THEME

SOEP: Forestry, Conservation and Recreation
The New Elictism

The roots of the history of education were anchored in a tradition for the elite; the affluent. Those with social position and financing were able to obtain an education for their children. Those educated were more nearly able to maintain their wealth, social position and the positions of political power.

Idealism and essentialism became the predominant educational philosophies which provided education for education’s sake. The basis of this philosophical era provided a view of how much work students need to exercise the mind, etc., the study of Latin; and mathematics to teach logic. Out of this arose discontent and charges that education lacked relevance to real life. Pragmatism arose under the advocacy of James, Dewey, et al. These philosophers advocated a real relationship to life.

Vocational education emerged as an outgrowth of the pragmatists, Prosser and numerous early vocational educators built a foundation that has served to give relevance to learning. Outstanding of others have built upon the educational philosophy and delivered educational programs beyond the level of expectations of even its earliest instigators.

Vocational education provides more than just skills. The psychomotor skills are just complimentary to the cognitive abilities and knowledge provided. The problem solving processes inherent in the vocational education program provide a thinking process which can be utilized throughout one’s life even as the technical knowledge changes. Learning is also well documented in the affective domain. Attitudes of students toward life and work are affected. Many a silk muse has emerged from the proverbial sow’s ear. The impact has been noteworthy as the program has contributed to the success of many lives and aiding many to contribute to society who would otherwise have been dependent upon it for support and livelihood.

The pendulum of educational philosophy, aided by several of the reports and proponents of the elticism, has begun to swing back toward idealism. This is evident in the states which have raised the number of units required for graduation. The creation of dual levels of high school graduation: the requirement of foreign languages, more mathematics, more sciences and English; the increased interest in advanced placement exams. All universities are indicative of the swing of the pendulum. A new elitism emerges. Academic ability instead of social class provides the dividing line.

The Cleft

The result will be widening of the gap that already discriminates education: the college-bound and the other.

Vocational education in agriculture is among the others. Foreseen is the possibility that vocational agriculture has much to offer in the future. There is the problem of training the professionals in agriculture which will provide the future research scientists, vocational agriculture teachers, college professors, veterinarians, et al.

Being Flexible

The teacher of vocational agriculture, however, cannot do it alone. A United effort of all vocational educators, and others in elective areas in the school system, can be brought to bear to influence policy. Among the policies to affect can be the number of periods in the school day. This would provide students with greater flexibility.

Policies related to vocational agriculture should also be examined. Policies should require multiple periods of instruction for vocational agriculture need reconsideration. If the length of instructional time is shortened, then professionals must closely consider the instruction priorities. Any detrimental effect on the student must be minimized.

Alternatives must be thoroughly considered. To remain resolve in preserving the status quo would not work to the benefit of the students we serve. Quality can be maintained even in the face of program alteration.

Those steeped in the philosophies of vocational education, an educational system geared to accommodate only the academically able, the elite, is contrary to their principles. We grant that a quality education is needed for students. Efforts to improve quality are applauded. The quality must be provided to all students! The vocational student deserves the highest quality, too. Likewise, the academically talented student can find that vocational education has much to offer.

Creating a widened breach within education between the college-bound and the remainder of the students will be detrimental to education. The morale of students and teachers will suffer.
Catering to the needs of the most academically able will likely be the preponderant emphasis of education in the short run. If history offers any lesson which can be of consolation, it is that mono-cultural changes are cyclical. The pendulum may swing back as pragmatic concerns re-emerge for the provision of an education for all. The profession will need to accommodate the current constraints placed upon it at this end of the swing of the pendulum, especially evident in the natural sciences, the multi-disciplinary approach has proven to be revolutionizing to its field. Day's problems have become more appropriate. Employees must not only know their own job and be able to perform it well, but also be familiar, at least, with related disciplines.

Natural Resources Management Multidisciplinary

The interrelatedness of disciplines is particularly evident in natural resources management. Examples of disciplines within the scope of natural resources management include forestry, conservation and outdoor recreation, the theme topics of this issue.

As an instructional priority, graduates of vocational programs should be trained to perform a specific function such as forest management; however, not to the exclusion of at least a basic awareness of related disciplines such as logging, forest ecology, and forest products. While this may be true at the technical level, it is especially evident at the professional level (an occupational area which must not be created as an option for graduates of vocational programs). Vocational instruction must be multidisciplinary because the real world of work is multidisciplinary.

