johnson Grass and Its Control; World Soybean Rust Situation, Seasonal and Daily Fluctuations of Soybean Insect Populations in the Yaqui Valley, Sonora, Mexico; Genetics of the Bacterium Rhizobium

Japonicum; Improvements in Soybean Production Equipment and Fertilizer Needs of the Soybean. Many of the papers are easy to read and interesting, however, there are a large number of papers which are somewhat scientific and very narrow in scope.

This book contains valuable information that will help improve soybean production, however, it is not the type of book you would sit down with and read. This book would be beneficial to a person pursuing an advanced degree in agronomy or possibly as a reference book for vocational agriculture teachers.

Gary E. Moore
Purdue University
West Lafayette, Indiana



Glenn H. Petrick

LEARNING BY DOING IN ORNAMENTAL HORTICULTURE

by
Glenn H. Petrick
Horticulture Department
Milwaukee Area Technical College

"Hands on Experience" and "Learning by Doing" have long been mottos of Vocational Education. The Horticulture Department at Milwaukee Area Technical College is presently attempting to simulate occupational conditions by incorporating work experience in its courses. Employers of our graduates place great emphasis on employee experience. Therefore, our program has been set up to provide students with an opportunity to engage in all the activities involved in the operation of a horticultural endeavor.

THE CAMPUS

Our new campus gives students the opportunity to practice landscape design and construction skills. Existing buildings and plant materials are utilized in design and construction classes. Retaining walls, walks, planters and patios are created with the aid of an instructor. Students' construction projects are kept for a time as examples and later dismantled so materials can be re-used by other students. Thus, a continually changing display area exists for visitor and employer viewing. Machine operation classes use a complete line of school owned landscape equipment to maintain the campus and construct new projects. Students record time spent operating equipment in a log book. This enables them to show a potential employer their exact amount of experience on each type of machine. Horticultural equipment classes repair machinery and keep it in proper running condition. A three acre working nursery provides practical experience in growing trees, shrubs, groundcovers and vines. Cultivating, pruning, transplanting, chemical control, orchard practices and other related nursery processes are learned. Some of the plant materials from the nursery are used in students' construction projects around the campus. Greenhouses enable students to propagate vegetative materials, participate in seedling transplanting and learn techniques in the control of pests and diseases. Bedding plants and seasonal potted plants are also grown.

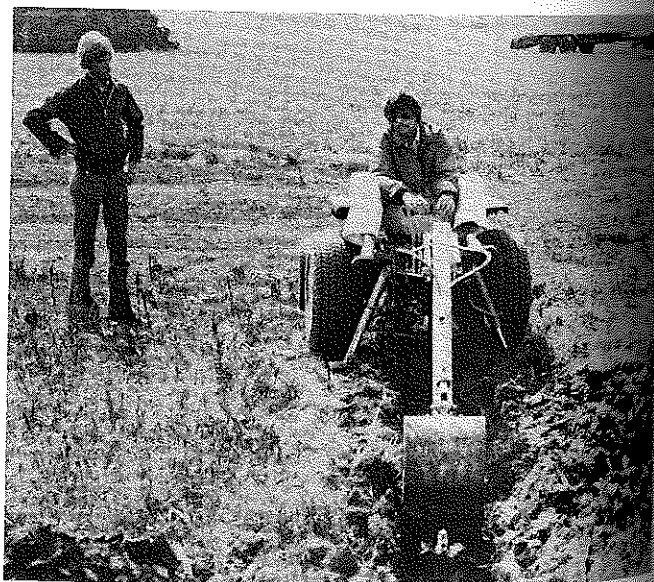
Students are expected to conduct themselves as they would in their future jobs. They get their hands dirty and perform manual labor when required by the situation. This enables them to discover whether the tasks performed are, for them, gratifying and rewarding, or menial and degrading. At this point, some students are counseled out of the program. For those who remain, job placement is good. Local employers have helped us set up our program and endorse the practical experience we provide for our students.

Every effort is made to create an atmosphere closely paralleling that of the horticulture industry.

Students also learn to work beside and with others. In courses such as Horticultural Business Methods, they polish those human relations abilities needed to make a person successful in any field they enter. Students learn to recognize those qualities that must be present to have a good working relationship with employers and customers. Attitude development and a willingness to work are stressed. Classes are offered to help students with the salesmanship skills they will need to merchandise products as well as to sell themselves during job interviews.

INTERNSHIP

An internship program places students with suitable employers. The school has a good working relationship with these industries, which not only employ our students, but also help keep instructors up to date on current industrial methods and techniques. Students returning from the internship bring a wealth of experience with them. This experience contributes as much to a structured class discussion as does the teacher's knowledge.



Students from a horticulture equipment class dig with power equipment.



A landscape construction class builds a patio.

PLACEMENT

Metropolitan Milwaukee is a rapidly expanding area with many opportunities in ornamental horticulture. New construction brings with it a need for landscaping. The horticulture program was started by Milwaukee Area Technical College at the request of area landscape contractors who were unable to find enough qualified people to hire. Golf courses, garden centers, park departments, landscape contractors, greenhouse people and nurserymen all come on-campus to interview. Most student placement with employers occurs long before graduation with the student working on a part time basis until the end of the school year.

A small number of students go into business for themselves directly after graduation. These people often start out by doing landscape maintenance work and expand into construction work as their finances enable them to purchase larger pieces of equipment.

SEASONAL SEMESTER

Landscaping is very seasonal work. Therefore, a seasonal school semester is offered to accommodate the upgrading of skills by people already in the industry. This additional school term begins in November and ends in March. Many

THE ABC AND XYZ OF BEE CULTURE, by A. I. Root, Medina, Ohio: A. I. Root Co., 1975, 712 pp., \$4.25

The ABC and XYZ of Bee Culture is an encyclopedia pertaining to the scientific and practical culture of bees. The book takes you letter by letter from A to Z explaining the commonplace, biological, and chemical terms used in beekeeping.

The author has indulged in factual photos, drawings, charts, etc., that help the reader understand the terms or processes being defined. These illustrations are large, precise, and detailed for easy measurement.

Extensive data were recorded in showing the bee's role in successful fruit production. Extreme care is shown in using a vocabulary understandable by novices, with notes occasionally reminding the beginner where to look up words that could help explain terms easier. Alphabetically, plants that influence honey production and quality were out-

lined. Artificial insemination of queens, swarming, wholesomeness of honey, are among the many hundred terms defined.

In an effort to update and keep relevant each edition, the author has consulted leading authorities in respective lines of work and investigation. Several whole research articles are printed or paraphrased by the author. The practical side is not overlooked as many practical, tried and true, methods are included.

A varied glossary gives definitions of common beekeeping terms, to aid in understanding technical portions of the book. For finding terms in an instant, a detailed alphabetical index makes research easier.

John A. Root is the son of Alan I. Root and the great grandson of A. I. Root who founded *Gleanings in Bee Culture*. This journal has been published since 1873. John A. Root, the fourth generation of Roots, graduated from Ohio Wesleyan University. He serves as Associate Editor of *Gleanings*

people use this to advantage and become students during the time they normally would be unemployed.

CONTRIBUTION

People successfully employed in the industry seem to feel that landscaping and horticulture have a certain dignity. Work, if it is to be fulfilling, should do more than provide support for a person. It should provide a method for the individual to make a contribution to society in his own unique way. Ornamental horticulture allows each person to use their own abilities to create a more pleasing environment while working in a highly competitive industry.

SUMMARY

The Vocational Horticulture Program at Milwaukee Area Technical College focuses on developing in students those horticultural skills and understandings they will need in the world of work. Practical "hands on" experience is used to make the program relevant and ease the transition from institutional training to full time employment. Efforts are made to give students the opportunity to apply and test their acquired skills under real conditions before they must enter the labor market. ◆◆◆



Trees and shrubs must be planted and cared for properly as shown in this class activity.

in *Bee Culture*. The 31-34th editions of ABC & XYZ were revised by Root.

ABC is an excellent resource book for beginners in beekeeping. As library book or text, this book is excellent for all vocational agriculture departments. Young students should be able to use this as a text in setting up projects. Throughout the book the bee's role in agriculture is stressed with excellent drawings, photos, and charts. There are step-by-step procedures for building hives, supers, honey extractors, and frames. Also, the alphabetical listings make it an asset for individualized study by the student. If students know their alphabet, they can learn about bees. The book would serve as an excellent text for college, vocational, or technical schools in apiculture or related courses. Another appropriate title could have been "Everything You Always Wanted to Know About Bees but Didn't Know Where to Look."

Alfred Clarke
Myrtle Beach, SC



Rodger E. Palmer

HORTICULTURE IN THE LARGEST INLAND PORT

by
Rodger E. Palmer
Teacher Education
University of Minnesota

Wayne Fairchild
Agribusiness Instructor
Duluth, Minnesota



Wayne Fairchild

Duluth Revisited

Located on the southwestern tip of Lake Superior, Duluth, Minnesota, is the largest inland port in the world. A population of 100,000 people is stretched over 35 miles of steep hills and rocks, with little visual evidence of agriculture or agribusiness firms except the harbor grain elevators. However, approximately 100 agribusiness firms have been identified in Duluth, with grain elevators, forest product firms and horticultural businesses representing the largest subgroups.

Prior to July of 1974, agricultural education in Duluth was identified in the position of an area vocational agriculture program coordinator. Rodger Palmer served in this position from 1968 to 1974 with a job responsibility covering the northeastern one-fourth of Minnesota, leaving little time for agricultural education in Duluth. There was no secondary program in agriculture in Duluth, but several short-term adult courses were successfully offered.

During the summer of 1972, Palmer conducted a survey of agribusiness employment opportunities and training needs within the city. A total of 100 agribusiness firms were identified which contained 10 greenhouses and/or nurseries, and 13 other related horticultural firms. A random sample of 36 firms were surveyed and showed that 52 employment opportunities would become available over a two-year period following the survey. The results seemed to indicate opportunity and need.

In September of 1972, the Ohio Vocational Interest Survey (OVIS) was given to all 9th and 12th grade students in the Duluth Public School system. There were approximately 1,600 students in each of these grades. The results showed that 16 percent checked agriculture as their first or second choice in the occupational plan category. Twenty-two percent indicated they would enroll in a general agriculture, forestry, landscaping or horticulture program if offered.

