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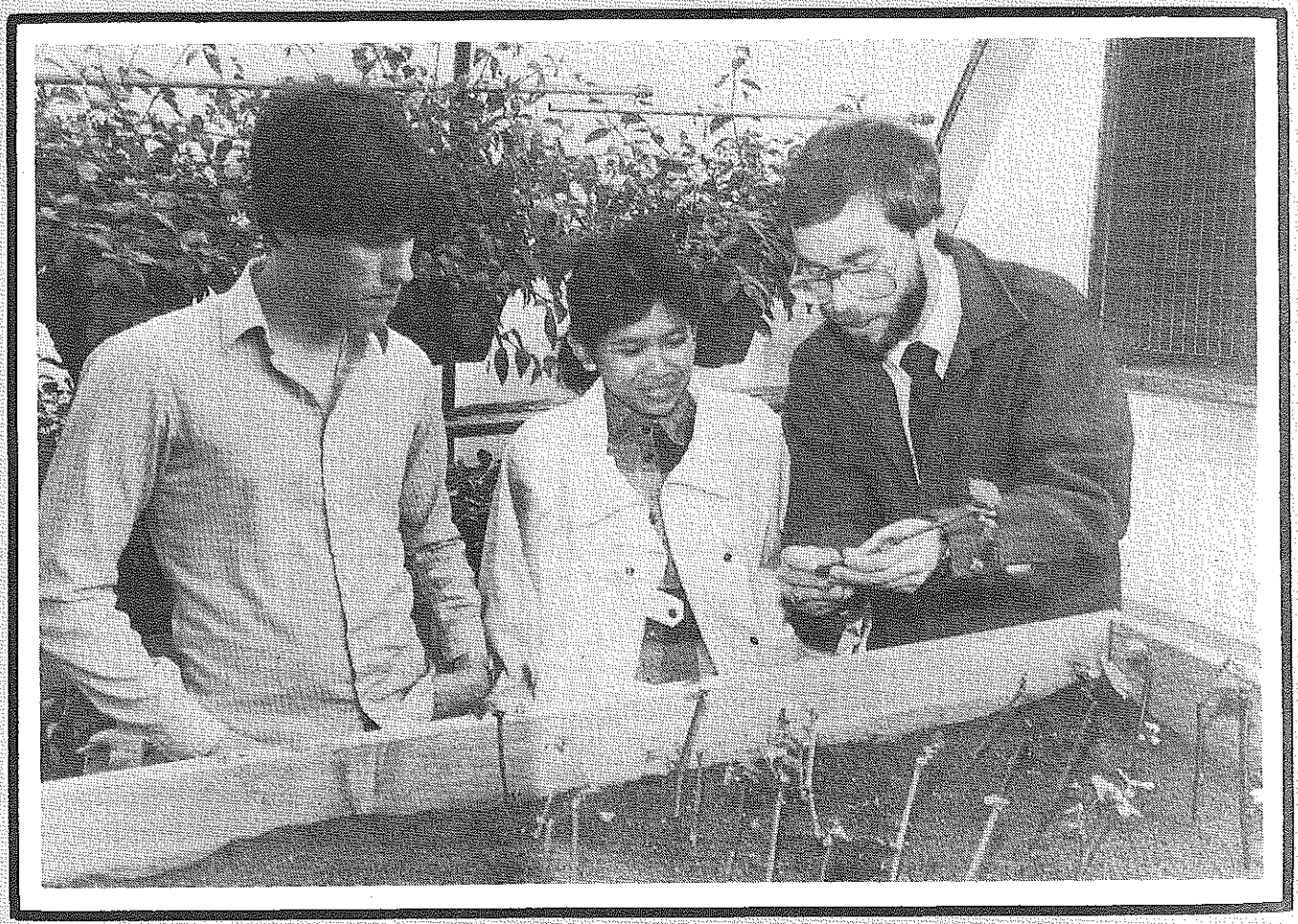

THEME: Staying Current — Horticulture

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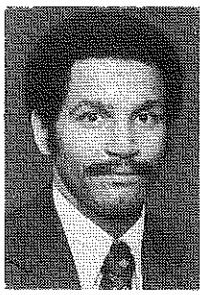
A New Agenda For Horticulture



By Blannie E. Bowen, Editor

(Dr. Bowen is an Associate Professor in the Department of Agricultural Education at the Ohio State University.)

Horticulture is an area of vocational-technical education in agriculture that experienced exceptional growth after the passage of the 1963 Vocational Education Act and the subsequent amendments of 1968. New interest in horticulture was spawned for a variety of reasons, but two seem most important. First, there are many employment opportunities when the term horticulture is broadly used to encompass floriculture, landscaping, plant materials, et al. Second, effective instructional programs in horticulture have laboratory facilities (greenhouses, field plots, land laboratories, etc.) on the school grounds and their size, shape, and location often make them highly visible. Further, in many instances the horticulture program also handles the landscaping responsibilities for the school's physical plant, thus making the program even more visible to not only administrators, staff, teachers, and other students in the school, but to the community at large.

Today's Students

Horticulture's popularity started during the 1960s and continued in explosive fashion during the 1970s. As it increased in popularity, so did the number of female students who took vocational agriculture primarily to be enrolled in horticulture. My initial experience with this phenomenon came during the late 1960s when I enrolled in vocational agriculture because that was the thing "boys" did at my high school in 1967 and with quite a bit of encouragement. To the chagrin of many, two "girls" enrolled in vocational agriculture that year primarily because horticulture was added to the program. For the sake of being different, a buddy and I enrolled in both home economics and vocational agriculture the following year to shake-up the all female home economics kingdom since vocational agriculture had been invaded the previous year. In retrospect, that was perhaps one of the most intelligent decisions I have ever made.

First, I observed how two male teachers reacted to female students who were seriously interested in horticulture. Second, I witnessed how a female teacher coped with two "hard heads" who obviously had no career interests in home economics. Exceedingly valuable professional and program planning lessons were learned in both instances. Unfortunately, the scenarios were repeated eight years later for me as a teacher.

Soon after accepting my first job as a vocational agriculture teacher, I received what appeared to be a normal preregistration roster for a course in outdoor recreation and applied ecology. A quick glance told me there were lots of females enrolled in one class. A second more scholarly reading informed me that 21 females and two males were in fact enrolled. Somehow I reasoned, my punishment was finally being doled-out. In my rationalizing, I concluded that about half of the students had to be serious or they would not have enrolled. That reasoning was true. My logic also meant that 50% cared nothing about the subject and unfortunately, that too was true. My posture was to make the subject as vocational as possible regardless of the students' sex. We developed and maintained our nature center by constructing the picnic tables, bird houses; swinging bridges, and doing whatever else was needed.

The other full-time teacher in the department had a similar situation. His horticulture classes were populated mostly by female students who had only a passing interest in the subject. Many were also enrolled because horticulture was still new and full of glamour. It is fair to say both of us were teaching a new vocational agriculture to clientele vastly different from what we had experienced either as vocational agriculture students or undergraduates in agricultural education.

Teacher Preparation

Many teachers have had to make similar adjustments and are now teaching horticulture with a vocational or career orientation and not as a passing fad. Three reasons appear responsible for this shift. First, teacher educators and state supervisors have recognized that horticulture can be a viable part of vocational agriculture. As such, preservice and inservice programs are provided to prepare prospective teachers to teach the subject. Second, several females who enrolled in horticulture as high school students are now vocational agriculture teachers. They have the experiences required to make the subject vocational. Likewise, other females who did not take horticulture in high school also teach the subject. They too are providing instructional programs with the needed orientation. Finally, veteran teachers who have production backgrounds are realizing that effective instructors in horticulture must shed old habits and become serious about inservicing themselves to stay current.

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A New Agenda For Horticulture

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In This Issue

Carroll Shry, the theme editor, selected outstanding individuals to share their thoughts on staying current in horticulture. An authority on this topic, Shry has published extensively on various areas of horticulture. He is a leader in the National Vocational Agriculture Teachers Association, a regional editor for this publication, and is widely recognized for bringing a real world orientation to his teaching. Authors Shry selected reflect trends that have occurred in vocational agriculture since the 1960s. Two other authors discuss how gifted students can benefit from instruction about horticulture. Several of the authors have strong backgrounds in horticulture while others have simply made themselves effective. A common theme emanating from the group is that capable instructors must deliver quality instructional programs to meet current and future employment needs in horticulture.

About the Cover

Students in horticulture must be provided opportunities to perfect a variety of skills needed to enter and advance in the field. Propagating plant materials will provide students with a first-hand observation of plant growth. (Photo courtesy of Jay L. Anderson).

THEME

Staying Current in Horticulture

In this issue of *The Agricultural Education Magazine*, the challenge of staying in horticulture has a myriad approach to help educators expand the avenues of continuing their educational objectives.

As teachers of agriculture, we are constantly exploring resources to enhance our experience to help us to have a more creative imagination and make our classroom come alive for our students. These resources are at our finger tips which include Landscape and Nursery Field Days and Workshops; special programs sponsored by Wholesale and Retail Floral suppliers, a workshop with a renown designer for a day; Flower and Garden Shows; Cooperative Education Programs offered through the University and State Departments of Education; Programs of State Vocational Agricultural Teachers' Conference and Regional NVATA Agricultural Mechanics sponsored by John Deere Company.

Today in the United States, a land of 230 million people, the demand is for men and women to fill the vital core of qualified personnel for the horticultural industry at the secondary, post secondary and the University level. We need to continually offer additional ways to advance professionalism and technical training for the instructors in order to meet the myriad of changes facing us in the future.

We have individuals from industry relating the present status of the horticultural industry to education. The perceptions of the outside can shed some valuable light on the subject to improve our present situation through the participation in various Horticultural and Landscaping Trade Associations. This technique not only advances our technical knowledge but also opens the opportunity to involve industry in our everyday school option and it will give a strong tie of cooperation to the educational institution and the real world of the horticultural industry.

By Carroll L. Shry, Jr., Theme Editor

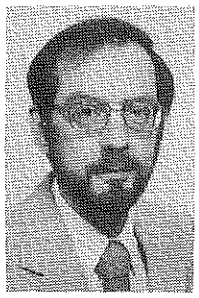
(Mr. Shry is the NVATA Region IV Vice-President and the Landscape Instructor at Frederick County Vocational Technical Center, Frederick, Maryland 21701.)