SOEP's Fit the Bill

Thus far, a case for vocational agriculture to be viable, current, relevant and multidisciplined has been presented. Although seemingly an insurmountable objective, vocational agriculture has a tool with which to shape a student's career while considering all of these parameters: the Supervised Occupational Experience Program (SOEP).

First, consider viability. Vocational agriculture exists because there is a need, and it will continue to be a need, to prepare individuals for the world of work involving the production of food and fiber for the benefit (subsistence and leisure) of mankind. SOEP is the avenue through which students are provided with an individualized opportunity to gain practical experience in the skills area necessary to become a part of the food and fiber production industry.

SOEP is also viable as an extension of the traditional, enclosed classroom into the local community. As such, the public will see what the local vocational agriculture program is accomplishing. Perhaps just as importantly, because adapting the activities to the interests of youth, local citizens, even those not involved in any direct manner with agriculture, become more aware of agriculture as a viable industry.

Maintaining currency in an instructional program, especially in the sciences, is an elusive goal; however, vocational agriculture has a practical means of accomplishing this goal through SOEPs. What could be more current than providing each student with an opportunity to experience the world of work as it exists today through supervised placement?

At this point relevancy is almost irrelevant; it "comes with the territory" to an extent, but SOEPs must be seen as an actual application of concepts and techniques discussed in class, and if the curriculum has been continuously modified and account for changes in technology, SOEPs are inherently relevant.

Last, but not least, the multidisciplinary role of education is an additional reason why natural resources management is a case in point. Management of natural resources exists only because there is a perceived obligation to utilize a particular natural resource in order to satisfy some human need or desire. That is, a forest may be managed for the purpose of providing one or more of the following: timber, recreation, animal habitat or wildlife, for subsistence, esthetics and/or sport, and outdoor recreation opportunities for utilizing leisure time.

Without these pages, perhaps Tony Gashoar stated this concept most precisely: "foresters manage people, not forests". This is one of the best examples of the multidisciplinary aspect of education, particularly vocational education, must address. Excessive proficiency in cruising timber is significantly depressed if the individual is unable to communicate and work with the people for whom the timber is being measured. In addition, an understanding of the product for which the timber will be used and the ecological conditions under which it has been produced may be necessary to complement the overall success of the cruiser's efforts.

Again, SOEPs come to the rescue. For years, educators of agriculture have recognized that everything can not be taught within the confines of a classroom and/or laboratory. Individualized application of the curriculum through projects and placement not only enhances classroom instruction, but also enable each student to experience the interrelatedness of disciplines."

In This Issue

Within this issue, "SOEP, Forestry, Conservation and Recreation," vocational agriculture instructors have cited many examples of SOEPs as discussed in the preceding paragraphs. In addition, to provide linkage with the industry, a major component of the instruction in vocational agriculture, articles were requested from practicing professionals. One was prepared by a forester, the other by an outdoor recreation specialist. Specifically, each was asked to address the question of how vocational agriculture can best prepare students to pursue occupations in forestry and outdoor recreation, respectively. Thus, readers of this issue would be exposed to current ideas from the perspective of the specialist, one who is dealing with the occupational area on a practical, day-in-day-out basis.

The Cover

Emphasis on instruction in Forestry in Georgia began in the early 1930s with assistance from the Federal Emergency Relief Administration. Most of Georgia's schools have a school forest on which management practices are applied. An attractive sign and well maintained road make the forest a beautiful field to be used as an actual application of concepts and techniques discussed in class, and if the curriculum has been continuously modified and account for changes in technology, SOEPs are inherently relevant.
Vocational Agriculture and A Position

By Alan Jechville

(Editors' Note: Dr. Jechville is an Associate Professor of Outdoor Recreation Management and Planning at the University of Alaska, Fairbanks, Alaska 99775.)

The question is, how do we fit recreation management into vocational education? The answer is not simple and straightforward because we do not have much experience upon which to draw. However, assuming that vocational education would primarily be aimed at the technician level, it would seem appropriate to first identify the role of outdoor recreation management and then look at specific program areas in performing that role. One should then isolate those technical facets of the programs that might be implemented by the technician. Finally, one should look at the current vocational agriculture curriculum to determine what competencies are already being addressed and then add course material specific to recreation management.