Armed with employment and student interest survey data, Palmer proposed a secondary agribusiness program to the school administration. Deadlines for implementing new programs had passed, so no action was taken for the 1972-73 school year. A larger, more comprehensive proposal was put forth in time to meet all deadlines for the 1973-74 school year. The plan called for one instructor to offer agribusiness classes on a split schedule at two different high schools in

the city. The approval process bogged down in faculty senate hearings when interdepartmental jealousies and a lack of agricultural knowledge surfaced among senate members. Again, another school year started in Duluth without agribusiness in the curriculum.

A decision was made early in 1974 to request approval for a comprehensive agribusiness program under a central concept. The request met with success, and on July 1, 1974 the program began to physically take shape under the direction of Wayne Fairchild, Duluth's first secondary agribusiness instructor.

Economic Data

What did Fairchild have to work with as a horticultural industry? Prior proposals had outlined employment opportunities, educational needs and the aesthetics of horticulture in Duluth, but none contained economic data on the industry.

In 1974, just prior to Palmer's departure from Duluth to the University of Minnesota, he concluded a study, "The Significance of the Horticulture Industry in Duluth."¹ The study dealt with educational activities and aesthetics, and for the first time added the economic dimension. Table 1, Economic Data, reports the findings.

Category	Total Number of Employees	F.T.E. ³	Salaries	Net Monthly Sales of Services
1. Floral Shops	35	17	\$ 80,000	\$ 300,000
2. Garden Stores/ Departments	37	17	58,000	850,000
3. Golf Courses ⁴	82	36	144,000	10,000
4. Greenhouses	71	40	230,000	950,000
5. Landscaping/ Nurseries	45	24	209,000	595,000
6. Parks and Recreation ⁵	53	33	230,000	63,000
TOTALS	323	167	\$951,000	\$2,768,000

¹Grounds keepers only.
²Grounds keepers and landscapers only.
³F.T.E. refers to Full Time Equivalent. This column is used to convert part-time employees to a full-time basis, and then is combined with full-time employee figures.
⁴This figure represents contract maintenance work on public golf courses. Private golf courses maintain their own nurseries.
⁵This figure represents services contracted by the City Parks and Recreation Department.

Advisory Committee

Fairchild began his teaching by starting a new department in Royalton, Minnesota. After three years of program development the challenge of building a large city program led Fairchild to Duluth.

He started the Duluth agribusiness program with a very active advisory committee. The committee currently has representation from the following areas: greenhouse, lawn care, tree service, nursery, landscape service, sod company, golf course, lawn and garden store, and professional.

The committee has had an active voice in facility specifications, equipment and material purchases, greenhouse maintenance procedures, on-the-job training policy, student club activities, new post-secondary program proposals and special Indian education programs. The committee meets monthly at the agribusiness facility and collectively has been the source of many training station locations.

Present Program and Facilities

The totally new facility, which was built in 1974 and 1975, consists of a central 40' x 40' classroom, office, lab and heating plant area. Two 28' x 80' fiberglass paneled greenhouses flank the central unit. One of the greenhouse wings is divided into three individually controlled compartments for developing different growing conditions. A 12' x 12' walk-in cooler is located immediately behind the central unit. In the fall of 1976, an additional agribusiness mechanics building was built in the immediate area. This steel 125' x 50' structure was designed to accommodate an existing post-secondary forest harvesting program and a horticulture equipment mechanics program, both at the secondary and post-secondary level.

The current horticulture program operates most extensively at the secondary and post-secondary levels. Individual courses have a limit of 20 students, each class has typically had over 100 students attempting to enroll in it.

At present, the Duluth Agribusiness Department offers courses in the following areas:

ELEMENTARY EDUCATION

1. Plant, Greenhouse and Tour Program (5,000 served in 1976-77)

SECONDARY EDUCATION

1. Horticulture I
2. Horticulture II
3. Forestry Natural Resources I
4. Forestry Natural Resources II
5. Agribusiness Coop Program

POST-SECONDARY

1. Horticulture Aid
2. Forest Harvesting (one of two such programs in the U.S.)

ADULT EDUCATION

1. Building greenhouse and plant growing structures at home
2. House plants
3. Landscaping
4. Vegetable growing

INDIAN EDUCATION (Lake Vermilion)

1. Landscaping (sod production)
2. Vegetable growing

Horticultural Occupations

The secondary agribusiness coop program is a one year, on-the-job placement program with related classroom instruction. Over the past two years, this program has had the cooperation of 42 different businesses for training stations. A total of 80 students have been placed in a variety of businesses — including several stations each — in wholesale greenhouses, retail florists, and garden centers. Other employment areas included a retail plant store, City Parks and Recreation Department, State Park, Department of Natural Resources, City Hall (grounds and flower beds), nurseries, landscaper, golf courses (maintain area around clubhouse, flower beds, etc.) and with private homes or estates.

Employers have indicated to Fairchild that they are well pleased with the quality of student performance after they have taken some of the basic agribusiness courses. Most employers have sought students with some training or experience.

Future Plans

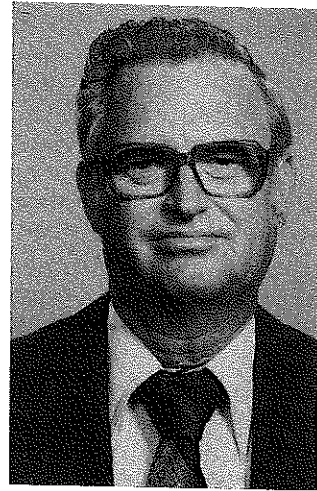
Fairchild and Palmer have kept close contact over the past three years while the Duluth program was developing. Both agree that the future is bright for the entire program, but especially in the horticulture area. A prominent greenhouse/nursery owner in Duluth once remarked: "Yes, we know that ornamental horticulture products are considered in the luxury classification in terms of spendable dollars, and that our success is tied closely to the economy, but our industry will grow as more people become educated and aware of the aesthetic and therapeutic value of our product!"

It will continue to be difficult to inform the 5,000 eligible secondary students in the five high schools in Duluth about the program, and to achieve a fair student selection. But hopefully, future program expansion will accommodate more students and at the same time generate an expanded industry opportunity. It is believed that a continued high quality training program will give students the necessary experience and skills to secure a position in the expanding horticulture industry. ◆◆◆

¹Rodger E. Palmer, "The Significance of the Horticulture Industry in Duluth," (Unpublished Report, Agriculture Education Division, University of Minnesota, 1974.)



Brian Carlenberg, Duluth East student, is shown getting plant maintenance instruction from his on-the-job supervisor, Jim Anderson, Superintendent of the Lester Park Golf Course in Duluth.



J. C. Simmons

Meeting the Needs of Students Who Plan Careers in Ornamental Horticulture Occupations

by
J. C. Simmons
Area Supervisor
Louisiana

Zachary High School is located twelve miles from the city limits of Baton Rouge, Louisiana, the capital of the state and a highly industrialized urban center. The school has had a very active vocational agriculture department for several years. Production agriculture was the major curriculum followed until it became obvious to the teacher and the school board that Zachary was becoming more and more urbanized as a result of the expanding population of nearby Baton Rouge.

ADMINISTRATIVE SUPPORT

Through cooperation and interest of the principal and school board personnel, the local teacher of agriculture initiated a curriculum designed to train students in ornamental horticulture. The vocational agriculture/agribusiness department now devotes about 75 percent of the instruction to training students in the area of ornamental horticulture.

The administration, seeing the need for changing the curriculum, has been very cooperative in providing facilities required for instructional purposes in ornamental horticulture. The department has two greenhouses measuring 22' x 52' with a 60' x 60' shade house. There are also media bins for potting and mixing soil, sand, and other media. A cold frame was also constructed. Each greenhouse is equipped with an automatic mist system.

OPPORTUNITIES FOR EXPERIENCE

Additional training is received by the students as a result of their experiences in managing three golf greens. An interested citizen in the community became aware of the excellent program being conducted in the school and has donated the use of a three acre plot to be used as a laboratory.

One of the major responsibilities of the department is the upkeep of the campus relative to landscaping. A few years ago, a new school plant was constructed and the students were assigned the task of preparing the landscaping plan for the new facility and also assisted in the actual job of carrying out the landscaping plans.

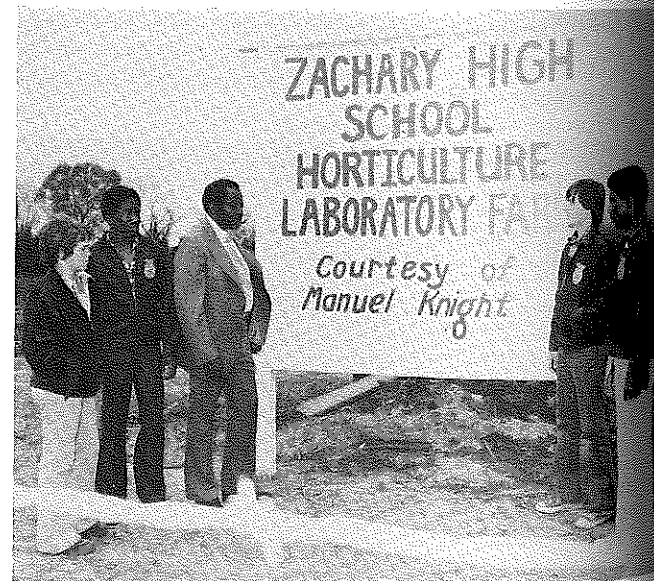
THE DEPARTMENT

This is a one teacher department with an enrollment of 105 students. The Vocational Agriculture Education Department at Louisiana State University uses this excellent facility as a training center for student teachers.

A well planned and effective classroom instructional program is conducted. The teacher has taken advantage of several in-service workshops from which he has gained additional knowledge and skills relative to teaching horticulture.