Youth Organizations

Vocational agriculture teachers can involve their FFA chapter members with many of the programs that offer an updating of technical skills to create an exposure to future employers of the unique talents and interest of the chapter members. These workshops many times will offer the students another perspective of the industry and an opportunity to experience some of the new equipment, styles of design, and employment for Future Farmers of America members. It also helps to build a strong positive image of the vocational agriculture program for the school and other agribusiness organizations. Through this approach, students will influence other students to become involved. They can also share their ideas learned through these activities, their horticultural knowledge, and they are able to develop their potential leadership abilities. Students can also provide "hands on" educational activities relative to today's industrial needs. This all creates a natural career path for future horticulturalists of tomorrow!

This writer feels that this issue will relate the ideas and practices used in the field today by the Horticultural Industry and Vocational Education in Agriculture.

Career Opportunities in Horticulture



By Henry G. Mityga

(Dr. Mityga is a Horticulture Specialist in the Department of Horticulture at the University of Maryland, College Park, Maryland 20742.)

Horticulture has become one of the more popular vocational agriculture programs that is offered at the high school level. A look at the teaching responsibilities of the vocational agriculture teachers in my state and the surrounding states shows that a high proportion are involved in teaching horticulture. If we also look at the types of programs that these schools are offering, we can safely say that they teach considerable indoor horticultural skills (hands-on skills) such as flower arranging, greenhouse operations, floral crop production, Christmas decoration crafts, and the planting of bedding plants around the school grounds. On a more limited basis, some school programs have incorporated a nursery and/or a fruit tree orchard and/or a vegetable garden into the program. And if we were to examine each program on an individual basis, we would see that each is unique and offers something to which few others can compare. Examples are programs that have set-up solar greenhouses with experimental heating equipment or the construction of a model 8-foot by 12-foot greenhouse for under $150 that could be economically built by enterprising young students. Less exotic possibilities are available and I will present them.

Lawn Establishment and Care

Anyone who teaches horticulture in general must offer a component on lawns. Upon finding out that you are a graduate of a horticulture program, a friend, client, or social contact will most likely at some point ask you a question about his/her lawn. And with good reason, a homeowner is likely to have a lawn and needs sound advice about one or more problems that beset the lawn. There are probably a number of trees and shrubs and various flowering plants around, but they usually receive less priority than the lawn areas.

This area offers a considerable amount of hands-on activities and academic material that can be easily learned and taught by the horticulture instructor. Some of the activities include:

Landscape Establishment and Care Activities

1. Lawn establishment by seeding.
2. Weed control practices (cultural and chemical).
3. Mowing practices.
4. Fertilization and liming.
5. Sodding.
6. Irrigation.
7. Pest (insect and disease) management.

Lawn establishment by seeding and sodding may involve soil preparation by roto-tilling, leveling of the soil, prior weed control, proper irrigation methods after seeding/sodding, the practice of sodding or application of seed, and the proper selection of sod (type and quality) or seed for specific cultural areas. Weed control practices are important at the academic level and also in terms of actual application techniques. It is well known that herbicides must be applied at the proper concentration: too little will not kill the weeds and too much will damage the lawn as well. Pesticides for insect and disease control must be handled and applied in approved practices. Pesticide applications are often quite different than that in the greenhouse (which is usually taught by most horticulture programs) since they are applied in combination with fertilizers as a broadcast granular application. Skills need to be developed in calibrating and using gravity-feed or centrifugal spreaders. Fertilization of lawns is an important maintenance task that can help keep a lawn in prime condition with minimum weed problems. Liming is also important. Where soils are too acid, the growth of grass suffers and requires more maintenance than is otherwise necessary. Mowing and irrigation have some commonly accepted rules and practices associated with them.

Benefits for the Graduate

How can such a unit be of benefit to the graduate? A graduate or student working part-time or during the summers should find considerable opportunity to offer lawn care services to the public. A school program may offer enough background to enable the graduate to start a business on a small scale and later expand it. Perhaps a more realistic opportunity would be to work for a lawn service company or attend a two-year or four-year program in the lawn care business. Although the lawn care business is seasonal and usually involves long work days during the work season, it can be rewarding personally and financially. Several years ago, a student of mine, working for one of the major lawn service companies, confided that he was making over $60 per day as long as "it wasn't raining and I was hustling."

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Career Opportunities in Horticulture

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Landscape Establishment and Maintenance

This division of horticulture involves the actual landscaping and planting of an area whether that be around a residential area, a townhouse, or other mass living area, or the area around office buildings. It is followed-up by the maintenance of that area to keep it in prime ornamental form. One reason this area should be emphasized more frequently in the curriculum is because it is one of the easiest of the horticulture careers to enter. If one looks at the nursery business, considerable land and capital are required as an investment to get started. If one looks at the greenhouse business, not as much land is required but a considerable investment must be made in greenhouse structures and operating equipment. Students who come from a farm environment may be in an enviable position in that they could have some land available through the family that could be used to at least start a business. However, the national trend appears to be away from this kind of situation because many students in vocational agriculture programs (especially within horticulture programs) now come from the city. They do not have a source of land available to start a nursery or greenhouse business. Breaking into the landscape maintenance business requires little capital: a pick-up truck and lawn mower with some minor tools may be all that is necessary. As the business progresses, additional equipment can be added and personnel hired to enlarge the business. Starting out, the students or graduates can manage the business from their living quarters. As the business grows and equipment accumulates, then movement to specialized quarters becomes necessary. It would be wise for persons in this field to start out in maintenance, e.g., mowing lawns, pruning, some pest control, plant replacement, etc., and then gradually move into landscape establishment, i.e., design and planting. The latter area is known to be more financially rewarding, but is a little more difficult to break into because of the additional equipment required for this type of work, i.e. the extra labor (or crew sizes), and demonstrated capability to do the job.

It would appear that anyone would be able to obtain a pick-up truck and mower and start a business. Many people actually attempt to enter this kind of business and more than likely they fail. The reason for this is a lack of knowledge of the horticultural end of the business and also a lack of ability to properly run the financial and customer relations end of the business. The horticulture instructor is in a good position to provide the basic background needed by students to enter this type of business. Furthermore, pursuing a two-year college curriculum in landscape establishment and maintenance, where management is stressed, and/or working for a landscape company during summers or after graduation would be excellent background for this type of person.

It should be noted that the demand for people in this area is greatest in high density populations. Attempting to operate such a business in a rural or farm community may not meet with much success. However, the potential for growth is quite excellent in large cities and especially affluent new communities.

After the soil has been prepared, plant material is set into the site. The root ball of the containerized plants must be properly modified (slit with a knife on four sides and bottom) to prevent girdling of the plant by its roots and to allow rapid development of the plant. (Photo courtesy of Hank Mityga.)

Some of the skills required in the landscape establishment and maintenance area are as follows:

Required Landscape Skills

1. Lawn care.
2. Transplanting shrubs, trees, and bedding plants.
3. Pruning trees and shrubs.
4. Pest control.
5. Knowledge of plant materials.
6. Fertilization and liming of lawns, trees, shrubs, bedding plants.
7. Soil modification.
8. Ability to handle mowers, tillers, chain saws, and other power equipment.
9. Design abilities (creating landscape blueprints).
10. Ability to handle employees.
11. Ability to manage a business.
12. Estimate the cost of doing a landscape job and writing a contract to make a bid for the job.

The above areas of competency are not inclusive. If one were to spend a day with a landscape contractor or maintenance person, considerably more areas could be added to the list. However, the above is a good starting point and could form the basis of a curriculum in this area. A thorough knowledge of lawn care is extremely important. It would be difficult to imagine a person entering this business without this background. A number of the skill areas that are suggested could be easily added to FFA projects. One of the FFA activities, or Building Our American Communities (BOAC), has great potential for creating goodwill between the high school and community providing a service to the community and providing the hands-on activities that benefit the students.

Summary

One last area must be mentioned as a career possibility. A national trend shows that our population is becoming older. Those of us who live in cities can point to locations where the primary occupants are elderly people. They often do not have offspring or other relatives living close enough to perform many of the landscape and housekeeping chores that these occupants may have easily performed when they were younger. It appears that there is a market for people to handle some of the typical landscape maintenance duties in these locations as well as be a "Handyman/Handywoman" to perform light repair maintenance around the house (repairing leaky faucets, changing storm windows/screen windows, painting, some woodworking, etc.). This may also be one way for the landscape maintenance person to smooth-out the work load of the business. It is not uncommon for landscape maintenance people to work a long spring, summer, and fall, and then be relatively idle for the winter. Training such persons may require a curriculum which calls upon content from several areas in vocational agriculture: horticulture and agricultural mechanics, especially. Although it is common for most horticulture students to obtain considerable agricultural mechanics skills, a set curriculum with objectives for such a career as described would be desirable.

Although the instructional area in horticulture will see other changes in the future, the areas discussed above should offer considerable potential for extending the curriculum and providing some new directions for growth of our horticulture programs.

THEME

Staying Current With Your School District's Needs

By David Myers

(Mr. Myers is a Vocational Agriculture Instructor at North Kitsap High School, 1780 N.E. Hostmark, Poulsbo, Washington 98370.)

As I began my 25th year of teaching vocational agriculture in the state of Washington this fall, it somehow felt more like my second or third year. Actually, it was just the third year for me to be teaching nothing but horticulture because the advisory committee, the vocational director, and I had completely revised the agriculture curriculum at North Kitsap High School. It had been difficult to do away with the program of the first 10 years when I taught vocational agriculture at North Kitsap High School. Gone are the livestock judging trips, the fitting and showing of animals, most of the proficiency awards, and probably state and national degrees. While the benefits of student project ownership and more FFA activities are good selling points, the reality that no one was making a living in production agriculture involving livestock in our area could not be overlooked. The rapid population growth of the area has meant that ornamental horticulture has now surpassed the employment needs of all other areas. Kitsap County Schools were among the first in the state to realize this trend and have had two schools that have offered ornamental horticulture classes now for nearly 20 years.

New Student Requirements

One other factor that has pushed the agriculture program in the direction of ornamental horticulture has been the rapidly increasing requirements placed on high school students for graduation in the State of Washington. Programs have been lost as a result of a lack of students to fill vocational classes. This has led to a growth in what is known as cross crediting. This means that vocational classes which qualify can offer either a vocational or perhaps a credit in mathematics, English, or science. Ornamental horticulture has seemed to meet the challenge of being accepted for either vocational or science credit better than most other agriculture classes. In this case, staying current in horticulture has meant staying current in science as well.

Yearly Revision Needed

Having taught in fields other than horticulture for nearly half of my vocational agriculture teaching career, I realize that all teachers face the same problems of keeping current that I do. I remember someone once saying about a history teacher that the person had one year of experience and 20 anniversaries. Keeping current to me has meant that I have never taught 2 years in a row without several course revisions and within any 5-year period there has been at least a one-third change in my lesson plans.