The role of the recreation manager is to provide sites or opportunities for people to recreate. The recreationists select sites that they perceive will allow them to produce satisfying recreational experiences. The basic management model in terms of production of the site is shown in Figure 1. The model is applicable to both the public and private sectors. The biophysical inputs are the allocation of the natural resource base; the managerial inputs are the allocation of fiscal resources for capital improvements and normal managerial operations such as the resource management programs and visitor services. Regulations are listed separately as they are generally kept to a minimum to allow maximum freedom of choice of the individuals in the use of the resource and interactions with other users. The assumption is that when a regulation is implemented to protect the resource base or reduce conflicts between users, it becomes an essential visitor service.

Subject Matter

The three categories of managerial inputs are essential to the discussion of how vocational education can address recreation management needs; physical development, visitor services, and resource management. The typical program emphases for each category are:

Resource Management
- Turf management
- Horticulture (native and exotic shrub species)
- Arboretum (intensively managed sites)
- Forest management (management of the forest ecology)
- Erosion control
- Fire management (including monitoring and suppression)
- Entomology/pathology
- Range management
- Wildlife habitat management

Physical Development
- Road development
- Light construction
- Sewer and water systems
- Solid waste systems
- Facility maintenance
- Use and repair of equipment
- Surveying

Visitor Services
- Information/public contact
- Public relations
- Safety (first aid)
- Search and rescue
- Law enforcement
- Specialized audio-visual equipment
- Special populations

Most vocational agriculture programs already emphasize much of the subject matter under the resource management and physical development categories, usually aimed at the technician level and oriented to the particular conditions of the region. There are numerous examples of current program training experiences that would benefit the recreation management technician, such as erosion control projects, farm road construction, wildlife habitat improvement, and so on.

Recreation Management A Reaction

By Ramsey M. Groves

(Editors' Note: Dr. Groves is Associate Professor and Head of the Agricultural Education Section of the Vocational Education Department, Colorado State University, Ft. Collins, Colorado 80523.)

In reaction to Alan Jechville's article on Recreation Management, the question arises as to how to design the program to properly prepare workers for occupations in this area. To do so, one must take an idealistic approach and then decide where, and if, existing vocational agriculture programs can provide some or all of the preparation. Where preparation cannot be provided in this manner, a specialized training program must be planned and probably designed for individualized instruction. However, if the majority of the program is specialized and if sufficient students exist, it would be best to provide a specialized program (or those students who have occupational objectives in such a field).

Employability Training

Based upon accepted principles of vocational education, the following steps should be accomplished to insure employability of those being trained.

1. Determine the kinds of employment available and the number of potential positions on an annual and long term basis.
   - A: Employment: If an industry survey indicates that there are positions for which vocational training can provide preparation, then we have a case for planning a program.
   - B: If Jechville is correct in his assumption that many of these jobs are seasonal and are grabbed off by unemployed college students, then we do not have much of a case for any vocational program. On the other hand, if it is also correct that many of these opportunities fall in the realm of private enterprise, or in another sense entrepreneurship, then we should look at training the land owner through Young or Adult Farmer Programs. In this manner, we would have the training put into practice immediately since they would obviously have the resources and expertise they would not participate. Decisions, decisions: we need valid input before we can make them.

2. Numbers of positions: Having determined the scope of the industry, we must ascertain the numbers of replacements needed annually and for at least five years. As we plan a long term program, we need to determine future and additional jobs to better help students make occupational choices.

3. Determine the skills or competencies needed in those job titles most likely to become part of the vocational training program.
   - A: Develop survey instrument(s): Following the plan developed for the National Agricultural Competency Study, we should involve industry representatives in writing job descriptions, listing task areas and identifying probable competencies needed to accomplish tasks identified under each. Dr. Jechville suggests several general knowledge areas which could assist an industry committee in identifying tasks and competencies.

B: Determine the importance of tasks and competencies. Again, following the plan for the National Agricultural Competency Study, a representative sample of industry people should be asked to rate the importance of the competencies identified. They should also be asked to identify additional job titles, task areas, and/or competencies that were not included in the original survey instruments. Summarization of data from the respondents will indicate the degree of importance of each of the competencies identified and will be an aid in planning the program.