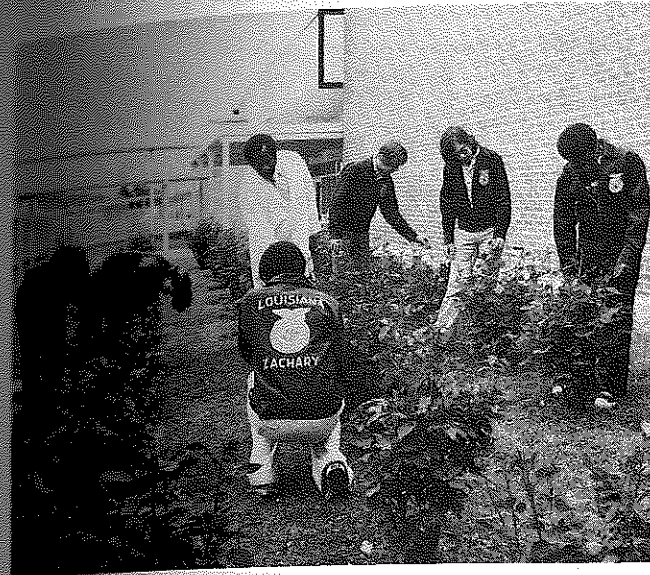
FACILITIES

The use of the several facilities at the school, including the two greenhouses, the laboratory plot, and the school campus, have greatly enhanced the learning situations of the students. (Concluded on next page)



Floyd Yancy, Vocational Agriculture/Agribusiness teacher at Zachary High School, and a group of his students observe the recently constructed sign on their three acre laboratory plot.

CONTINUED MEETING THE NEEDS . . .



Vocational Agriculture students care for the many plants located on the campus at Zachary High School. Their teacher of Vocational Agriculture/Agribusiness, Floyd Yancy, takes advantage of giving his students every opportunity for "hands-on-experiences."

students. After gaining a good basic knowledge through their classroom program, these vocational agriculture students become more and more involved in the actual "learning by doing" phase of the program contained in the above "hands on opportunities." Many of the students are from urban homes, but have become very interested and outstanding students in the program.



Floyd Yancy, Vocational Agriculture/Agribusiness teacher at Zachary High School, is shown instructing some of his students. The greenhouses used by this department are very important phases of the program of Ornamental Horticulture.

The two greenhouses are used continuously by the students. They also take very seriously their responsibilities toward the upkeep of the plants and lawn of their campus. This results in many excellent opportunities related to learning situations. The campus of Zachary High School is a source of pride to the parish school system. The three acre laboratory plot offers unlimited opportunities for advanced training as well as opportunities for the beginning students.

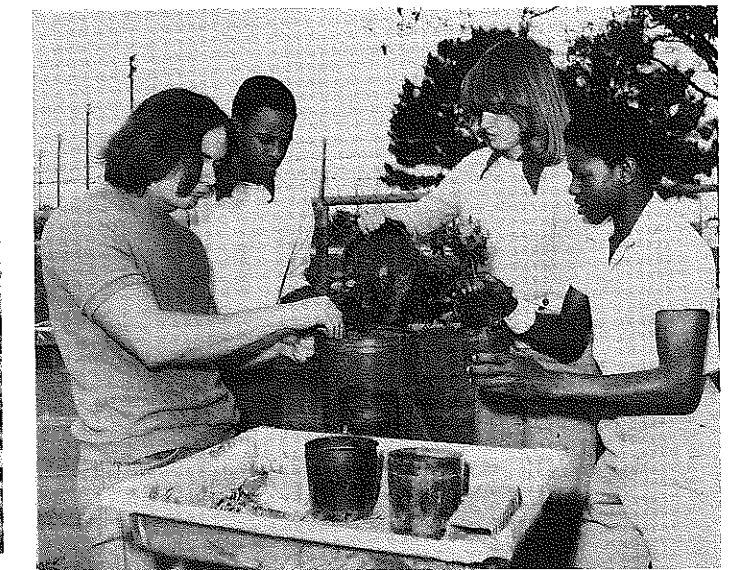
STUDENTS AND THE COMMUNITY

Students from the department have the opportunity to participate in the Cooperative Agriculture Education (CAE) Program. Through this on-the-job training program, selected students may be placed in commercial nurseries in the surrounding school area. This results in additional knowledge of the work within the field of horticulture.

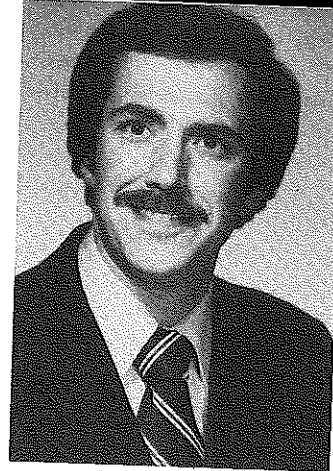
An open house is held each year making it possible for parents, school officials and others to visit the department and observe the results of the program. The Zachary High School FFA Chapter Ornamental Horticulture Judging teams have consistently placed high in area and state competition, indicating the effectiveness of the instruction they receive. Several graduates have been employed in this type work, while others are enrolled in horticulture on the college level.

A major newspaper in the state has devoted a full page to this educational program each of the past two years using color pictures of products raised by the students.

In summary, observation of this very successful program indicates the high value of students having the opportunity to put into practice skills in which they receive basic instruction in the classroom by "doing." ◆◆◆



Miss Janet Harris, student teacher from Louisiana State University and a student teacher at Zachary High School, assists some of her students in learning some of the skills required in Ornamental Horticulture.



Michael Montario

SOMETHING NEW UNDER THE SUN— EXPECTING THE UNEXPECTED

by
Michael Montario
Assistant Professor
Plant Science Department
SUNY Agricultural and Technical
College
Cobleskill, NY

FROM THE PLANTS THEMSELVES

As the flakes of the first snowfall of winter swirl about me, I cross the bridge over the frozen pond and enter the campus greenhouses. Here I meet my students in the plant science courses.

On the Cobleskill campus, students learn the many different ways plants can be grown for profit. Even so, it is not possible to show, or to allow the students to practice, all of the different horticultural techniques employed in the flower trade. So students are also taken beyond the bounds of formal classrooms, into the field.

In the initial course of study, students master the basic skills and facts of the floriculture industry. Much of this learning takes place in the form of demonstration.

BOTTOMS UP!

Now the age old problem arises, "Which way is up?" As I face the class, bulb deliberately inverted, roots up, all become quite still. I recognize the proper nervous response coming from the students. Then we acknowledge which way the bulb goes in.

In addition to learning how to differentiate tops from bottoms, students also explore the flower bulb's interior. Slicing the bulb in half reveals the unborn flower within, white and frosty waiting for soil, moisture and sun.

But how to care for the bulb, the plant? In a special demonstration, students invert a potted plant after watering it. Tapping the bottom of the pot gently, they remove the "soil ball" and note the extent of water penetration. Eyes usually open wide.

First seed sowings, placed under a cover of glass, inadvertently produce a student generated demonstration in the form of damping off disease, legginess, fungus molds — and all by the very simple act of neglecting to remove the glass after germination, for ventilation purposes.

Great interest arises during vegetative propagation — as does a number of new plants. In order to propagate new plants, students cut up snake plant leaves, dissect begonia leaves (at the vein) divide ferns (at the root), make terminal cuttings (at a 45 degree angle to the stem) and plant all cuttings in propagation media kept moist by automatic misting systems.

Air layering, another method of vegetative propagation practiced by students, entails lightly cutting into the outer layers of the branch of a plant, placing a plastic bag filled with moist rooting media around the cut (media kept moist), and securing the plastic in place. Wait about eight weeks, separate the newly rooted stem from the mother plant, and then pot it up.

In the course of work and study, students unintentionally provide demonstrations of soil compaction, over-fertilizing, insect infestation, overwatering and otherwise-affected plant life. They learn to identify problems from the plants themselves.

Sometimes "aids" are used for demonstration, one being a blue-colored fertilizer. After fertilizing, students invert pots and examine the roots of their plants. The more fertilizer the roots have absorbed, the bluer the roots. Comparing the observations of the plant with color indications of the roots enables the student to come to certain conclusions about his method of fertilization. Further comparisons with other student's plants and roots lead to discussions and discoveries.

DIGGING DEEPER

Results of student projects are always examined and discussed as a class. However, in spite of demonstrations, lectures, and required reading materials, some students still err. Errors become further demonstrations and sources for discussions and investigation.

Application of too much growth retardant results in misshapen plants, flowers, or an undesirable change in flower color or size.

Plants given proper amounts of growth retardant are short and stocky, have good shape, and flowers and plants bear properly. Proper use of growth regulators increases cell development, insuring longer stems and increased flower sizes. But as one student put it, "My over-use of regulators caused my plant to grow itself to death."

FIELD TRIPPING

Outside the classroom, demonstrations are provided by growers, nursery



men and flower shop owners. Student field trips to flower warehouses, greenhouses, flower shops, and arboreta are arranged by Cooperative Extension Ornamental Horticulture Specialists, James Ashton, Dutchess County, and William McEvoy, Albany County, covering as many as six greenhouses per day. The people enjoy the infectious enthusiasm of visiting students. It is not unusual for the host to lunch with or provide refreshments for us.

Warehouses come as a surprise to the students as they are so completely different from anything found in the college greenhouses and classrooms. Warehouses, where horticultural products are distributed wholesale, house anything and everything needed to grow or sell bedding plants, cut flowers or potted plants, a sort of farmer's flower market.

On walking into one warehouse display room, students are greeted with massive pegboards covered with samples and prices of practically everything the florist can use. In the warehouse proper, students see entire areas sectioned off into bins and shelves filled to overflowing with dry materials, pots, boxes, fertilizers, tools, ribbons . . . Walking further, students watch as orders are filled and carted off to loading docks. They watch as new materials arrive at receiving entrances, see how they are unpacked, watch as flowers are removed from their cartons and put into coolers so large that they can accommodate 50-60 students when filled to capacity with merchandise.