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Staying Current With Your School District's Needs

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An Advisory Committee Needed

Having an active advisory committee is one of the best ways to keep current. Individuals from the horticulture industry will let you know when new pesticides are out or when a new and better covering for your greenhouse has been developed. The North Kitsap program has been fortunate to have a wide variety of resource people available and willing to serve in an advisory capacity. We have Christmas tree growers, Rhododendron growers, an arboretum director, landscapers, nurserymen, and representatives of suppliers and florist shops on our local committee. Local garden clubs have also been helpful in including our needs in their program of work.

This group of people got together four years ago and made a list of competencies that high school students should develop in both a beginning and advanced horticulture program. One of the members also drew-up a master plan for the development of a two acre horticulture site. Planting and developing areas go along with the curriculum.

The adoption of competencies has also enabled the committee to recommend textbook adaptations to fit the program. Each year, the advisory committee goes over the competencies, evaluates the program, approves a budget, and in so doing, helps keep the program current. I would not want to stop at this point and leave the impression that the program is where we would like it. The beginning level classes, of which we have four filled to the 25 student capacity, are meeting the program competencies that was expected of them. A shortage of resources in the school district and the demands on student time have not enabled us to have the multi-period advanced class that we would like. We now have just a one-period advanced class. A change in the funding system or having an area skill center handle some of the advanced class preparation are considerations under study.

Good Facilities Required

Keeping current with facilities in horticulture with limited resources has meant first developing a master site plan and then accomplishing what we could with volunteer help and what money could be made available each year. With a lot of effort and some luck, we were able to start with a 2-acre site with a pond and creek on it, have a cyclone fence put around it, and then be able to construct a 30 x 100 foot greenhouse with student labor. My advisory committee chairman is a college graduate with years of landscaping experience and is also a former gold emblem winner in a National FFA Horticulture Contest when he was a student of mine. This has enabled him to put together a master site plan which takes into consideration the needs of industry, students, and the curriculum. The revised curriculum, the active advisory committee, and the master plan have enabled us to convince the board of education and the administration that we are deserving of assistance when it becomes available.

Through the years we have planted arboretums, landscaped the pond, added a portable classroom, added two storage buildings, put up another greenhouse for spring bedding plants, added gravel paths, started an underground watering system, and made numerous small improvements. We still have a small orchard, a small fruit growing area, and a number of other items to work on in areas which are currently seeded to lawn. A lot of teachers will read this and wonder how it all gets maintained. During the school year, it is an excellent opportunity for the advanced class to learn to use a variety of equipment. Current facilities mean having power trimmers, edgers, a garden tractor, pruning tools, and a very long list of equipment besides these items that would be used in industry. These tools can usually be determined by your advisory committee or by talking to workers in the areas of horticulture for which you are preparing students to work. During the summer, the district hires a student three days a week. The student not only maintains the facilities, but does greenhouse propagating work as well.

Adapt FFA and SOE

Keeping current in FFA and SOE has meant that I have had to change my philosophy once more on these subjects. Young teachers would find it difficult to believe now but when I started teaching, girls could not be FFA members and SOE projects generally were set up so that students had to have a certain number of farm animals or acres of crops and were expected to increase this each year for four years. About one-fourth of the proficiency awards that we have today were available and non-farm students had next to no chance to receive the State or American Farmer Degree. State and national changes in requirements have allowed schools the opportunity to plan a vocational agriculture program now that can be very different from most. These programs can then select FFA activities and SOE projects which fit the program, rather than the other way around.

Prior to becoming a full-time horticulture teacher, it was my experience that if I had 100 students, around 30% would end up with no SOEP, and only 25% would become very active in the FFA Chapter. I think teachers today have the flexibility to plan programs and expect that 100% participation is not only possible, but should be expected. In our program, 100% of the students participate in and keep records on running the greenhouse as a business and in completing a landscape project, all as group projects. Productive, improvement, or work experiences acquired away from the school are extra credit. Our state requires that 10% of all vocational agriculture classes be devoted to leadership. I look upon that as one good reason to tell the students that 100% of them are local FFA members and will plan and carry out a Horticulture Program of Work as well as study basic parliamentary procedure and public speaking. If students wish to participate in FFA activities beyond the local level, they must pay state and national dues. We have around 25% of the students who pay the dues to compete in contests or to receive *The National Future Farmer* Magazine. Many of you reading this will consider 25% to be an unacceptable level. I would too if I did not have 125 different students and a basic two-year sequence which prohibits most proficiency awards and degrees beyond the local level.

One of the few FFA areas, beyond the local level, where we have found success are the National FFA Nursery/ Landscape and Floriculture contests. We have had five students on teams that have placed first or second nationally during the past four years. For chapters like ours to be successful in competitions such as parliamentary procedure, we need to have the contests for first year members only and this is not likely to happen. Again, I think it is a question of fitting the FFA programs to your curriculum and not the opposite. I am convinced that 100% of my students could find work in the area in which they are being prepared and that 100% of them could benefit from belonging to the State and National FFA programs. We are providing the opportunity and the encouragement, but the rest is up to the students and their parents.

Summary

I have long been convinced that the classroom is the teacher. I left that as the last point to be mentioned. Successful teaching starts with planning. After two years of involvement, I can produce plans to show where I will be in the beginning classes literally every day of the year in order to meet the class competency requirements. The advanced class needs more flexibility because of the need for hands-on projects. Classroom discipline problems are at a minimum when students know that there is a planned learning experience every day.

After the planning is finished, there are many opportunities for the teacher to keep current in his or her field. The most useful activities I have found are to join the local nurseryman's association, attend related field days sponsored by landscapers or nurserymen, and assist in planning the annual teacher training conference to be sure your needs are included. In Washington, we have a newly established Center For Urban Horticulture in Seattle that has excellent programs and we also have short courses put on by the state in such areas as pesticide usage.

One thing I have found since becoming a full-time horticulture teacher is that I am spending far more time with professional horticulture people and far less time at fairs and agriculture teacher meetings. This was not intended to be, but I think it has been a natural outgrowth of the program.

Evergreen shrub arboretum students established two years ago. (Photo courtesy of David Myers).

In this article I have tried to deal with one person's opinion of staying current with the community, graduation requirements, curriculum, facilities, FFA, SOEP, and teacher knowledge in the field. I am sure that many will disagree with this approach or will want to go further into new developments such as computer assisted work, tissue culture advances, and the like. I have left these things out on purpose as I believe most high school teacher's roles to be more basic than this.

BOOK REVIEW

MADE IN WASHINGTON: FOOD POLICY AND THE POLITICAL EXPEDIENT, By Clarence D. Palmby, Danville, Illinois: Interstate, 1985, 226 pp., $14.95.

This book has made a timely appearance when one witnesses the dramatic increase of foreclosures in agriculture over the past fifty years in such things as the development of grain handling and storage, the evolution of feed formation into an exacting science, and the tremendous increases in agricultural production. But such strides have not meant that farmers would be successful. A key point in this book is that some have believed that added investments in land, machinery, or facilities would bring about a corresponding increase in efficiency because farmers would be increasing their productivity in terms of time and effort. Palmby, however, insists that for a farmer to be termed truly "efficient," added productivity must provide the financial capital to pay for interests on loans, provide funds for cash flow, and to allow for some competitive return on the owner's equity. This net farm income concern continues to be a major problem on both the national and international scene.

Tracing the role of federal government to impact this producer problem, Palmby describes the beginnings of governmental price supports, the surplus problem, and the soil bank. Included is the corresponding rise of the Commodity Credit Corporation from its inception in 1933. The critical question that continues to arise is whether to allow market forces or governmental intervention to determine the volume of food categories to be produced. In this question Palmby appears to be convinced that the market place is the most effective place where economic forces will produce the proper mixture of agricultural commodities.

Palmby brings to this work noteworthy credits in both private and governmental associations. His varied experience in both national and international settings allows him a broad insight to present an important work.

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Staying Current in Horticulture Instruction

By John Porior

(Mr. Porior is a Horticulture Instructor at Oshkosh West High School, Oshkosh, Wisconsin 54901.)

The horticulture program at Oshkosh West in Wisconsin is eight years old. We began class with no greenhouse, no plants, and an instructor with no training in the area. The program began at the wishes of the Agriculture Advisory Council. It is today one of the few remaining classes that the group proposed that is still being taught in the system.

The Oshkosh West School System has about 1,600 students and the principal is Dr. John Sheehy. We have anywhere from 35-50 students taking the class each year. We have two semester classes of horticulture, with the semester based on the season of the year for the subject area to be taught.

Facilities consist of an agriculture shop used to teach the hands-on experience part of the equipment curriculum such as concrete work, wreath making, lawn mower, roter tiller repair, transplanting, and mixing soil. The greenhouse is a 30x95 plastic house with 20 tables with a small area for transplanting and mixing soil. In August we begin growing Poinsettia for the Christmas season. We have already started to grow Christmas cherries and Christmas peppers in the spring that are brought into the house when the weather gets colder.

The class also works in the two parks that the classes have constructed over the past five years, which includes a waterfall and pools. The shrubs and trees in the park are native to Wisconsin and also many of the plants are found on the FFA Nursery Contest identification list. The horticulture class is responsible for all maintenance, pruning, and repair of the parks.

Our classroom phase of the program, during this part of the year, begins studying identification of the flowers and foliage plants. We try to keep 50-100 different varieties of plants in the greenhouse for identification and care by the students. The first semester is used to cover parts of the plant, plant anatomy, plant reproduction, and plant diseases and insects. We try to create a floral arrangement at least once every two or three weeks to give the students some exposure in that area of horticulture. We always have the students make items to take home for various holidays.

Each second semester is used to plant Easter lillies and bedding plants. The students plant the seeds and later transplant the seedling in four pack size containers. The students are taught the different varieties and culture care of each bedding plant they plant in the greenhouse. The students plant about 60 different varieties of bedding plants that are sold to the teachers and the public. The students do all of the flower beds in the high school area and two parks. By the end of the year, a student will be exposed to over 150 different plants and the best students are used to compete in the FFA Floriculture Contest.

Our students placed third in the nation last year with one of the girls being only a sophomore. The judging team competes in two state contests and has been successful in the last 3-4 years. The FFA Chapter also competes in the Nursery/Landscape Contest and has represented the State of Wisconsin in that contest also.

The community of Oshkosh has supported the program very well with the Paine Arboretum helping train the Nursery teams and hiring students from the Agribusiness Cooperative class to work for them and receive high school credit.

The horticulture class has received the beautification award for the youth group for the last four years for the work the students have done in creating and caring for the parks around the school. The students have also given tours to Boy Scouts, Girl Scouts, and the Flower Clubs in the city.