3. Determine the scope and sequence of the curriculum: Dr. Jechville's article suggests that exposure to many subject matter areas will provide knowledge from which the worker can accomplish the tasks. However, as was found after the implementation of findings from the National Agricultural Competency Study, the best approach is to develop the curriculum around the task areas for each job title. As a result, a vocational program provides training in a sequence which makes the individual capable of doing the job. Such an approach also provides an incentive for students when they can see job development in the curriculum. Instructors will also tend to limit their teaching to the important areas of job preparation and minimize the use of "nice-to-know knowledge". Assistance of an industry advisory committee will keep the curriculum valid for meeting employment needs.

4. Determine the facilities and equipment needed to provide instruction. Through inputs from an industry advisory committee, we can identify facilities and equipment necessary to deliver the curriculum. They will also identify where the industry can best accomplish the training when availability of necessary facilities and equipment is likely to be limited in the educational setting.

5. Determine how to provide students a means for applying the competencies being learned. Some form of on-the-job training (O.J.T.) becomes essential as Dr. Jechville suggests.

   a. Co-op placement, or O.J.T., which involves training (Continued on Page 9)
While the goals in the development of the recreation site may be somewhat different than traditional agriculture or forestry, many of the necessary skills and technical operations taught in current programs are the same. The unique facets to be added to the traditional program would be under visitor services: public information, safety, law enforcement, etc. The technical aspects of these would be taught in the classrooms and laboratories of the public schools. However, the practical aspects of visitor services can only be fully developed through supervised on-the-job training. The further along one is in the vocational education program, obviously the greater the emphasis on the supervised on-the-job experience. Thus, the present vocational education structure of the schools could easily include recreation management in its curriculum by including some recreation examples/demonstrations within the traditional subject matter areas, specific units on visitor services, and supervised occupational experiences in recreational settings.

Training Options

This type of program has the potential to lead to three different vocational options for the individual student: 1. four-year university program (the practical experience is helpful in understanding some of the classroom material as well as an experience toward later employment); 2. technician level employment (entry directly into the work force); and 3. private enterprise (either as primary or secondary income). While not looking toward enrollment at four-year institutions, the vocational educational experience would be highly desirable for recreation management students seeking higher degrees. Most students, after receiving the B.S. degree, find that it is the experience beyond the degree that gives them the edge in employment.

The technician level employment has some potential, but often these jobs are summer only and readily grabbed by the unemployed college student. However, the potential could be realized in the more temperate climate zones closer to urban areas. Local government, state government, and the private sector have usually developed personnel technician positions where the season of use is more than just the summer, and the pattern of recreational use is sufficiently high to warrant full-time or at least extended seasonal technician positions. Examples would include greenskeepers, zookeepers, park maintenance technicians, and ranger patrols. Even some of the agencies in the northern zones are beginning to use full-time technicians to deal with expanding winter use through snowmobiling, cross-country skiing, etc. Even in Alaska, many seasonal positions at state and local levels are being extended through the winter season. The supervised occupational experience should focus on the potential job market within the region.

Private enterprise is certainly a golden opportunity where the farm or ranch can be used or converted to use for commercial recreation purposes — a pay-as-you-go affair. Some farmers and ranchers are looking at this as either a primary income or as a secondary income to production agriculture. With the proper focus to the program and good marketing of the services, new sources of income can be developed. Too often, this process has been a trial-and-error one. Some succeeded while many failed. Again, well-designed, up-to-date experiences, coupled with some practical business exposure, will improve success. The traditional farm management units in conjunction with some specialized marketing information should be the minimal business preparation.

Implications

What does this mean for the typical vocational agricultural education program? Should they get into recreation management business? This should be determined by each vocational agriculture program from the data and potential employment for recreation management technicians and farm/ranch-related commercial recreation businesses. One may be able to follow a two-year undeveloped occupational market with some minimal administration/representation of the existing vocational agricultural education programs plus the development of new recreation programs. In addition to the supervised occupational experiences, there would not be a simple standard curriculum; the emphasis would reflect the market to which the program is oriented. However, all programs ought to emphasize, under Visitor Services, public relations and public safety.

A Reaction...

(Continued from Page 7)

experience in industry, will be the most suitable for students who have no other means to make the actual application appropriate for the program directed by the instructor in cooperation with a work/training industry supervisor and involving students and parents in planning and participation.