In contrast to the warehouses, greenhouses offer students different procedural alternatives, such as artificial soil media (perlite, volcanic rock) vs. soil

media from a nearby lot, homemade potting soil, or a commercial soil mix. They may see plants grown on greenhouse floors or on benches. The greenhouse may be of glass or plastic. They may feature tropical plants or traditional cut flowers. Watering may be done by hand or with automatic watering systems. Work may be automated or entirely hand performed. High intensity discharge lamps (which increase production in the winter months up to 100%) may be used — or the sun may be used exclusively. Greenhouse crops may be grown for local consumption or for out-of-state production, in which case, plants will be shipped south, transplanted, grown, harvested, and returned to our area as cabbage, tomatoes, broccoli, etc. Organic or inorganic methods may be used.

Visits to research centers such as those at the College of Agricultural and Life Sciences at Cornell offer new methods, varieties and controls. Students may see new plant colors, textures, and varieties with newly developed adaptabilities or tolerances. Here also students might watch a wasp attack a white fly in a biological control experiment.

When visiting, students also observe repairs, renovation, innovations, and occasionally new installations, as when we visited Cary Arboretum, the Brooklyn Botanical Garden's newest addition. Here we watched underground irrigation systems being installed. We also saw how outdoor microclimates (using hill, vale and swamps) were being created, using trees to protect plants (from wind); for shade, for moisture control, for their acidity, and their effect on temperature, etc.

Back in 1968, the Cobleskill students began to develop a college arboretum (under faculty supervision). Students did all of the work — clearing the land, planting, pruning, mulching, grafting, dividing and identifying plants, trees, and weeds. Included in the arboretum is a "Touch and See Nature Trail" (originally constructed for the sight handicapped) where tree stumps covered with shelf fungi abound, textures of bark of trees can be experienced, rock ledges covered with mosses felt, mushrooms and toadstools smelled, a bridged brook walked, birds heard, paths covered with leaves, moss, pine needles and cones felt underfoot and the odor of woods breathed. A spruce,

bent one winter under heavy snows, angles at 45 degrees along the pathway.

SO YOU WANT TO RUN A GREENHOUSE?

In the course of learning to run a greenhouse successfully, students learn how to test soil — and how to test the plant leaf tissue, in order to spot soil deficiencies.

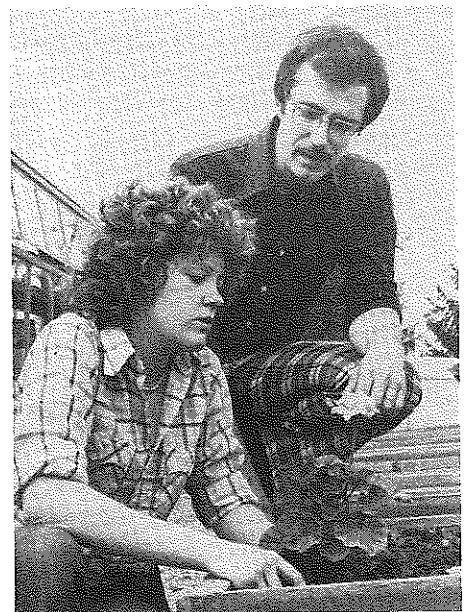
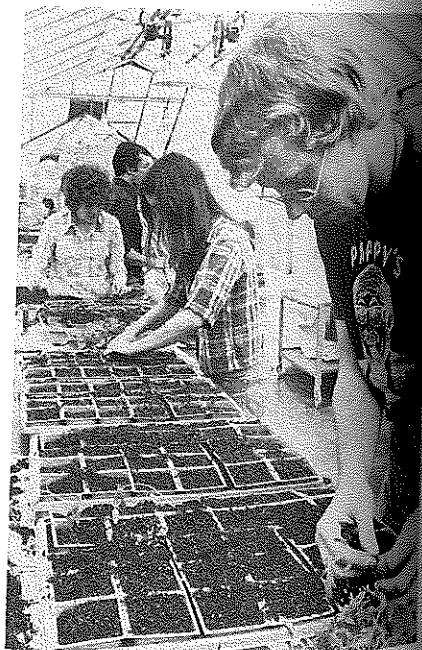
All of us who putter with house plants know that too much or too little light can kill a plant. Students learn to judge light intensity requirements for a broad range of plants. Humidity and temperature are also crucial. In "hands on" courses, students learn to tend air circulatory systems, automatic vent tenders, irrigation and misting systems. They learn how to read heat sensing devices, soil moisture meters and they master spraying equipment.

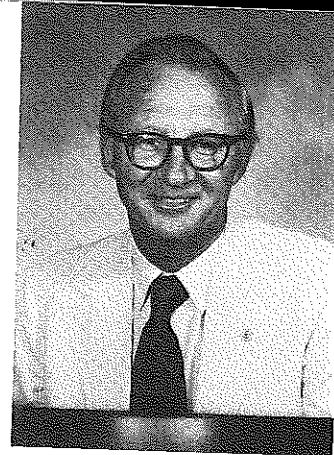
Throughout the ages, man has been ingenious at developing labor saving devices. His cunning quite naturally included the greenhouse. He invented the bench rototiller, the stem stripper, pruners, the dibble, spacing devices, wire supports and shading devices.

Assisted by this array of tools and aids, students are freed from time consuming labor to experiment with: height control, increasing flower size, retaining quality, testing new varieties for consumer consumption, hand pollination, developing lateral growth, forcing bulbs and plants out-of-season or working on bonsai and topiary shrubbery.

The novel becomes commonplace as terrariums, dish gardens, totem poles,

(Concluded on page 135)





J. T. Black

A CHANGING PROGRAM IN GREENVILLE

by
J. T. Black
Vo-Ag Teacher
Greenville Senior High School
Greenville, SC

The shifting from agriculture production to ornamental horticulture and its related areas has saved the vocational agriculture department at Greenville High School. The change began developing shortly after 1950, the year the first greenhouse was constructed by the agriculture students. Since the school is located in a city of 65,000 people, production agriculture did not hold the interests of the students.

Classroom training in the vocational agriculture department centers around the ornamental horticulture program and jobs related to horticulture. Approximately 125 students from grades 9 through 12 are enrolled in the vocational agriculture classes, with a one teacher department. The curriculum includes Agriculture Science & Mechanics, Ornamental Horticulture, Landscape Designing and Small Engines, and FFA Program of Work. The program provides the non-academic and the academic student with a course offering in which he can reach a certain degree of success.

In the Greenville area, jobs are available for part-time and full-time employment in ornamental horticulture. The program has 22 students working part time, mostly with florists, greenhouses, and nurseries. Several former students are majoring in ornamental horticulture in college. Eighteen are employed full time in horticulture work.

TEACHING METHODS

Some of the teaching methods used to keep the students interested are:

CLASSROOM DISCUSSION with visual aids, panels, individual study, group discussion, student assistants, and key horticulturists in the community is used.

LABORATORIES include the 11 acres of school grounds, 2 greenhouses, lath or shade house, school court, students' homes, and one or more park areas. The students produce plants in the greenhouses, such as, annual bedding plants, vegetable plants, pot plants, and perennials. Shrubbery cuttings are rooted and grown in containers in the lath area. The school court is used as a teaching laboratory with practical instructions given in landscape designing and planting; lawn establishment and maintenance; rose culture; perennial flower bed care; and care and maintenance of shrubbery.

AN AGRICULTURAL SHOP for the purpose of instruction in plumbing, welding, carpentry, electrification, repair and maintenance of small engines, and surveying is maintained. These skills are important in ornamental horticulture work.

FIELD TRIPS are taken to local greenhouses, nurseries, florists and garden centers to study management and operational functions.

PROJECTS in home grounds improvements are done at the students' homes. Also complete landscaping of one or more homes each year is accomplished.

DEMONSTRATIONS, such as making display designs for garden centers and nurseries; selecting ideal shrubbery in structure; demonstrating salesmanship, and others are conducted.

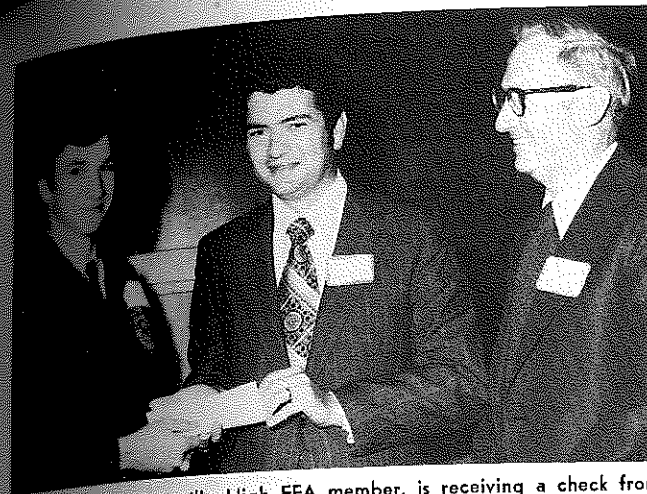
FFA PROGRAM OF WORK

The FFA chapter program of work is the key to the agriculture department's success in holding students. A number of FFA activities that are developed around ornamental horticulture create interest in the chapter.

1. In the BOAC program, in which a unit of community development is taught, the students participate in a community beautification program. Over 100 students take part in this community activity. Landscaping projects are carried out in the chapter's BOAC program. Plants and shrubs used in landscaping are grown by the students in the school nursery. Since the beginning of the BOAC program,



Several ornamental horticulture students are showing some of the annual bedding plants they grew from seed and transplanted into market packs. The plants were grown in one of the two greenhouses operated by the students. Petunias, marigold, and salvia are in the picture.



Larry Thomas, Greenville High FFA member, is receiving a check from J. Earl Frick, Jr., executive FFA Secretary for South Carolina, and the Greenville Advisor, J. T. Black, is happily approving the idea. Larry was selected the DISTRICT STAR FARMER at the 1976 State FFA Convention at Clemson University. During the 1976 National FFA Convention in Kansas City, Larry was the Southern Regional winner in the Proficiency Award, AGRICULTURE SALES AND SERVICES.

the chapter has received 2 Governor's Citations and 5 national awards in Kansas City.