The horticulture class is taught with certain terminal objectives and a goal of 90 percent of all students in the class

The Carl Traeger Nature Center was started with a memorial from a principal who enjoyed nature, greenhouses, and the FFA. The pool with two waterfalls operates nine months of the year. (Photo courtesy of John Porior).

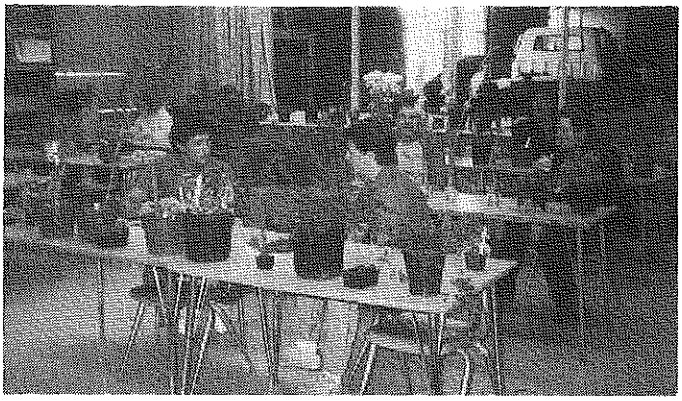
reaching 90% of all objectives. The class is always interesting because of the many hands-on experiences being taught each day. As an instructor, the process of staying current in the industry, with the new varieties, is a never ending job. The school receives numerous trade magazines plus the teachers attend various workshops throughout the state each year. The horticulture leaders on our Advisory Council have always given guidance in the ways of the industry and where the emphasis should be in the training of the students.

The Kenosha Technical School, which has an Associate Degree Program in Horticulture, has always been supportive of the high school program. Articulation meetings are held each year to compare both curricula to make them challenging and rewarding experiences for the student who is interested in horticulture.

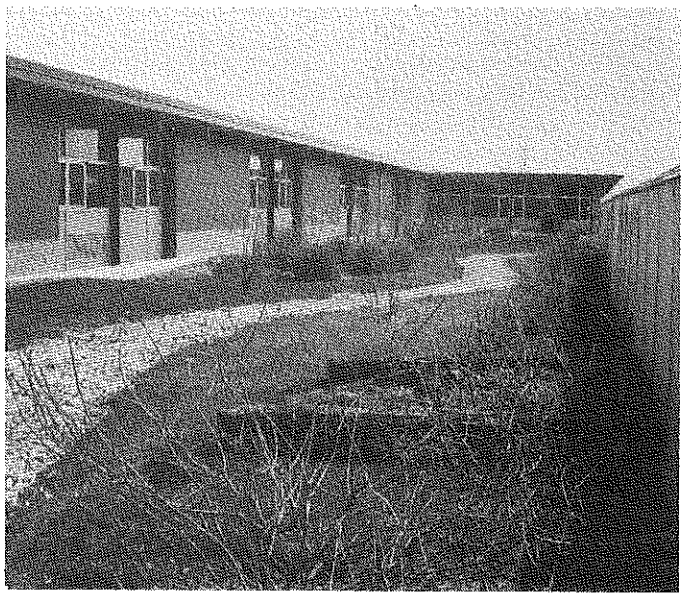
Horticultural education's future is bright and exciting. The use of plants is expanding in the U.S. each year. The future of horticulture education and all vocational education is to train youth to work in or have their own horticultural business. The education should be toward a desire in the students to work for themselves.

This type of education calls for the instructor to operate the greenhouse as a business and not so much as a laboratory where each student has three plants of this and one plant of that. But to use new varieties, computers must be used for record keeping and selling to the customer. It should be the challenge of the instructor to find new plants to bring to class each week.

We have the students construct a small greenhouse each spring for the bedding plants that we grow. The students also do some of the wiring and plumbing to make the greenhouse workable. Some of the students work at the bedding plants sales at different stores in town because of their knowledge.



The classroom at Oshkosh West High School features a laboratory to construct different items for class. It is used for activities such as wreath making, concrete exercises, and grafting. (Photo courtesy of John Porior).



The nature center surrounding the greenhouse was constructed by students in the horticulture and landscaping class. It has over 70 different varieties of plants that are used in the identification of nursery stock. (Photo courtesy of John Porior).

BOOK REVIEW

GLOSSARY FOR HORTICULTURE CROPS, by James Soule, New York, New York: John Wiley and Sons, 1985, 898 pp., price unknown.

GLOSSARY FOR HORTICULTURE CROPS is a dictionary of terms used in horticulture science. Since horticulture spans many crops and includes diverse scientific practices, mastering the terminology can be a difficult task. The author has helped relieve this information void with a glossary. He compiled a complete list of technical words used in horticulture and incorporated items concerned with fruit crops, ornamental horticulture, commercial floriculture, and vegetable crops. The glossary is organized as six sections with the appropriate terms listed in each section. The six sections are: crops, morphology and anatomy; taxonomy and plant breeding; physiology and crop ecology; propagation, nursery handling, soils, and crop production; and postharvest handling and marketing. To use the glossary, one may look up the appropriate section and find the term listed alphabetically or use the index located at the end of the book. The author has provided the reader with 2 indexes for ease of locating the term. The first is an "Index of Terms" and the second is an "Index of Crops." The glossary, then, has 3 accesses to finding the terms. The reader may look to (1) the section to which the term is related, (2) the terms index, or (3) the crops index. Another feature of the glossary is the incorporation of drawings to illustrate the terms. One final convenience is the cross-referencing feature so the reader is directed to a term from many locations throughout the glossary.

This reference book would be a handy tool to have in any classroom where reference to horticulture is made. Instructors would benefit by having a one volume glossary with all the possible terms listed. Students may also use the glossary if they are taught the author's referencing system. Although this book is not suitable as a textbook, it can help a person become familiar with the diverse horticultural terms.

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Staying Current With Landscape Trade Associations

By Thomas K. Mannion

(Mr. Mannion of Garden Gate Landscaping, 821 Norwood Road, Silver Springs, Maryland 20904, is President of the Landscape Contractors Association of Metropolitan Washington, D.C.)

Landscape trade associations may be the most underused resource available to vocational agriculture teachers. Far too few teachers are taking advantage of their local landscape trade associations to keep themselves current in ornamental horticulture. Among the benefits these associations can provide are: (1) current information on new trends in landscape design, (2) the latest news on plant availability, (3) exposure to the new techniques of landscape management, (4) students (many landscape contractors will send their employees to evening horticulture classes), (5) guest speakers to provide the industry's perspective, (6) educational seminars on topics like "Professional Ethics", "Design Graphics", etc., and most importantly, (7) the landscape trade associations can guarantee a job for every horticulture graduate from a vocational agriculture program.

The landscape contracting industry is crying out for more graduates of the nation's vocational agriculture programs. The demand for new employees in the Washington, D.C. area alone is enormous; we need at least 500 new graduates a year. In fact, many landscape professionals feel that the growth of our industry is being retarded only because we cannot find sufficient personnel to staff our businesses. And this desperate need for graduates of the vocational agriculture programs has developed when the enrollment is declining. The industry trade associations are reaching out to agricultural educators, working hard to keep them informed of our need for new employees and up-to-date on issues crucial to ornamental horticulture in general. As the liaison between industry and educators becomes stronger, the trade associations will function more readily as a conduit for information flowing between landscape professionals, teachers, administrators, and students.

We hope a strong liaison with the landscape trade associations and educators will also generate new ideas for attracting students to the vocational agriculture programs and as a result, provide the educated personnel the landscape contractors so badly need. The liaison effort will, in addition, keep educators current in the rapidly changing industry of landscape contracting.

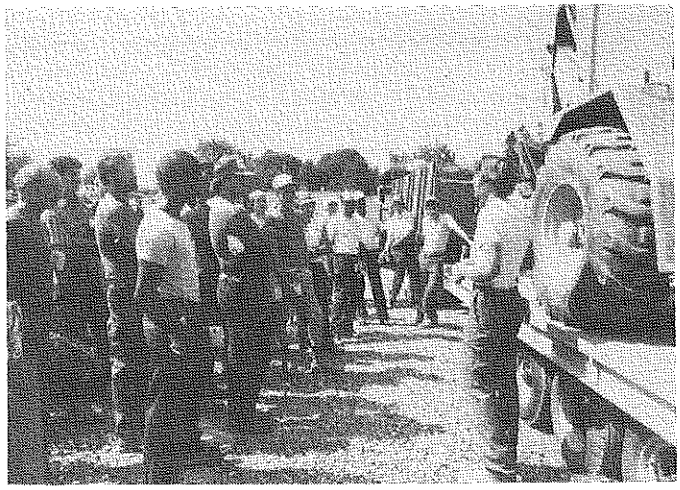
The Washington Association

In our Association, The Landscape Contractors Association of Metropolitan Washington (LCAMW), we have a standing Education Liaison Committee. The creation of this liaison committee essentially occurred when educators from the University of Maryland and landscape contractors formed the committee and began asking others to participate. So to create a liaison, simply ask. And then pester. And finally, insist. Volunteer committees are notoriously difficult to staff. Persistence pays off.

At present, our committee is comprised of contractors, students, and educators. Representatives from the Maryland Institute of Applied Agriculture, the University of Maryland, George Washington University's School of Landscape Design, Northern Virginia Community College, Linganore High School, and the Frederick County Vocational - Technical Center regularly attend the committee meetings. In addition, Boyd Robinson, Jr., a specialist in vocational agriculture education for the State of Maryland, has been very helpful to our Liaison Committee. His efforts in 1985 allowed us for the first time to make our annual Horticulture Career Day an inservice activity for Maryland teachers.

We, in LCAMW, are particularly excited about our Career Day qualifying as an inservice activity because we want more young students to attend the program, not just to look for work, but also to discover how diverse our industry is and how professional the careers in landscape contracting can be. And, by attracting students to our industry, we will attract them to vocational agriculture classes!

Maintaining a liaison effort, of course, requires work. Our committee meets about four or five times a year. Aside from these meetings, we also respond regularly to special requests from educators. Contractors in LCAMW, for instance, serve on curriculum advisory boards for the University of Maryland, George Washington University, and Montgomery Community College. We also promote our industry at high school and college career orientation days. We attended the 1985 Maryland Convention of Vocational Agriculture Teachers to report on industry's efforts on behalf of education and took advantage of that appearance to promote our Career Day.



Students and contractors learn about machinery at the Landscape Contractors Association of Metropolitan Washington Summer Field Day. (Photo courtesy of Thomas K. Mannion).