B. Supervised occupational experience programs based in a family operation will be the most suitable for students who are able to operate on their own in a recreational business. The instructor must work closely with parents and students in planning and carrying out experiences which will provide organized program directed by an instructor who is an experienced, qualified recreation professional and which is based on the instructor's own experience and personal knowledge and skills gained in the vocational programs.

C. Related and individualized instruction is also feasible. As part of the instructor's job, one should, through supervisory visits, identify additional areas where students need help. Instructors can provide this through related instruction or on an individual basis during supervisory visits. Some of these student needs may be met through assistance of the training supervisor and as a result should become part of the training plan in co-op situations.

Summary

Dr. Jesubini's article provides a good starting point for dialogue between vocational and industry representatives. This outline suggests ways in which dialogue can be directed. However, the outline does not touch all the areas that need direction and discussion. For example, his article suggests that there may be several levels of instruction involved. This implies that there is a need for articulation between these levels. There is also a need to identify ways to solve problems through program review and evaluations after such programs have been implemented.

In summary, this article has treated many aspects of Prasser's Theories for Vocational Education 5, but has left of them. Prasser's Theories should be reviewed for applicability in the area of Recreation Management. Particular attention should be paid to the sixteenth theorem which paraphrased says, "If you can't do it right, don't do it." If vocational education is to continue to be a viable and valuable part of our educational system, we must do it right for those who "want it, need it and can profit from vocational education."

References


Communication Strategies: A Guide for Agricultural Change Authors, Herbert F. Lionberger and Paul R. Gwin. Book is a collection of readings on communication strategies. Intermediate Printers & Publishers, Inc., 260 pp., price $8.95. For the agricultural educator looking for a readable, comprehensive discussion of the change process and strategies for change, Communication Strategies by Lionberger and Gwin is a must. The author's extensive experience in the field is evident from the text which is as voluminous, often complicated research findings, theories and concepts of the change process are made into easily understood, usable ideas.

The nine-chapter guide (as the authors call it) breaks the concepts of change, dissemination, diffusion, linkage and innovation into digestible pieces. The guide begins with an overview of the needs to talk about change agents, discusses variables affecting change within communities, delineates systems for dissemination (personal, interpersonal and social) and suggests use of discussion groups. This book is also an extensive discussion on the mass media channels and how effectively they are used in training.

The annotated references at the end of most chapters provide an excellent source for supplementary reading. The references are a blend of publications written specifically for agriculture and extension/diffusion field (Rogers, Havelock, Mosher, Lionberger) and from other fields in the areas of group dynamics, processes, communications and international development.

About the bibliography, a 10-page glossary of terms exists to help clarify terms that might initially be confusing or unknown to the reader. The guide is thoroughly indexed which should aid those using it as a reference. While the guide was primarily developed for use by extension agents (and for classroom training of extension agents), its usefulness would also be a useful text or supplementary reading text in agricultural education programs for agriculture teachers. It is highly recommended. The text is often placed in such change agent roles as promoters of agriculture, awareness builders, local leaders, information carriers and gatekeepers. Understanding and effectively using the change strategies could help agricultural teachers perform their roles more efficiently, more effectively.

Rose L. Jones Agricultural Education Dept. Iowa State University

Harbidge Resistance in Plants

Hedgehog Resistance in Plants is an up-to-date, comprehensive guide to the latest research in the area of weed science. This book would be an excellent reference for plant breeders, crop specialists, weed scientists, genetic engineers, and all those interested in the biochemical and physiological aspects of resistance in weeds. Tara Lane Sunderhaus Iowa State University Ames, Iowa
Vocational Agriculture
A Position

By Anthony F. Gasparro

As a forester I was asked by a vocational agriculture educator how vocational agriculture programs could best prepare students for occupations in forestry. I will try to answer this question by discussing the concepts, subject matter and the skills that I think every student should have when he or she completes a forestry program. My ideas and suggestions are not based on having experience with agriculture education, but on what I perceive should be included in a forestry curriculum from the perspective of one working in the profession of forestry.

Let's first discuss the paths that a high school graduate with vocational agriculture forestry training might take into the field of forestry. Perhaps the most popular path to follow upon graduation is to seek work as a forest technician with a public or private forestry organization. A second possibility would be self-employment in a wood products business such as operating a small sawmill, post treating plant, or contract log hauling. A third option would be to seek employment as a wood or mill worker with private enterprise. Another opportunity that should be considered would be to pursue further education leading to an associate or professional forestry degree.