2. Ornamental horticulture judging of nursery and floral stock is carried out. The chapter represented the state in the first national contest.
3. The chapter was state winner in the Cooperative Activities Contest in 1976. One of the cooperative projects was to set up a seed coop. Students were offered shares for one dollar each. Then they went to work in germinating the seed, potting the plants and making sales. At the season's end, the dividends were divided evenly among the coop members. The students earned a profit and learned the workings of cooperatives.
4. Several proficiency awards in which students were state winners include: Agricultural Sales and Services in nursery sales, Home & Farmstead Improvement, Soil & Water Management, Agricultural Processing, and Electrification.

CONTINUED SOMETHING NEW . . .

aqua terrariums and succulent cultures based on indoor landscaping principles spring into being.

SOLID SKILLS

Student projects, no matter how esoteric or simple, bring about transplanting skills, good benching techniques, the ability to prune, grade and in some cases to hybridize plants. Plant reproduction, crop manipulation and environmental control obviously demand skill and judgment. In addition, students become proficient in marketing, design and arrangement.

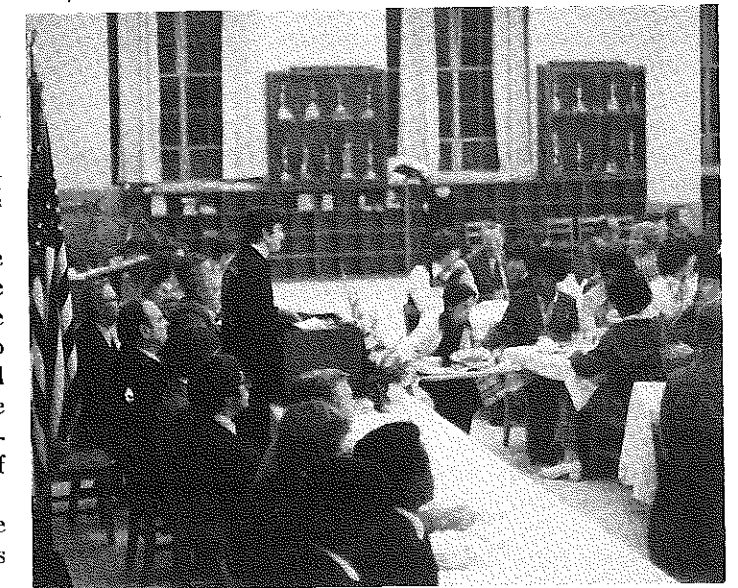
EXHIBITS

The largest and most exacting student exhibits are the campus greenhouses. Here, according to the time of year, you will find students working on

The chapter has been recognized in the National Chapter Awards and Safety Contest at the National FFA convention for several years. Toward the end of the school year the chapter banquet is held with over 200 attending including distinguished guests and parents.

The FFA Alumni chapter members in nursery and greenhouse businesses assist the chapter in marketing the excessive plants. They sell the plants and share the profits with the chapter. The same alumni members offer jobs for students seeking ornamental horticulture work experiences.

After teaching vocational agriculture in the same city high school for 29 years, the ornamental horticulture program, with a considerable amount of practical work, has been an asset in securing a large number of above average students. The success of the department is the ability to make use of the facilities and opportunities available. For those teachers who say FFA does not offer the city student or the ornamental horticulture student anything, I would suggest they take another look. ◆◆◆



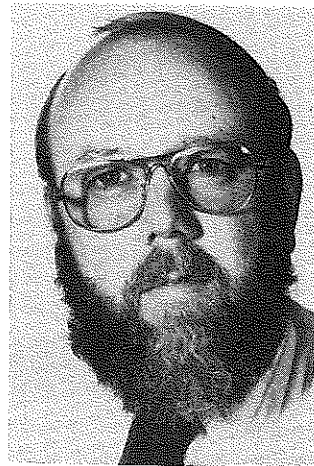
A scene from our annual FFA Father-Student banquet. Over 200 distinguished guests, fathers, and members attend each year. The banquet is held in the spring and is a highlight of our FFA chapter activities.

the various projects I've alluded to above. The greenhouses are open to visiting students, faculty, staff and anyone else who shows an interest.

Other on-campus exhibits include special classroom demonstrations, coolers, (cut flowers), special experimental projects and campus events (Alumni Day, graduation, inaugurations and dinners). Off campus, Cobleskill has been praised for dramatic and colorful exhibits in Albany's Colonie Mall, at the Sunshine Fair, at New York flower industry shows and The North East Nurserymen's Convention. Exhibits, covering many square feet, may duplicate Japanese tea gardens, use a fountain as a focal point or simply be mound upon mound of flowers and greenery.

In addition to creating exhibits, students also visit others in the form of estates such as Pennsylvania's Longwood Gardens or Washington, D.C.'s numerous beautiful gardens and parks. Other club and faculty excursions have led north into Canada and south into the Carolinas.

Contact with the world of work is not confined to field trips. The flower growers, the associations and the representatives of the industry come to Cobleskill and discuss innovation, product development, student work and the flower market in general. Visiting lecturers and exhibitors share much in common with our students. Their love of growing things seems to draw them together even over long distances. ◆◆◆



Russell C. Bird

The Challenge—to Meet The Needs of the Rapidly Expanding Horticulture Field

by
Russell C. Bird
Horticulture Instructor
Suffolk County BOCES I
Riverhead, NY

that we, as "trainers" who prepare our youth for careers in the horticulture field, have a common bond with members of the horticulture business community.

The vocational horticulture instructor is confronted with many challenges. These challenges emerge as a result of the needs of the horticulture industry. In order to determine these needs, we must have input from all segments of our industry. After these needs have been determined, we must implement a well-planned program of instruction to fulfill these needs.

METHODS OF OBTAINING INPUT FROM THE HORTICULTURE INDUSTRY

There are many ways in which horticulture instructors may obtain and collect information from the horticulture industry. We can and should obtain input from our craft advisory committee, which is an excellent source of information. Craft committee members should be representative of all areas of the horticulture industry. As teachers, we can develop and distribute written surveys to members of the industry which can be channeled back to our craft advisory committee. A personal visit to those in the industry would also aid us in determining needs. In my experience, a personal visit to a horticultural business is an effective means of obtaining information from personnel in the industry. One benefits as an instructor by on-sight visitation to a horticultural enterprise by utilizing both the personnel and the business site as resources for instructional purposes.

Writing to and visiting trade organizations is another means of obtaining information about needs. Trade associations welcome visits and correspondence from vocational horticulture teachers. They are a vital link to the industry, and we must keep in mind

We should also work jointly with the Horticultural Extension Service located in our communities. This service keeps us abreast of ways in which our universities are helping the horticultural entrepreneur. Attendance at area workshops which are presented by both our extension service and members of private industry is another means of obtaining information. We should join professional organizations and attend as many organizational meetings as our schedule allows. This affords us an excellent opportunity to exchange ideas as educators.

In order to achieve maximum output, there must be constructive input. Therefore, it is necessary to read the current literature and information which is disseminated to us. This affords another opportunity to keep well informed about current trends occurring within our industry, and to keep us abreast of the research results of private industry and our universities. Periodically, we should write a professional article to appear in a magazine such as *The Agricultural Education Magazine* so that we may contribute and share our ideas with our colleagues.

We should also utilize the talents and ideas of our FFA chapter members in an effort to continuously upgrade our program of instruction. Many worthwhile ideas emerge from our students and adult members of our communities. A suggestion box located in the classroom and in local businesses can be an effective means of obtaining information. A concerted effort by members of the industry, local residents, students, and professional colleagues to provide input about the needs of the industry is necessary and valuable in

assisting the horticulture instructor to plan a program of instruction.

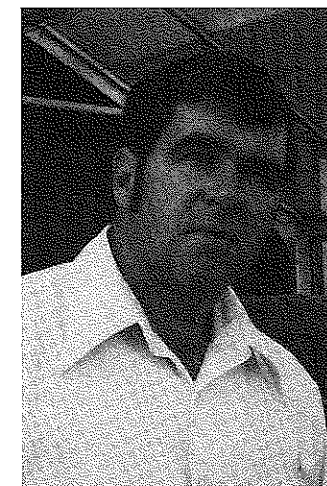
IMPLEMENTING THE PROGRAM

The craft advisory committee's expertise should be utilized at this stage of planning as well. After ideas and suggestions have been submitted to the craft committee, it is necessary to determine the needs. Once specific needs have been determined by the committee, the instructor may then initiate a proposed plan of instruction to meet these needs. This may be accomplished by stating your objective, defining certain criteria, and planning a method of having the student fulfill the objective. One must determine the kinds of tasks which will have to be performed to meet the objective. After these tasks have been determined, you must have a means of measuring the student's proficiency for the assigned needs requirement. Since there are many individual tasks to be performed by each student in the classroom, one page sheets which state objectives and one page sheets which measure student proficiency levels for the specific need could be developed. These sheets should be handed out to the students and kept in their three-ring binder. Although this method which I have introduced is in the experimental stage, it should prove to be worthwhile. Its major attributes are: it eliminates unnecessary paperwork; the notebooks may be retained by the student for reference; and it allows the student the opportunity to fulfill the needs requirement at his/her own pace. Once the need requirement has been fulfilled in accordance with the criteria set by the instructor, the student may progress to another need. This plan serves as a means for individualized instruction as well as one-to-one contact, which is highly beneficial to the student.

(Concluded on next page)

HORTICULTURE—WHY NOT TEACH IT ALL?

by
Dick Adhern
Forestry and Horticulture Instructor
Essex Junction Educational Center
Essex Junction, VT



Dick Adhern

The other day I met a former agriculture student, Mark Blanchette. Mark graduated from the Essex Junction High School thirty years ago and since then has not gone to college to study agriculture nor has he made his living in any phase of agriculture. Yet, he still regards his agricultural education as the most valuable and important part of his high school training. Why? Because Mark Blanchette is a professional barber, and for the past thirty years, through good times and bad he has been able to feed his family by growing fruits and vegetables in his relatively small home garden. The training that he received in agriculture thirty years ago provided him with life long skills in home food production that have served him well.

What was that? Did you say that a former ag student that has not made his living in agriculture for thirty years, still finds his training of value? Mercy! What would the Washington ag education bureaucrats say of such a thing? Aren't you aware that 100% of our students must find employment in the area of agriculture studied in high school or "drastic measures" will be taken by our leaders in Washington? Muffle your mouth, boy; someone might hear you!