All Will Benefit

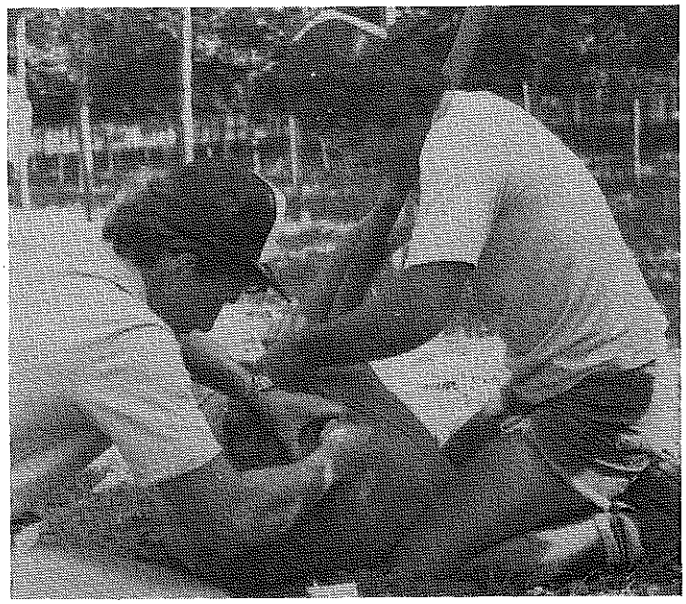
One of the first benefits mentioned above to be derived from the landscape trade associations is getting current information on new trends in landscape design. As the landscaping industry grows, the evolution of new styles of landscaping design is also accelerating. Very few landscape designers are using "foundation" plantings anymore. Planting design is being freed from the contours of the dwelling, and is expanding into the entire property. Not only is the arrangement of plant masses changing, the palette of plants is also constantly improving. Herbacious perennials, ornamental grasses, and sweeps of herbs are now common elements in the landscape designer's repetoire. But these are new trends and the educators of ornamental horticulture students can learn more about them through the landscaping trade associations. The LCAMW hosts at least one meeting a year on the landscape use of perennials. It is a topic that is always of interest to the professionals and will certainly be of interest to teachers and students.

LCAMW also sponsors regular meetings on the topic of plant availability. Where can one find **Chionanthis, Styrax,** or **Halesia**? Why are there no large **Ilex** on the East Coast? What, if any, plants are in abundance or perhaps under-used? Through our trade association, growers and re-wholesalers meet to share with contractors and landscape architects their knowledge of plant availability. This is a crucial topic, one that greatly impacts our industry, and one that must be addressed by teachers of ornamental horticulture.

And finally, landscape management. No single segment of the landscape contracting industry is growing faster than landscape management. Yet this vital area, an area that has enormous potential for new business growth, is usually neglected in educational programs. Where landscape management is not taught, it can be learned through the trade associations. Seminars and workshops on Integrated Pest Management (IPM), on small equipment repair, turf management, pruning techniques, and on plant maintenance are all available through the trade associations. We, in the industry, are eager for educators to teach landscape management. We want to hire your students. But until the programs are in place, use the trade associations to keep your knowledge of this topic up-to-date.

Summary

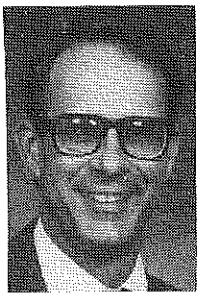
I encourage vocational agriculture teachers to explore the resources of their local landscape trade associations. At a time when agriculture enrollment is declining, the landscape industry represents some wonderful professional career options that more students will surely select. When considering a career in landscaping, these students will need teachers who are aware of the careers available to them in landscape contracting and teachers who are current in the rapidly changing world of landscape design. The landscape trade associations can help you to stay current in horticulture. Please use us.



Competition in the tree digging contest held during the Landscape Contractors Association of Metropolitan Washington Summer Field Day. (Photo courtesy of Thomas K. Mannion).

Students, educators, and contractors judge the tree digging contest at the Landscape Contractors Association of Metropolitan Washington Summer Field Day. (Photo courtesy of Thomas K. Mannion).

A Plan for Staying Current in Horticulture



By Dick Sawyer

(Mr. Sawyer is a Vocational Agriculture Teacher at Westwood High School, 945 W. 8th St., Mesa, Arizona 85201.)

With all the various facets of horticulture: nursery, greenhouse, landscape, turf, fruit, etc.; trying to stay current can be a full-time job. However, a horticulture teacher already has a full-time job or should have if he/she is running a comprehensive program including FFA and supervised occupational experience programs.

The easiest route is to sit back, rest on your laurels, teach that in which you feel secure, and vegetate (no pun intended). But, what about our students? Is it fair to them? Is it fair to train them for jobs that do not exist? Is it fair to train them in skills that were dropped out of the workplace five years ago? Is it fair to disseminate information about products that are no longer being used or have had label changes? Is it fair to the industry that we intend to support with trained students? I believe not. A teacher must stay current in his or her field of expertise in order to do the best job of teaching.

How then, can a full-time horticulture teacher stay current with the changes in the horticulture industry? I believe that a teacher can stay current only with planning and dedication to the task.

Planning is a necessity for the teacher to fit these important activities into his/her busy schedule. Just as a daily plan is necessary to do a good job of classroom teaching, a yearly or monthly plan of major activities is necessary to make sure that we include those activities which are necessary to keep us current in our teaching skills.

Dedication is also necessary since it is a lot easier to let things pass us by while we watch from the sidelines. We need to become involved in the direction of our lives and our teaching rather than let circumstances dictate their outcome. Isn't this what we teach our students? If it is good enough for them, then why not for us? Or, do we teach "Do as I say, not as I do!" Positive example has always been a good role model to portray.

Besides staying current in teaching methods and being on the look-out for new ways to train our students, we must also stay current in the job trends of the area, in the horticultural information changes, and in the current techniques necessary to succeed on the job.

Employment Trends

First, let's take a look at keeping up with the horticulture job trends. Several tools are available for a teacher to keep up on job trends. The local advisory committee for the program can provide valuable input as to where the job opportunities exist and what the opportunities will be five years down the road. More information can be obtained from statewide employment forecasts compiled by state agencies such as the Department of Economic Security.

In our state, the employment forecasts do not include agricultural occupations, therefore, the University of Arizona initiated a series of community surveys to be conducted by the local vocational agriculture departments to gather the agricultural data needed. Many of the original surveys have been updated and the data put into a computer for storage and report formatting. At present, we can identify the agricultural businesses in a local area, county, or statewide. We can also check the job titles in use by those businesses, the number of people currently employed, the forecast of employees needed for five years into the future, the educational level necessary for employment, the beginning wage, and the maximum projected wage for the occupation. This information can be used locally to determine what programs need to be offered and what competencies should be taught in those programs so that our students will be employable. Thus, it is possible to stay current in the direction our program should take to best serve the community.

Update Alternatives

Once the program, courses, and competencies to be taught are in place, it becomes necessary for the teacher to stay current in the skills and knowledge necessary to teach those competencies. There are numerous alternatives for staying current in horticulture including industry seminars, inservice educational programs, periodicals and product literature, business contacts, and trade shows.

Many of the horticulture industry's professional groups sponsor update seminars for their members. These groups generally welcome us to become involved to develop our skills. They know that we are part of the team that provides competent workers for the horticulture industry. For listings and schedules of planned seminars, check with your state association of nurserymen, landscape contractors, golf course superintendents, greenhouse workers, floral designers, etc. Additional seminars may be offered by the Agricultural Extension Service through the Land Grant Institution in your state and by companies offering horticultural products for sale. I have found that not only can I benefit from these seminars, but also some of my advanced students have benefited by attending.

On-the-Job Training

Another excellent way to keep current in the industry is to spend some time working for a horticultural business in the specialty area in which you need increased competence. For example, if you are not as competent as you wish in the area of drip irrigation, then your time would be well spent working for a firm that installs these type of systems. Many agricultural colleges offer inservice credit if you want to set up this sort of program. Employers welcome the chance to put an experienced person on their staff for a few days to a week and are willing to give of their time to help train you, especially when there are no wages involved. Some teachers are able to plan for this type of training as part of their summer teaching contract. It would be worth checking out locally. One caution to take in this type of arrangement is that of insurance coverage to protect both you and the employer who is cooperating in your training. Check to see if you are covered under the cooperator's policy. If not, be sure you are carrying adequate coverage.

Other Options

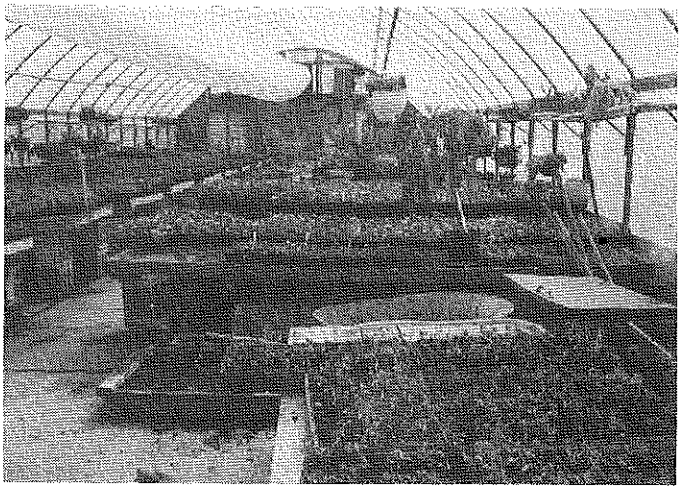
Most agriculture departments subscribe to various periodicals covering the specialty areas that are taught. These periodicals offer industry and educational articles which an individual can use to help stay current in his/her field. Another source of information is the multitude of product information disseminated by the producers of horticultural products. Local businesses can usually supply you with this product literature, sometimes in quantity enough to use with your classes.

Business contacts in the horticulture industry can provide another valuable source of information for staying current as well as provide on-the-job training opportunities for your students. Many of these persons are members of their specialty associations and can also keep you informed about association activities. Business contacts must themselves stay current or they will soon be out of business, thus they make a reliable source of what is going on in your local area. Contact them to determine what the current job opportunities are, what pest controls are being recommended, and what products are available in the industry.

Another good source of current information is the trade shows put on by product manufacturers and trade associations. Up-to-date information, new products, and new technologies are showcased at these events. Class copies of information can often be obtained as well as samples for testing with classes. Another plus to the contacts made at these shows is the possibility of developing a list of resource persons which when used in the classroom enable the teacher to keep his/her students informed in areas in which the teacher is less informed or has not had the opportunity to keep up-to-date.

Remember, to keep current in horticulture, choose those activities in which you feel comfortable, develop a plan to accomplish those activities, and then stick to your plan. Only in this way will you be able to best serve your students in providing them the skills necessary to obtain and hold a job in the changing horticulture industry.