The vocational agriculture forestry curriculum should give the student the flexibility to pursue any of the above options. Furthermore, it should give him/her the capability to adjust to change. Forestry is not escaping the accelerating rate of change that is affecting all aspects of our lives. New technologies and increasing social and economic demands are bombarding the forestry profession. Individuals at every level of the profession will need the capability to adapt to changing demands. Concepts, subject matter and skills taught in the vocational agriculture forestry program should have, as much as possible, wide applicability.

Curricular Concepts

Given the options that should be open to the forestry graduate and given the complexity of this world to change, what should the curriculum instill? Some of the key concepts that I think should be taught in a forestry program are:

- The world in which we live is an interdependent system.
- Forests manage people not forests.
- Human decisions and activities influence the future of forests.
- Safety and natural resources are pervasive at all activities.
- The forest is a functioning ecosystem.
- Forests play an important role in maintaining life on earth.

(Continued on Page 12)

And Forestry
A Reaction

By Tony Kennedy

With over 750 million acres of forestland in the United States, we in vocational agriculture cannot afford to stick our heads in the sand and say that forestry is not an important part of agriculture. We need to listen and learn from those in the forestry profession and the forestry industry and prepare our students to take advantage of the opportunities available in forestry.

Career Awareness

As a follow-up to Gasparro's article, there are some questions raised as we look at the application of his ideas. How are we challenging students to consider all of the types of jobs available to them in the forestry industry? Students will be better served in vocational agriculture programs if they have a strong knowledge of the advantages and disadvantages of the broad career fields. The student needs to be made aware of the increased potential of career opportunities offered when additional formal education is added to the knowledge and skills gained in the vocational agriculture program.

A vocational agriculture teacher needs to invite forestry industry people into the classroom to tell students directly what specific jobs are available and the types of careers. I would also want students to study the trends in the forestry business and then determine their options.

Safety

How can job safety become a part of each forestry lesson taught? In a vocational agriculture program, safety begins with an attitude. If safety is not stressed in vocational agriculture laboratories and courses in areas of the Supervised Occupational Experiences Program, then it will be unlikely that students will be more aware of safety in the forest.

A special FFA safety program conducted for the local community would be a big step in developing an attitude toward safety that would carry over to the total vocational agriculture SOEP. If the students try to teach the community about forest safety, they will end up knowing more themselves.

Other Skills

How can the vocational agriculture forestry student learn to work with people and communicate effectively? By taking part in an active FFA chapter and working on FFA leadership skills, students seeking a career in forestry can improve and develop the skills needed for working with people and effectively communicating with the public.

I would also recommend that each vocational agriculture program in a forestry area consider taking part in the National FFA Forestry Judging Contest, as the skills involved in this contest will help meet the needs of the forestry industry. This contest can be a motivational tool for students and can serve as a way of involving local forestry personnel in the vocational agriculture program.

How broad should the forestry education in vocational agriculture be? Forestry should be looked upon as a part of the total agriculture industry in the United States. When studying each area of the vocational agriculture curriculum, forestry and its relationship to the local community and the national economy would help build the total educational background of the student.

1985 THEMES

January International Agriculture Education
February Vocational Agriculture and the Handicapped Student
March Innovative Student Management Strategies
April Using Microcomputers in Agricultural Education
May FFA Conventions and Contests
June The Supervisor: Local, State and National

OCTOBER, 1984

11
A Position... (Continued from Page 10)

forest ecosystem. They should understand why forest ecosystems differ from one another and how trees within these ecosystems grow, reproduce, and function in the entire system.

The concept of the role of forests in maintaining life on earth will provide the student with knowledge as to the role forests play in the earth’s natural systems and cycles. The student will also understand the role of the forest in providing habitats for plant and animal life. Forests contribute to the various needs of society. This concept will provide the student with an overview of the many products that the forest can provide including those that come from trees and from the forest land itself, such as opportunities for non-consumptive human activities, wildlife, and recreation. It will also give him/her an understanding of the various silvicultural techniques and other practices employed to meet these needs.