Let's be realistic for a moment. None of us are so naive as to think that we will find employment for 100% of our

students, or even that 100% of our students are even interested in finding employment in agriculture. What we are dealing with is a cross section of young people with varied interests and varied levels of interest in many phases of agriculture. Our challenge and goal should be to serve them all — those with vocational as well as avocational interests.

In view of this, as a horticulture instructor, I am puzzled as to why training in horticulture has been limited to just "Ornamental Horticulture." If we are to teach the science of horticulture, why not teach it all? We are doing our students an injustice by not providing them with basic skills in home fruit and vegetable production and fruit and vegetable production on a small commercial scale. I feel the omission of this training from our Horticulture programs is wrong and should be changed.

The incorporation of a home food production curriculum in our horticulture programs would provide students with lifetime useful skills regardless of where they may find employment. When our young people learn and use the basic, practical skills of home food production, they make a small, yet significant, contribution to a better way of life in this country. Food preserved and stored at home is a hedge against inflation and shortages — even a pos-

sible crisis. Home gardeners not only do their part to preserve and enrich the topsoil; they also help preserve precious fuel because home grown food doesn't have to be processed, packaged or transported.

National polls show that interest in home food production is at an all time high. A Gallop poll determined that the 32 million gardening households in the U.S. produced approximately \$10 billion worth of fresh fruits and vegetables in 1976. The figure was based on an average garden size of about 600 square feet, the most frequently grown vegetables, typical growing methods and average supermarket/grocery prices. Home food production is now and will continue to be a vital aspect of agriculture in America.

The hand writing is on the wall. Let's make fruit and vegetable production at home an integral part of our horticulture programs.

Then, perhaps our students may also look in future years, as did Mark Blanchette, at their agricultural education as the most meaningful and vital part of their high school training. Let's not let them down. ◆◆◆

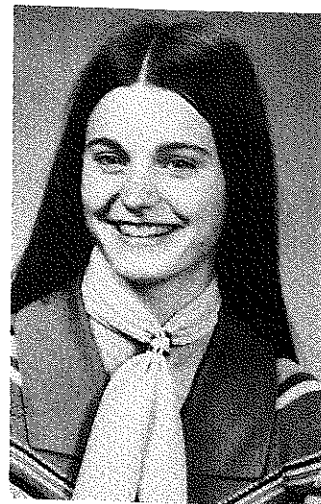
CONTINUED THE CHALLENGE . . .

SUMMARY

It is my belief that this is a workable plan which will benefit both the student and the instructor as well as the industry. Of course, one should set

criteria for a long-range plan which would cover two years of horticultural instruction. A well-planned learning packet could be developed with the assistance of those in the industry and

would be made available to each student. The student's learning packet could be excellently coordinated with instructional materials available through our universities. ◆◆◆



Nancy Vanada

Integrating Horticulture Into An Existing Ag. Program

by
Nancy Vanada, Horticulture Instructor
South Central Area Vocational School
Hardinsburg, IN

"Some things never change." Hopefully that statement doesn't apply to many high school agriculture departments. As high schools change to semesterized courses, in order to meet the needs of the students, many agriculture departments will have the opportunity to offer new courses. If they are receptive to change, that new course could be horticulture.

Horticulture is a popular subject that will attract students who wouldn't normally enroll in agriculture classes.

In areas that are becoming more urbanized, it offers an off-the-farm vocation. It is also a topic of great interest for adult classes.

Horticulture is relatively easy to add to an agriculture program. Several topics covered in regular agriculture classes are also a part of horticulture. Soil types, fertilizers, and plant growth characteristics are similar for both subjects.

STEPS FOR STARTING

There are several steps to take when starting a horticulture program. First of all, the teacher must decide what course(s) to teach. The most popular courses are Greenhouse Management and General Horticulture. Other possibilities include Nursery and Garden Center Management, Landscaping, Turf Management, Vegetable and Fruit Production, and Floral Design. The decision of what course to teach should be based on student interests, facilities and equipment available, and local opportunities for employment.

RESOURCES

After deciding which subject to teach, the agriculture teacher will need to look for resources with which to learn about that horticultural area. An excellent resource would be an advisory committee, just for horticulture. They can make suggestions on what topics to include in the course. They can also show the agriculture teacher some of the common practices used in growing or selling horticultural products. An advisory board is the best resource available when any questions arise with which the teacher is unfamiliar.

Another resource might be a horticulture teacher in a neighboring high school. That teacher can tell a new horticulture teacher about the things that did and did not work in their department.

The State Department of Vocational Education and the Agricultural Education Staff at the state university can often be of assistance. They may have sources listing where to find texts, reference books, course guidelines, and equipment.

Textbooks and reference books may come from a variety of sources. Texts written especially for high school horticulture programs are published by several universities. Many of the sources that handle agricultural curriculum materials also have horticultural curriculum materials. Reference books may be found in bookstores, at college campuses, or ordered directly from a publisher. It might be helpful to review the chosen textbook with the advisory board for any suggestions they may have.

EXPERIENCE

In addition to the resources mentioned, an agriculture teacher should try to get some actual experience in the horticultural field. University classes in horticulture would provide some useful experience. The best experience would be to work in a horticulture business. This could be arranged through a member of the advisory board on weekends or during the summer.

After a program is set up, it should be publicized throughout the community. In addition to being good advertisement for the department, this will insure ample enrollment in the class.

EQUIPMENT

The equipment needed for a horticulture program depends on the type of course being taught. It can range from very little equipment to a completely automatic greenhouse. A greenhouse is an excellent teaching aid if funds and space are available. Plant lights set up in the back of a classroom could take the place of a greenhouse for less extensive programs. Special drafting equipment would be needed for landscaping classes and land for a nursery would be beneficial for a Nursery and Garden Center program.

A horticulture class can add new life to an existing agriculture program without much effort. Could your agriculture program benefit from a horticulture class?

Leader in Agricultural Education:

JAMES P. CLOUSE

by
William B. Richardson*



James P. Clouse has established himself as a leader in agricultural education. His service to agriculture has spanned two states. His work in developing the agricultural education programs in Indiana was substantial. The quality of local vocational agriculture programs in Indiana is in a large part directly attributable to his efforts. He is continuing that tradition now in Virginia.

Colleagues have described Jim as a vocational agriculture instructor's teacher or educator, a servant to agricultural and rural America, and a teacher educator who is sincerely interested in students. This reputation that he has established has been well founded and his future service to our profession is predicated on his sincere concern for agriculture, teaching, and working with local instructors.

Jim's service began as a vocational agriculture instructor at Markleville, Indiana, in February, 1947. During his first teaching experience he taught biology, chemistry and general science in addition to vocational agriculture. From 1949-1951 he was a graduate teaching assistant at Purdue, and a full-time instructor in 1951-52. In 1952 he returned to the public schools as a vocational agriculture teacher in New Albany, Indiana. He taught at New Albany until 1956 when he returned to Purdue as a graduate instructor, a

position he held until 1958. From 1958-1973, Jim was an assistant and associate professor in agricultural education, a departmental schedule deputy, and in 1966 was appointed chairman of agricultural education. In 1971 he assumed the additional duties as the chairman of vocational education, a newly created group that included agricultural education and home economics education, with representation from industrial education. In 1973 Jim assumed his present position as professor and program leader of agricultural education at Virginia Polytechnic Institution and State University at Blacksburg, Virginia. For four months in the summer of 1976, Jim served as acting director of the Division of Vocational and Technical Education at VPI & SU. He has now returned to his present position.

As stated in the introductory sections, Jim has become nationally known due to his service to agriculture, his open and friendly approach to students and his ability to establish rapport with the practicing teacher of agriculture. As with many of the recognized leaders, a

review of their resumes reveal many activities that explain their rise to prominence as a leader . . . Jim's is no exception. The following sections will highlight some of Jim's more notable career activities.

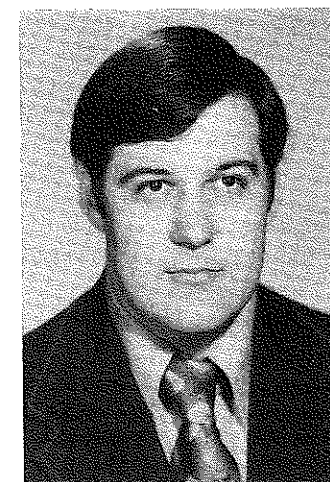
Jim has served the profession in many capacities, namely: Secretary-Treasurer of the Agricultural Division, American Vocational Association; Chairman of the Teacher Education Committee, Agricultural Division, American Vocational Association; Vice-President and Chairman of several committees of the American Association of Teacher Educators in Agriculture (AATEA); Vice-President of the American Association of Vocational Instructional Materials (AAVIM); National Vice-President and President of the National Future Farmers of America Alumni Association; and member of the National Future Farmers of America Board of Trustees.

In both Virginia and Indiana Jim has worked closely with the Vocational Agriculture Teachers Associations of those states. In Indiana he appeared on the annual conference program many times and was the key note speaker for the Indiana Vocational Agriculture Teacher Association Conference in 1976. In Virginia Jim meets regularly with the VVATA officers and served as the keynote speaker at their annual conference in 1975.

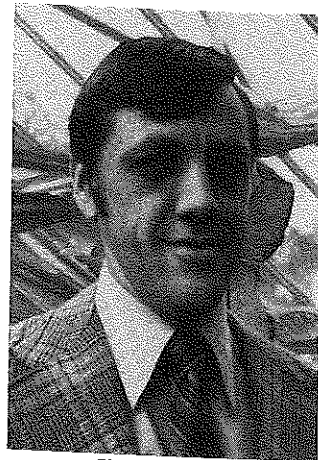
Jim was also instrumental in the activities of the Indiana Vocational Association (IVA). He chaired and served as a member of key committees and in 1969 the IVA honored Jim with its Award of Merit Citation.

Jim has been active in the National Vocational Agriculture Teacher's Association (NVATA). Due to his work for NVATA he was awarded the Outstanding Service Award in 1972.

(Concluded on page 141)



*William B. Richardson is Associate Professor and Chairman of the Agricultural Education Department at Purdue University, West Lafayette, IN.