Various types of information were available to individuals who attended the Landscape Contractors Association of Metropolitan Washington Trade Association Career Day. (Photo courtesy of Thomas K. Mannion).



Excellent facilities are needed for instructional programs in horticulture. This facility is used in the spring to grow bedding plants and in the fall, poinsettia plants are raised and placed around the Oshkosh West High School. (Photo courtesy of John Porior).

EXCELLENCE
— Made in the FFA

Staying Current Means Emphasizing the Basics

By Jay L. Anderson

(Mr. Anderson is a Horticulture Instructor at Fort Vancouver High School, 5700 E. 18th St., Vancouver, Washington 98661.)

The health and effectiveness of a vocational horticulture program rests with its students' employability. A close link exists between classroom instruction and a students' preparedness to enter the work force.

The current societal trend calling for educational programs to return to the "basics" emphasizes the need for educators to routinely reassess their program goals, objectives, and instructional content. It is fundamentally important for vocational educators to demonstrate leadership in evaluating their curriculum and update those subject areas taught. Unlike the students of many of our professional educator peers, our students' occupational abilities will reflect the competencies acquired in our program. Incorporated into our vocational structure are advisory committees made up of local industry professional representatives, who may provide recommendations on course content and improvements in our physical plant. The special relationship shared between industry and vocational programs furnishes us with the means by which to design a relevant program. This unique bond, when used effectively, can and should place vocational instruction in the forefront within the educational community.

Ornamental horticulture has witnessed the proliferation of many new technological advances in recent years. The introduction of a broad range of new chemicals, use of computer technology, and the application of tissue culture are but a few of the state-of-the-art developments. These current advances are providing new opportunities for students to explore the field of ornamental horticulture.

It is at this point vocational horticulture educators need to evaluate the broad range of subject areas and, with the help of their advisory committees, develop a curriculum based on the skills needed for graduates to be marketable within the industry. During the process of assessment and revision, vocational educators need to objectively answer the question, "What are the **basics** for this program?" Students can and should be encouraged to augment their education with studies in supplementary horticultural areas, but the core requirements must be identified.

The skills that are considered marketable will vary somewhat from one region to another. Several competencies and behaviors, though, are particularly universal. Six skills and attitudes are especially important in preparing students for the work force.

Six Basics

First, students need to develop a willingness to work. Financial incentives alone are poor long-term motivators to maintain quality work. Students need to develop intrinsic motivation towards their work. They need to feel rewarded through recognition by others and the personal satisfaction of having completed a job to the best of their abilities. The following five factors will influence this attitude.

Second, as employees, students need to know that their work is productive. They need to feel that they possess skills which set them apart from the public. These skills should be both beneficial and utilitarian. Employees should observe their role as a member of the horticultural profession.

Third, students need to develop adequate communication skills to successfully function in the work place. The

Understanding the genetic role of flowers instructs students in methods of developing new and improved plant varieties. (Photo courtesy of Jay L. Anderson).

ability to read and write continues to be a necessity for employment. Oral communication skills should also be emphasized. This will serve students by providing them with the competencies to assume leadership positions within industry.

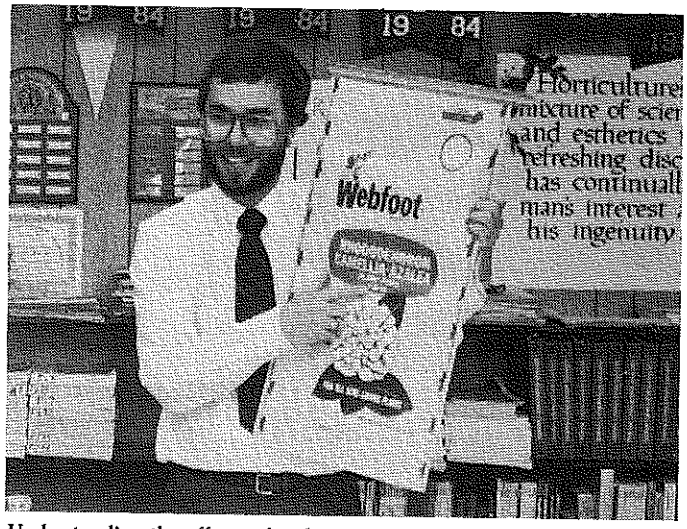
Fourth, students need to be introduced to and have training in computer keyboarding. The present and future use of industry computers for inventory management, sales, etc., is commonplace. Non-computer trained students will find themselves handicapped without this training.

Fifth, students need to be provided instruction in plant processes and factors which influence them. A knowledge of plant growth will broaden the students' understanding of how they may be best cared for and utilized.

Sixth, students should receive training in the identification of plants. One of the most important esteem-building instructional components can be the opportunity for students to emerge from the classroom cocoon and familiarize themselves with common nursery plants found in their community. The scarcity of knowledgeable horticulturists provides the student with an immediate reward system. Their ability to identify plants provides credibility and motivates the student to increase learning in other course subjects. Although not all plants are common to all regions of the country, understanding those characteristics used to differentiate them will be applicable while learning new plants.

Summary

In summary, identifying plants, becoming computer literate, possessing core communication skills, and understanding plant processes will be useful toward developing both an attitude of productivity and willingness to work. If students are motivated in these "basics" we will have accomplished a major step toward meeting our goals as vocational ornamental horticulture educators. Every field of study needs to reassess its curriculum priorities. Vocational educators likewise need to cut through the curriculum frills and strive to meet the needs of both our students and industry. Our professional integrity relies upon our diligence to meet this challenge.



Understanding the effects of soil nutrients upon plant development will aid students in meeting growth requirements. (Photo courtesy of Jay L. Anderson).

Diagnosing disorders, such as this insect infestation, teaches students how to examine, identify, and treat unhealthy plant stock. (Photo courtesy of Jay L. Anderson).

BOOK REVIEW

FARMLAND, by David A. Lins, Neil E. Harl, and Thomas L. Frey, Skokie, Illinois: Agri Business Publications, 1982, 338 pp., $14.95 soft cover edition, $19.95 hard cover edition.

FARMLAND is a comprehensive book on buying, selling, and managing farmland. It contains a thorough coverage of the economic, legal, and tax aspects of farm and ranch land ownership.

The book contains 19 chapters. The major areas covered include the nature of farmland and farmland values, characteristics of farmland and farmland transfers, reasons for buying and selling farmland, information for evaluating the value of real estate, determining the fair market value of land, determining what the land is worth to you, cash flow feasibility of farmland purchases, influence of terms of financing on farmland values, alternative sources of funds for the purchase of land, buying and selling farmland, management arrangements for farmland, liability considerations, federal and state programs and regulations, property taxes, income tax aspects of acquiring land, disposition of farmland by sale or exchange, transferring land at death, and transferring land by gift.

The topics covered are of interest not only to farmers and ranchers, but also to landlords, absentee owners, lenders, agribusiness firms, and others who have a personal or financial interest in farm and ranch land. The book would be useful as a reference for agricultural students and teachers at the high school and college levels.

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ARTICLE

Agricultural Programs and Gifted Programs: A Symbiosis

By Albert M. Bugaj and Carmen Klein Bugaj

(Dr. Albert Bugaj is an Assistant Professor of Psychology and Education at the University of Wisconsin Center—Richland, Richland Center, Wisconsin 53581. Carmen Klein Bugaj instructs horticultural workshops and classes for gifted children at the same institution.)

At the present time, America is facing what may be a major shift in the priorities of its educational system. As recently pointed out by Burton (1986) and Case (1986), there is an increasing call by the public for a return to the "basics" in education. Subsequently, institutes of secondary education are requiring more mathematics, science, and English as graduation requirements, while deemphasizing vocational education (Schuh, 1986). At the same time, many colleges and universities are increasing their admissions requirements. As a result of these two forces, there has been a concomitant decrease in the enrollment of agricultural education programs (Case, 1986).

Addressing the issue of whether vocational agriculture will continue to exist under the current pressures in the educational system, Henderson (1986, p. 13) stated:

> Adopting a more extensive agenda and developing innovative approaches for new clientele are critical activities for the continued existence of vocational agriculture . . . by focusing exclusively on secondary programs and excluding all other interests, vocational agriculture is advocating self-destruction.

As the twenty-first century approaches, vocational agriculture must extend into new program areas and develop innovative programs, thereby ensuring its future.

Agricultural Education and Gifted Education

In seeking out new populations and methods for agricultural education, one area which must not be overlooked is that of educational programs for the gifted student. Presently, gifted education programs are evolving throughout the country in local school districts, at technical and community colleges, and at universities. These programs take many forms, from accelerated classes to early admission in advanced courses, and from special summer programs to mentorships (in which the student works closely to a practitioner in a given field who acts as a role model as well as teacher).

Various definitions of giftedness exist, but perhaps the most widely accepted is that proposed by the former U.S. Commissioner of Education, Sidney Marland (1972) (p. 10):

> Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance . . . Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas:
>
> 1. General intellectual ability
> 2. Specific academic aptitude
> 3. Creative or productive thinking
> 4. Leadership ability
> 5. Visual and performing arts

Basic to the reasons agricultural education must attempt to attract gifted students is the need to attract superior students to the field. As Scherer (1985) indicated, the current number of college graduates meets only 65% of the present need in agribusiness areas. This problem exists because many students are drifting away from agriculture believing they have no future in farming (Scherer, 1985). But agribusiness is much more than farming. Scherer (1985) pointed-out that a veterinarian needs the same basic skills as a doctor, while designing a combine requires engineering skills.

Gifted education programs would serve a two-fold purpose. First, high-powered programs would demonstrate that agriculture is more than farming. Further, in attracting superior students, agricultural education programs would recruit those students with the abilities needed to fill positions requiring such advanced technical skills.

A Program for Gifted Children

As with any educational program, a curriculum for the gifted must be built around the characteristics and specific needs of the students. Research with the gifted (Tuttle & Becker, 1980) indicated that they are curious, persistent, perceptive of the environment, and easily understand general relationships and principles. Further, they are willing to go beyond the usual, often initiate their own activities, and can identify their own goals or outcomes. These abilities and others set the gifted apart from the average

learner, and call for more challenging methods of instruction than those normally used.

Since the gifted child has a mental age far in advance of his or her chronological age, he or she may be able to utilize scientific/experimental activities generally reserved for advanced secondary or college level students. With proper instruction and guidance, the gifted can be trusted with microscopes, soil testing apparatus, dissection equipment, computers, and many other laboratory items. All of these will whet the natural curiosity of the gifted child.

The gifted child easily becomes bored with a strict lecture method of teaching. The problem solving procedure and discovery learning approach are ideal methods for teaching the gifted, with a strong interest approach introducing each unit of study. When working with young children, role-playing is a very effective method of creating interest in an activity. Before certain laboratory exercises it might, for example, be suggested to the students that they will be acting as soil scientists, entomologists, horticulturists, or the like.