Elgia L. Easter

HORTICULTURAL OCCUPATIONS STILL GROWING!

by
Elgia L. Easter, Horticulture Instructor
Virginia Beach Vocational-Technical
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As the pace of our times increases, more and more people are turning to gardening as a relief. Many people have more leisure time as the four day week makes itself a part of the business world. There is a general feeling that people are turning back to nature itself, and thereby developing a new awareness for the basics of life. Inherent in this is a renewed interest in working with live plants, especially among the younger segment of our population. Furthermore, the population increases daily, demanding that even more goods and services be provided to fulfill the ever growing needs.

HORTICULTURAL GOODS AND SERVICES NEEDED

Among these goods and services that are needed to fulfill the needs of our expanding population are many that lie in the horticultural realm. People must eat, and herein lies a major challenge to those in the food producing sector of our economy. The challenge is being met thus far. In 1959, there were only approximately 819 greenhouse vegetable producers, but in 1970, this number had grown to approximately 2,555 producers nationwide. Field grown vegetable producers are yet in the majority and the number of producers is decreasing while the size of the operation is increasing.

The population has found that not only must it eat, but that there must be some allowance made for recreation. Thus, as the population becomes greater, our city, state, and national parks take on an increasingly important role. Parks must not only be well designed, but also must be well maintained. Turf must be kept clipped properly, as well as fertilized and limed. Weed control, as well as insect and disease control, must be considered also.

Then there are the trees, shrubs, and the flowers that must be cared for in the proper manner. Thus, parks management requires someone with training to make it a place that can be put to use and enjoyed by all.

Let us look at just a few other situations that require goods and services of a horticultural nature. Business establishments require that their grounds have a neat appearance at all times. Many businesses have large grounds or are located in an industrial park with large grounds. Construction of homes, businesses, and offices is again on the upswing. Many (probably most) of these buildings must be landscaped and the lawns established, after which they must be maintained. Plants must be produced for use inside these buildings. Flowers must be produced, sold, and arranged for all the multitudes of uses that they have.

For all of these needs for plants that the population has, there are numerous needs for other supportive peripheral goods and services, which open up other occupational avenues to those who are observant, willing, and interested in their pursuit. For instance, chemical, fertilizer, and seed dealers; the wholesale florist; plant spraying services — these are just a few of the supportive services that are needed to carry out the primary occupations, and they are equally important for the consumer.

HORTICULTURAL OCCUPATIONS

Occupations for those trained in horticulture are many and varied. Some of the occupations require a college degree, while many require other training of some type. Most employers prefer to have a person with some actual work experiences to supplement his education or training.

Thus, one can see that as the population continues to increase and as the population continues to show interest in growing plants for food and for enjoyment, horticultural occupations will increase. Moreover, the range of horticultural occupations will no doubt expand as our interests become broader and as our methods of accomplishing tasks become greater.

Degreed people in horticulture may be involved with research programs at a university or in a company. They may direct a phase of company operations, or they may be involved with production. A person with a degree may also be an advisor or consultant for nurseries, landscape firms, or for the public concerning their landscapes. City, county, state, and federal governments all offer employment opportunities, especially with the increased interest in park development and maintenance, and with the increased interest in home horticulture. The person with a degree in horticulture may also be a horticulture instructor in a public or private school.

In the private sector, of course, one could become a nurseryman or florist. These are probably the two occupations that first come to mind when we say the word "horticulture" to someone who has only a fleeting knowledge of the industry. But there are other basic occupations: sod producer, greenhouse grower, landscape maintenance contractor, etc., and even these can be broken down into complementary occupations, depending on the size of the operation or on the specialty of the operation. In large nursery or greenhouse operations, for instance, plant propagators are solely responsible for

(Concluded on next page)

CONTINUED HORTICULTURAL OCCUPATIONS . . .

the propagation of the plant materials, and so forth. According to the latest census of agriculture, our horticultural establishments, as in other areas of agriculture, are getting larger. For instance, the average number of square feet in greenhouse production in 1970

was 32,030, while in 1959 this average was 19,079. For outdoor production, the average establishment utilized 41.0 acres in 1970, while in 1959 the average establishment utilized only 18.0 acres. During the same period, the number of establishments decreased by

about one-third. This decrease in number was due primarily to the loss of individual proprietorships. The latest census shows a decrease in individual proprietorships, a slight decrease in partnerships, and an increase in corporations. ♦♦♦

CONTINUED LEADER . . .

Jim has served two foreign countries. In 1971 he was a consultant to the Office of Education in Panama. These duties entailed workshops for teachers in agriculture and assisting with the National Future Farmers of Panama Convention. The Republic of Panama awarded Jim the Certificate of Appreciation for his work in those capacities. In 1975 Jim worked as consultant to the country of Brazil working through the USAID Program. His duties were to assist a national company in setting up training programs for market employees. In doing this we worked closely with a group of Brazilians in planning and carrying out a total educational program.

As stated above, Jim has been given awards and honors by many of the organizations he has served. However with Jim, awards and honors are not foremost in his agenda of activities. He has and will continue to place emphasis on service to agriculture. He has placed this foremost in his busy schedule. Jim's personal philosophy is that, "agricultural America is the backbone of our American society and we, in agricultural education, must work to maintain its integrity." Jim feels that the local vocational agriculture instructor plays an important role in this continued importance of rural America. Furthermore, he feels that the teacher educator

has a critical role in the training of young men and women who become teachers of agriculture in rural America.

Jim has and will continue to be a vocational agriculture instructor's teacher educator. He has an uncanny ability to establish rapport with the practicing teacher. Local teachers of agriculture in Indiana, Virginia and throughout the country have faith and respect in his leadership provided to the agricultural education program. He constantly goes out of his way to get to know each teacher, the teacher's family, and the teacher's school community. This extra effort on Jim's part has led to his support by local teachers. Often, as decisions were being made, Jim would ask his staff, who were pondering varying alternatives, to consider the effect of each alternative on the local vocational agriculture program and the local teacher.

On the national level, Jim has served on the FFA Board of Trustees and was instrumental in the establishment of the National FFA Alumni Association. This latter activity is a highlight in Jim's personal career. He served as Vice President and President of the FFA Alumni Association and has served on the executive committee since its beginning. Jim is truly a founder of the FFA Alumni Association and believes very strongly in its potential for assist-

ing vocational agriculture.

Jim has conducted research and published in agricultural education literature. As one would expect, his research and publications have been of a practical nature and directed toward providing local teachers with useful products to assist them in the development of their local program.

In addition, Jim has served both Purdue University and Virginia Polytechnic Institution and State University in numerous service activities. The list of committees and university assignments that he has served on are too many to list in this article.

Jim and his wife, Barbara, currently live on a farm near Blacksburg, Virginia. His youngest son, Pete, is still at home while son Jim, his wife and two children live in Indiana. Daughter Ellen is now living and working in Blacksburg and Susan is a senior at Radford College. Those who know Jim are aware of his strong moral fiber and his devotion to church and family as well as profession.

Jim truly deserves to be honored as a leader in agricultural education. He has always been involved in all segments of the profession on local, state and national levels. He is a dedicated teacher and a concerned teacher educator. ♦♦♦

VOCATIONAL AND CAREER EDUCATION: CONCEPTS AND OPERATIONS, by Calfrey C. Calhoun and Alton V. Finch. Belmont, California: Wadsworth Publishing Company, Inc., 1976, 481 pp., \$13.95

This book provides an up-to-date analysis of vocational education within the broader context of career education. Every aspect of vocational and career education is included such as the history, philosophy and economic, sociological and personal foundations of vocational-technical education. The supporting functions of counseling and guidance, curriculum, evaluation techniques, facilities, legislation, public relations and research are also covered. The authors integrate the concepts of vocational and career

education showing their conceptual and operational relationships.

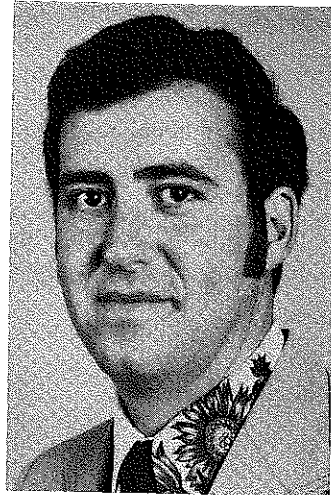
Each chapter has a summary plus a list of review, discussion, and exploration activities to stimulate the reader in applying the concepts to their own local environment. Easy-to-understand figures and tables are used to illustrate chapter material. A model needs assessment instrument and a sample course evaluation form are found in the appendix.

Both authors are experienced high school and college level classroom vocational educators and possess appropriately related business and industry work experience. Dr. Calhoun is professor of Vocational Education at the University of Georgia while Dr. Finch is professor and chairperson of the Department of Business Education and Office Administration at the University of

Mississippi. Each is recognized nationally, i.e., serve on boards of directors of national professional organizations, national advisory committees and are winners of numerous awards for excellence and leadership. They have collaborated before in co-authoring the book, *Human Relations for Office Workers*.

Vocational educators at all levels and in various disciplines will find the book interesting and meaningful. The authors intended that the book be for anyone with an interest in vocational and career education. It should be part of the vocational educator's personal library and be in the professional libraries of high schools, technical institutes, community colleges and university departments of vocational education.

Wayne Koene
Moraine Park Technical Institute
Fond du Lac, Wisconsin



Jimmie Walton

ANALYSIS OF THE BATH CO. HORTICULTURE PROGRAM

by
Jimmie Walton
Agriculture Instructor
Bath County High School
Owingsville, Kentucky

The Bath County High School Vocational Agriculture Department, located in a non-industrial and rural farming community of Kentucky, involves one hundred and twenty two students and two instructors. Instruction is provided in three areas: agribusiness, agriculture mechanics, and horticulture.

The Bath County Horticulture Program is presently in its tenth year of existence, with one hundred and twenty seven individuals having graduated. The program is two years in length, with the first year devoted to basic horticulture theory and greenhouse management, and the second year consisting of landscaping, flower arranging, and advanced greenhouse operation.

The horticulture program has six principles of philosophy:

1. Developing skills necessary to enter the field of employment as a greenhouse worker
2. Learning safety and displaying such knowledge by not having any accidents on the job with tools
3. Developing skills to become a gardener, a greens keeper, a cemetery caretaker, etc.
4. Being able to name each tool on the job and demonstrate its use, if such tool is related to basic horticulture
5. Preparing for higher education and advanced vocational training those who are capable
6. Developing the ability to get along with others

When these principles are carried out, individuals should be more capable of functioning within society.

To have a more complete follow-up of graduates of the horticulture program, the need for an analysis of the former students was strongly felt, since only the graduates of the program could really give true criticism or praise. They have experienced the philosophy of the Bath County Horticulture Program and are more able than anyone else to say if it has fulfilled their needs.

PURPOSE

The primary purpose of the study was to determine if the horticulture program was giving the graduates a quality education, relevant to their agriculture education and their ability to function and make a living in society.

To accomplish the stated purpose, twenty specific objectives were set forth. Some of these were:

1. To determine the number of ex-students who are, or have been, employed in the field of horticulture
2. To determine the benefit of studying horticulture to the student
3. To determine if the horticulture program prepares students for advanced training in horticulture
4. To determine if the horticulture program should be extended beyond two years
5. To determine if belonging to the FFA helped develop leadership abilities

METHODS

The methodology for conducting the study consisted of developing and testing the questionnaire, selecting the students for the study, and collecting the data.

The initial questionnaire was developed through a review of literature, including texts, research reports, and consultations with the staff of the department of Vocational Education, College of Education, University of Kentucky, and the Agriculture Department of Morehead State University. The questionnaire contained twenty questions to analyze the effectiveness of the Bath County Horticulture Program and was sent to the 127 graduates from the past 10 years.



Students covering sash house. It is used to grow most all types of plants and is heated only by the sun.

RESULTS

Objective 1 — The largest number of ex-students have been employed in the field of horticulture. One explanation of this is most of the graduates seemed to study horticulture for their personal development, and not as a means of livelihood.

Objective 2 — The horticulture graduate felt the greatest benefit lay in the area of being able to landscape and use better judgment in buying plants and fertilizer.

Objective 3 — The majority felt the program would prepare an individual for advanced training even though a large percent did not take advanced training.

Objective 4 — This is one question about which the individuals, who returned the questionnaire, felt very strongly. They definitely believed the program should be more than two years in length. They recommended it be four years.

Objective 5 — The FFA is definitely a leadership source for students. Practically all students, who were members, thoroughly enjoyed their experiences and believed it helped their leadership abilities.

CONCLUSIONS AND RECOMMENDATIONS

Three conclusions were drawn from the analysis:



Students placing pansies in cold frame.



Students taking cuttings from begonias.

1. The horticulture program has been a success since it has enriched individuals' lives.
2. The six principles of the philosophy of the horticulture program are being met.
3. The FFA is a strong organization of men and women, which helps develop their leadership abilities.

The following recommendations were made concerning the analysis, based on the research data collected and the judgment and experience of the writer.

1. The horticulture program should be extended beyond two years, preferably to four years, but at least to three years.
2. The FFA should continue to be a vital part of the horticulture program, as it is now.
3. The horticulture program should be continued to prepare men and women for the world of work and to develop in them an appreciation for their environment.

Starting in the next school year, plans are being made to broaden the horticulture program to three years. The analysis has been extremely helpful in evaluating the horticulture program and constantly striving to give the students a quality education.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION		
1. TITLE OF PUBLICATION		
Agricultural Education Magazine		A. PUBLICATION NO. 10
B. FREQUENCY OF ISSUE		C. DATE OF FILING
Monthly	ANNUALLY 12	October 1, 1977
D. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP Code) (Not printers)		E. ANNUAL SUBSCRIPTION PRICE
900 East State Street, Athens, Ohio 45701, Athens County		\$5.00
F. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers)		
R.D.#2, Box 493, Halifax, PA 17032		
G. NAMES AND COMPLETE ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR		
PUBLISHER (Name and Address)		
The Lawhead Press, Inc., 900 East State Street, Athens, Ohio 45701		
EDITOR (Name and Address)		
James P. Key, Agr. Education, Oklahoma State University, Stillwater, OK 74074		
MANAGING EDITOR (Name and Address)		
Joseph G. Cvanacara, Agr. Education, Washington State University, Pullman, WA 99163		
H. OWNERS (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)		
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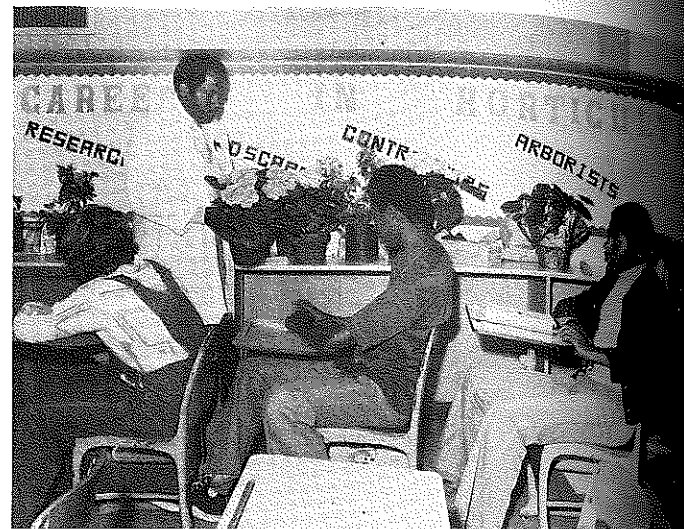
by
Paul
W.
Newlin



A student in the landscaping course at the Rockland Co., NY, Boces Center of Occupational Education operates spraying equipment. The course instructor is Gordon White. (Photo courtesy Art Berkey, Cornell)



This student practices pruning skills as part of the instruction in landscape maintenance at the Milwaukee Area Technical College, WI. (Photo courtesy Glenn Petrick, Instructor. Related story p. 126)



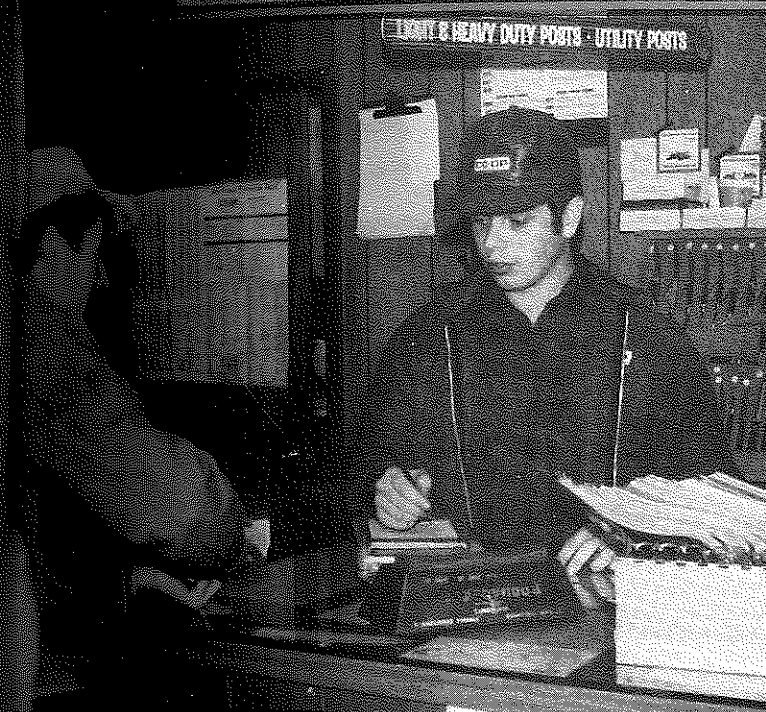
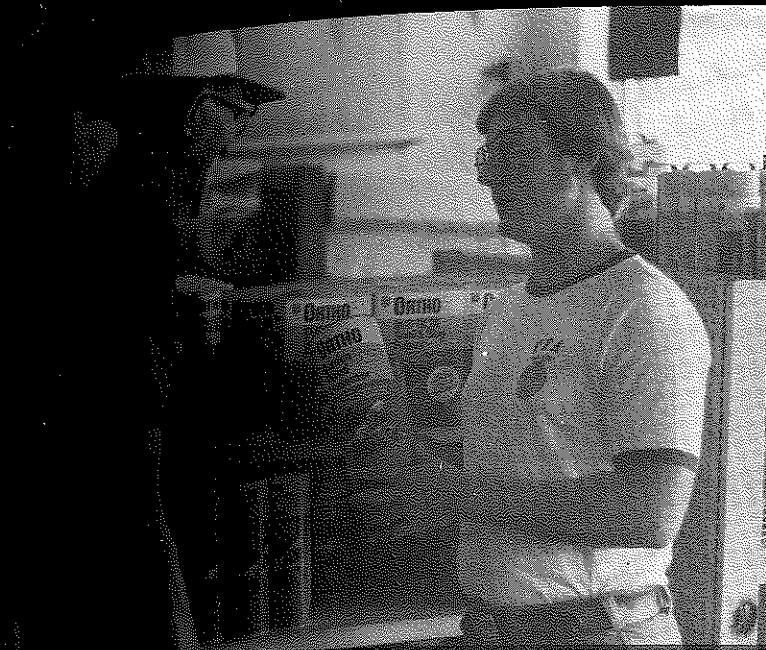
Floyd Yancy, Vocational Agriculture/Agribusiness teacher at Zachary High School, Louisiana, instructs students in the identification of Ornamental Horticultural plants. The instructional program in horticulture is emphasized by students having many opportunities to learn by doing. (Photo courtesy J. C. Simmons, Supervisor, LA. Related story p. 130)



Students at Bath County High School, Owingsville, KY, cover a greenhouse with plastic for use with geraniums in the spring. (Photo courtesy Jimmie Webb, Bath Co. H.S. Related story on p. 142)



Out-of-school youth and adults learn retail florist skills during an evening session at the Nassau Co., NY, Board of Educational Services area occupational center. (Photo courtesy Art Berkey, Cornell)



AGRICULTURAL EDUCATION

Volume 50

Number 7

January 1978

KY 40506

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