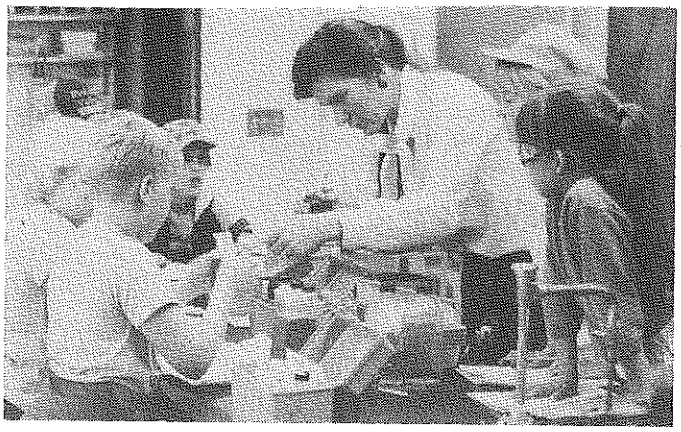
Gifted students enjoy working independently. Therefore, the teacher should design self-guiding worksheets for their use. When working independently or in small groups, the teacher's role should be that of a facilitator, providing guidance and lending a listening ear, acting as someone with whom the gifted student can share his or her excitement. Examples of studies students can carry-out on their own are: soil analysis; a study of agronomically important insects; the dissection and study of fruits and flowers; small animal care; and agriculture-related computer studies.

Student activities need not be limited to a laboratory environment. Students can be given the opportunity to collect materials (e.g. insects, soil samples, plants, etc.) outside the classroom. They can then bring these materials into the classroom for more intensive study. This not only allows the students to experience "field work," but also allows them to relieve nervous energy, especially important when working with younger students.

Many activities, such as specimen collection, seed germination studies, and soil analysis can be performed at home. This type of activity can also include the student's parents. Hence, such an approach can encourage interaction between the parent, the child, and the teacher — yet another benefit.

Toward the Future

Gifted education programs are becoming more and more popular across the nation. As of 1981, 17 states had mandated an appropriate education for all gifted students by law. Another 33 states had established guidelines for gifted programs (Lyon, 1981). Gifted education programs designed in the area of agriculture and agri-industry would attract bright students to the area, some of whom may have had no previous interest in the field. Through such efforts, the future leaders of the field can be carefully nurtured and the continued existence of agricultural education assured.



A group of gifted students are intrigued with soil testing in a mini-course entitled, "Plant Science Laboratory". (Photo courtesy of Albert M. Bugaj and Carmen Klein Bugaj).

Two students are studying soil textures using a microscope. Self-guiding worksheets and activity "stations" give the gifted students a degree of independence. (Photo courtesy of Albert M. Bugaj and Carmen Klein Bugaj).

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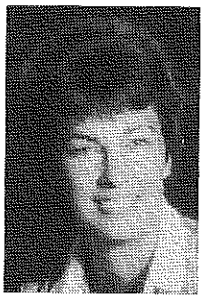
Tips on Staying Current in Horticulture



By Denise L. Megiel

(Ms. Megiel is Division Head of Fruits/Vegetables at Bristol County Agricultural High School, Dighton, Massachusetts 02773.)

No matter how a vocational agriculture teacher stays up-to-date, it is essential that students are involved as much as possible.

When I started teaching in this area, I had only basic knowledge from courses I took in college. My training was in animal science. The first thing I did was contact a friend of mine, Riley Heath, who had taught fruit science for many years at an agricultural high school. He provided me with some course outlines, textbooks, and told me of people in the industry who would help me. Since that time, I have used various methods to stay abreast of all new changes which occur in the field of agriculture.

I attend grower conferences each year in both the fruit and vegetable areas. I also bring my students to these. I feel that bringing my students shows them how to keep in touch with the industry and its changes. At these conferences, through the trade shows, I have made contact with industry people who have provided me with sources of information regarding tractors, seed varieties, chemicals, etc., all the way down to hand baskets.

Also at these conferences, my students and I have gotten the chance to talk with farmers to compare notes and discuss what may work best in our different situations. I have received recertification credit for my pesticide license which is required by the State of Massachusetts by attending these meetings.

In Massachusetts we, as agricultural teachers, have conferences every odd numbered year in our state and in even years we attend the six State Agricultural Teachers Conference. The agricultural conferences we attend in Massachusetts are designed by us to meet our needs. We poll the teachers and decide what topics need to be presented to meet the changing needs of the agricultural industry in our state. Some of the past topics have included the "Right to Know" law, legislation, microcomputers in the classroom, and BOAC.

The six state agricultural teachers program is put together by a committee of representatives of the states and is hosted by a different state each year. I find that attending these each year is not only fun, but keeps me in touch with my colleagues and their programs. I find that I have always brought back some information or new idea to use in my program.

The use of publications and magazines is a great way to stay up to date. I receive newsletters from the Cooperative Extension Service just about every week during the growing season on apples, small fruits, cranberries, vegetables, and potatoes. These newsletters are excellent because they provide me with the latest information on problems which may be occurring and methods to control them. They do cost comparisons of different chemicals and report on their effectiveness. What is also useful is that they let us know if there is any change in the registration of chemicals in our state.

You must be on their mailing lists to receive these newsletters and sometimes there is a small fee involved. The national magazines are very useful in providing information on what is occurring nationally with other growers. These magazines keep me posted on new chemicals which are being developed, scientific research, and legislative changes occurring in different states. I find the grower profiles interesting and have picked up some ideas to discuss with my students.

I work very closely with my Agway store and have found it a definite asset. The store has a field representative who visits me at least once a week to check up on my orchard and vegetables. She and I spend time in each area doing spot checks and we discuss how certain products are working. If I run into a problem, she has always done research on it for me and gotten back to me with an answer. She also provides me with information on what other growers may be doing. Agway also has a growers meeting each year where representatives from chemical companies, the Extension Service, and the university make presentations.

What is nice about working with your dealers is that they are, for the most part, up to date on chemicals and their restrictions. With the pesticide laws becoming more complicated, and chemical registrations in each state so different, these people are extremely helpful to the growers today.

The State Agricultural College and its staff have been an important resource for me over the past four years. Each year in cooperation with the Fruit Science Department at the University of Massachusetts and my school, I have hosted a pruning seminar. It is attended by the local fruit tree growers and my students.

The University of Massachusetts faculty have been very helpful in identifying disease problems, serving as guest lecturers, and offering their facilities for student tours.

Many universities are now working on Integrated Pest Management (IPM) programs on campus. They will gladly work with growers on implementing these programs and monitoring how the system works for that year on their farm. You must have sufficient land in the particular crop

to participate. The universities are continually doing research on new varieties, chemicals, and cultural methods to improve what is currently in use.

I have always enjoyed traveling to different areas of our country as well as abroad. Whenever I go to a different place, I take the time to find out about different agricultural practices.

Last year I went to Ireland and did extensive traveling and research on agriculture. I stopped at the Ministry of Agriculture and was able to spend time with government officials discussing apple and potato production. I found these people extremely helpful and we all enjoyed the exchange of ideas and techniques. They provided me with pamphlets, posters, and the names of growers I might visit to see their operations. They were surprised that I was interested enough in agriculture to take the time to talk with them. I also visited an apple grower and we discussed cultural practices, disease and insect problems, varieties, and how important agriculture was to each of our countries. When I traveled through Ireland, I stayed at farm Bed and Breakfast homes. This gave me the opportunity to talk with the owners about their farming practices. I brought all of this information back to the United States and made a presentation to the agriculture teachers at our annual conference. I also used it in my fruit and vegetable classes. Both the teachers and my students enjoyed the information.

When I travel in the United States, I keep my eyes open for practices which are not common in my area. I have always found that most farmers are very willing to answer your questions and show you their operation. Of course, you must use common sense as when to visit these people. Lunch time or in the evening would be an appropriate time to set up an appointment.

These are the ways I stay up-to-date in my field of fruits and vegetables. My philosophy is to look, listen, ask questions, and try it. It takes effort on the part of each individual to remain up-to-date. The opportunities are out there; we just have to use them.

THEME

Project Wildflower

By Bud Winsor

(Mr. Winsor is a Horticulture Insructor at Cheshire Vocational Center, 43 Arch Street, Keene, New Hampshire 03431.)

In the fall of 1977, the State of New Hampshire Highway Department, under the direction of William Nehring, was looking into ways to cut down on the maintenance of difficult to mow areas along some of New Hampshire's new state roads. The idea was to incorporate plantings that needed little care and would put up with the added problems of automobile pollution, drought, and other problems associated with the roadside landscaping. It was decided that certain perennials may be an ideal alternative to grasses that always need maintenance and were not aesthetically pleasing as flowering perennials would be. This proposal presented quite a few problems for the N.H. Highway Department to work out before the first plant could go into the ground.

1. There wasn't a source for the many types of plants that would be needed for roadside conditions.
2. The N.H. Highway Department didn't have access to the greenhouse space that was necessary.
3. Once the plants were grown, the highway department did not have a work force large enough to blanket the state in the brief spring planting season that we experience in New Hampshire.

The idea may well have died right there if the head of highway planting in New Hampshire (Nehring) had not contacted the State Consultant for Agricultural Education, Martin L. Mitchell.

With the cooperation of several of the FFA chapters in the state which had horticulture programs, Project Wildflower has begun. The seeds were provided by the highway department (mostly Coreosipsis, Lupinus, and Black Eyed Susan), while the starting media, peat pots, transplanting, growing, fertilizing, and greenhouse space were provided by the several FFA chapters. It became apparent, after the first time through, that the best way to grow perennials for a roadside project was to start them as early in the school year as possible (before mid-September), transplant before November 15, and grow in cold frames, or cool and even in our case, unheated greenhouses. By May of the school year, the plants are ready to be set out in areas that were designated by the Highway Department.

Although this seems like a huge undertaking, it has been my experience that the lessons of germinating, transplanting, fertilizing, and then the permanent planting (done by the same students that planted the seeds) have proven to be quite valuable not only as a community BOAC project, but as a useful tool in public relations. Most importantly, it is a lasting reward to the students who were able to see a long term project to its completion, and can still enjoy the benefits of some beautiful flowering hillside along New Hampshire highways.

Since the inception of Project Wildflower, the funding process has undergone some severe cutbacks due in part to the fact that most of the "seed-money" was federally granted and is no longer available. However, after seeing the successful work of the New Hampshire FFA chapters, in conjunction with the State Highway Department, the Federated Garden Clubs of New Hampshire have continued to furnish seeds for this worthwhile project.

Professional Currency is a Needed Survival Skill for the Horticultural Educator

By Clifford L. Nelson

(Dr. Nelson is a Professor of Agricultural Education at Washington State University, Pullman, Washington 99164-6236.)

Staying current as a professional horticultural educator is difficult when members are scattered across the nation. Studies made over the past two decades indicate that vocational agriculture/horticulture teachers average 55 hours per week working at their jobs. What more can be added on?

This is a difficult question to answer, but one that must be addressed for a "PROFESSION AT RISK." New high school graduation requirements, disdain toward vocational education, and potential erosion of professional leadership at state and national levels all have direct impact on the local vocational horticulture teacher.

The Perkins legislation carries no support for ongoing programs. Federal focus is now on program improvement and serving of special populations. The potential of attracting individuals to vocational agriculture/horticulture, such as former President Jimmy Carter or former Secretary of Agriculture John Block to vocational agriculture, has been severely limited because of these developments.

Several historic strengths of vocational agriculture/horticulture are under attack. School class schedules and administrative advisement policies are making it difficult to combine vocational and university preparatory courses at the same time. College admission standards, such as two years of foreign language (which normally don't result in conversational competence), are a disservice to students and limit their freedom of choice. Also across the nation, many state and local educational administrators and officials see no need for competence in agriculture/horticulture for teacher educators and supervisors working with vocational horticulture teachers.

Who Defends the Profession

Agricultural Education's professional organizations, the National Vocational Agriculture Teachers' Association (NVATA), the National Association of Supervisors of Agricultural Education (NASAE), the American Association of Teacher Educators in Agriculture (AATEA), and the Agricultural Education Division of the American Vocational Association are those who have the future of agricultural education foremost in mind. These organizations have represented vocational agriculture at the national level and have been joined by the National Council for Vocational and Technical Education in Agriculture. Founded in 1983, the Council was created to "foster creative and innovative leadership for the improvement and further development of agricultural education as part of public education."

State vocational agriculture teachers' associations have also been active in representation at state, regional, and national levels. Their influence alone has not been sufficient to stop the erosion in some states because not all professionals have joined and some who join have not acted when requested to help.

Some of the more successful state vocational agriculture teachers' associations have introduced and secured state legislation concerning vocational agriculture. More states may need to follow these examples to assure quality vocational agriculture programs for the profession.

The vocational agriculture teachers' associations accomplishments have been the result of alert and committed leadership that has been supported by teacher memberships, fund raising, and professional work. It has also required the help of other statewide agricultural and educational organizations who are friends of vocational agriculture.

How Can A Local Teacher Stay Current?

Investment, study, and active participation are the charges for the vocational horticulture teacher. The professional world is dominated by organizations. In order to stay current with education, the teacher must make an investment of both money and time. Paying dues is not sufficient. Time must be invested in the professional organization. The teachers must attend meetings, read newsletters, and read the professional journals of their organizations.

Careful study of the issues will assist the horticulture teacher in program planning and development. The publication, **A Nation At Risk**, has had a profound effect on contemporary education. Historically, education has reacted rapidly to major social concerns. The effects of the book **The Silent Spring** on current environmental concerns in education is one example of this phenomenon.

The professionally current vocational horticulture teachers will be aware of impending issues early if they have invested time in the study of professional publications and the mass media. This study should include familiarity with general education issues. These are usually addressed in the national/state teachers' association publications directed to members.

To learn of issues specific to vocational education, publications of the American Vocational Association (AVA) are very important for the teacher. This includes **Vocational Education** and their various other publications targeted to teachers.

Agricultural education issues are covered in **The Agricultural Education Magazine** and in the NVATA Newsletters published at regional and national levels. All leaders in the professional organizations of agricultural education (NVATA, NASAE and AATEA) receive these mailings and many of the most important are duplicated in state newsletters. NASAE and AATEA publish periodic newsletters for communication with members. The **AATEA Journal** also deals in part with contemporary professional issues as well as reporting the results of ongoing research.

I Know the Issues: Now What?

Action is often required by the local teacher to address major educational issues. How do you counteract the advice of a school counselor who misinforms students about college entrance requirements? Why is it important that a student interested in a professional career in agriculture take vocational agriculture as well as college preparatory courses? What have we done as a profession to promote equity of involvement for all potential students in our schools?

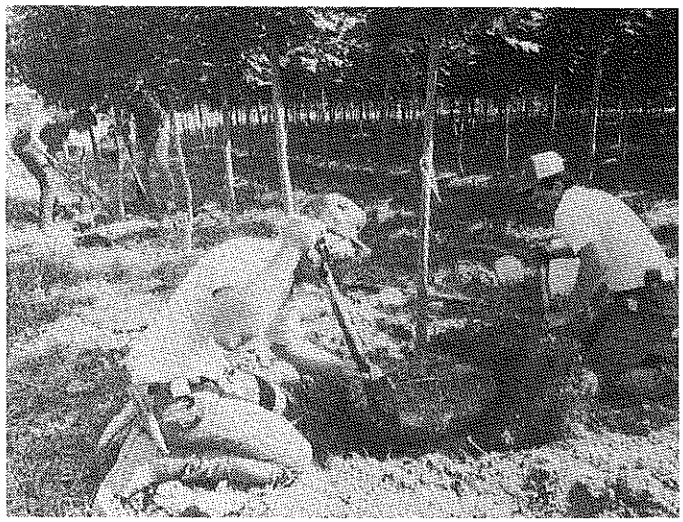
These are major issues facing the local vocational horticulture instructor. The future of the local program depends upon enrollment. The profession has experience in dealing with these questions. Familiarity with professional publications and professional organization activities can help the local teacher.

Examples of some activities that the local teacher might undertake that might resolve some of the questions above include:

1. Acquire the latest college catalog for the state university and read the entrance requirements. Share this with the misadvised student and the counselor.
2. Seek statements from agribusiness and university officials showing the value of the practical knowledge and skills offered in vocational agriculture/horticulture in future study and employment in agriculture.
3. Develop a high school course of study that combines college preparatory and vocational horticulture courses and put it in the hands of 8th graders in an attractive format.
4. Create a systematic reading schedule of relevant professional publications.
5. Take an active part in all professional organizations.
6. Write letters and make the telephone calls to legislators and officials that your professional organizations recommend.

The future of horticultural education as a profession is in the hands of the local teachers and their professional organizations. Offering excellent local educational programs is not sufficient to assure continuation. Current professional knowledge and active professional involvement are needed to assure survival.

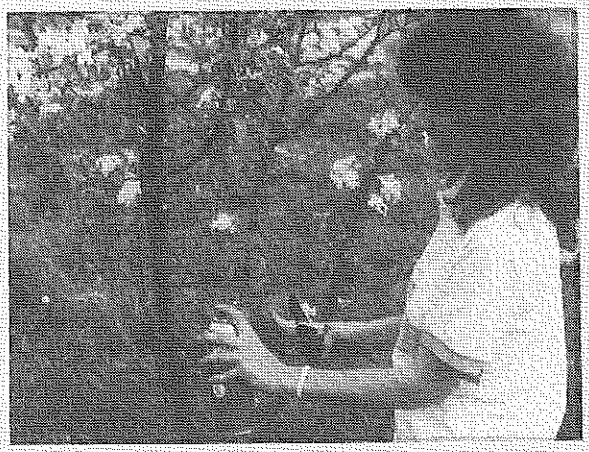
Learning to identify ornamental plant materials contributes towards developing a student's professional attitude. (Photo courtesy of Jay L. Anderson).



Various skills are acquired and demonstrated during the competitions held during the Summer Field Day sponsored by the Landscape Contractors Association of Metropolitan Washington. (Photo courtesy of Thomas K. Mannion).

Stories in Pictures

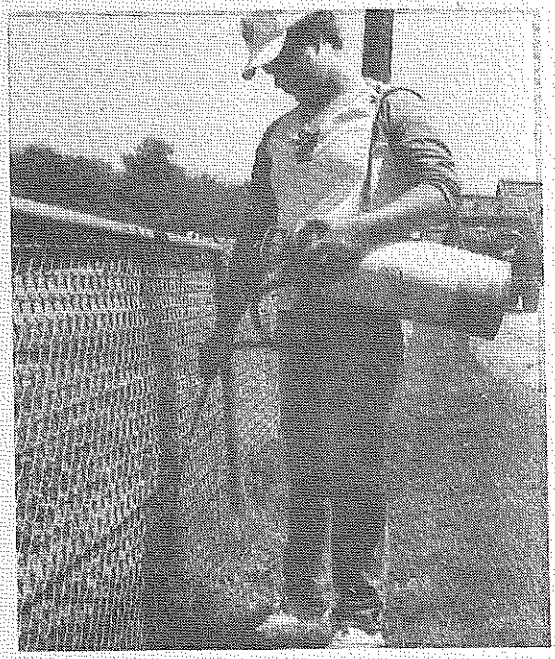
The Many Faces of Horticulture



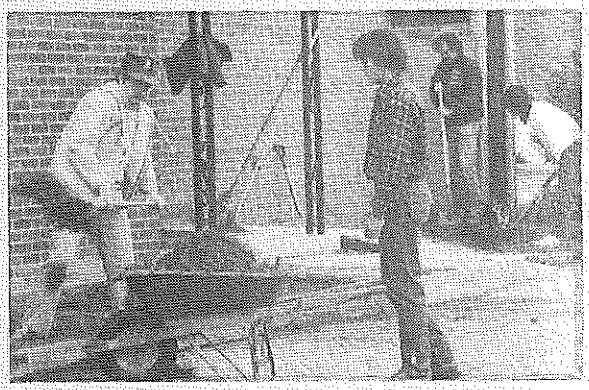
A chemical growth regulator being applied to the crabapple at the area where a sucker shoot was removed manually to prevent regrowth. The chemical will prevent regrowth for at least one year and thereby reduce the manual labor of pruning.

An instructor demonstrating the application of limestone to a grass area with a gravity feed spreader. Although centrifugal spreaders greatly increase the efficiency of application of herbicides, fertilizers, and pesticides, they are not suitable for lime because of its density.

(All photos courtesy of Hank Mityga)



The student above is applying a chemical to grass underneath and alongside a fence. The chemical kills the vegetation and creates a mulch-like area which prevents regrowth for 4 to 6 weeks. This method considerably reduces intensive labor in trimming the vegetation under the fence although the brown vegetation may not be acceptable in certain situations.



Students receiving training in soil preparation for landscape plantings. An initial analysis would check for soil type, pH, nutrient availability, drainage, and any unusual soil conditions. The students then perform the modifications necessary to satisfy the soil requirements of the plants to be used at the site.