Subject Matter

Based on the concepts discussed, what subject matter should students learn and what should they acquire to be able to apply both concepts and subject matter in their future occupations? Without getting into too much detail, I have prepared Table II, which contains general subject matter and skills related to each of the concepts. The list of skills is not exhaustive. The depth to which subject matter and skills are developed in any specific program will depend upon the insights of the instructor, the goals of the students involved, and other local conditions. However, the overall purpose would be to introduce the student to as many of the concepts and related subject matter and skills as possible. As such, a broad background will provide flexibility in employment or other future directions.

Subject matter used to introduce the forestry student to the interdependent world in which we live should focus on the forest products industry at all levels and how they relate to society. Most students should be acquainted by the students themselves as they are taught to develop research skills and are given problems that will require them to call local dealers or survey wood users.

It is important that an individual have public relations skills regardless of the employment position assumed in the hierarchy of a forest management organization. Students should become aware of the value of public relations and acquire the necessary skills by having to speak before small groups, having to inform people about forestry through the written word, and by being exposed to radio and TV.

Subject matter relating to human influences on forests should include both U.S. and local forest history. It should deal with forest land use particularly at the local level and it should introduce the students to the political, social, and economic forces that affect forestry. Students should develop the skills of keeping informed about forestry issues in their area. They should learn how to keep abreast of changing forest land uses by learning where to get land use information and how to use that information. Each student should learn how to participate in the forestry decision making process by attending meetings, giving presentations, and writing letters. Students can also participate in community decision making by writing to newspapers and legislators relating them to discuss forestry issues.

The concept of safety is best taught to students by discussing hazards and safe procedures for every task in which the student will become involved. Students should be trained to perform job hazard analyses, hold "tail-gate" or mini-safety sessions before each field work session, and be instructed in the safe use of each piece of equipment they will use.

Forest ecology, silvics, plant and animal identification and forest influences are that student will be introduced to. This student should be presented to teach the concepts of the forest as a functioning ecosystem and the important role forests play in maintaining life. This subject matter should give the student an understanding of the dynamics of the forest ecosystem and the ability to speculate as to why and how any given ecosystem got to its current state, what changes are currently occurring, and what will happen if various natural or human activities take place. It should give the student an understanding of how the forest interacts with underwater, air, water, and nutrients and provides various wildlife and plant habitats. The student should develop such skills as how to use taxonomic keys in plant and animal identification and how to interpret the forest landscape.

How forests can meet the various needs of people is perhaps a concept common to most vocational agriculture programs. The subject matter and skills relating to this concept probably make up most of the content of such programs. Therefore, I do not think that there is a need to discuss this subject matter in much detail.

The subject matter should focus upon giving the student an understanding of the themes behind many of the activities that will be performed in the field. It should answer such questions as: why are we cutting timber this way?, why are we applying this harvest system?, and why are we concerned about logging slash or a few beetle infested trees? In addition to the standards skills taught at forestry institutes, I think the forestry program should emphasize skills in applied forestry, algebra, and trigonometry. I also think that computer skills would be helpful, particularly those related to programming and the processing of forest inventory data.

There is probably not enough time in a vocational agriculture forestry program for a student to learn all of the skills which will be utilized in future employment, education, or personal use. However, I would suggest that each instructor canvass the organizations that will employ the graduates of the program and get advice as to the specific skills they require for an entry level position. Focus on these skills and let the future employer worry about the other skills. It has been my experience that many organizations are prepared to train individuals who enter employment with little or no previous experience in certain skill areas.

Reference

1. Developing some of the concepts, I relied heavily upon an excellent publication entitled, A Conceptual Framework for Forestry Training in the School of Forestry at Oregon State University at Corvallis, Oregon 97331

THEME

Prairie Heights School Farm: SOEP in Conservation

By Nio Stemp

(Reviewer: Mr. Stemp is the Vocational Agriculture Instructor at Prairie Heights School in LaGrange, Indiana 46761)

Other Examples

Additionally, my thoughts reflect on Ed who graduated from our program some years ago starting as an assistant with the LaGrange County Soil Conservation Service. A recent conversation with Ed's sister at an overnight fifth grade campground brought me up-to-date on Ed. He accepted a job in Colorado working with irrigation water rights for farmers at the base of the Rockies, and is now in the Black... (Continued on Page 10)

THE AGRICULTURAL EDUCATION MAGAZINE

October, 1984

Backpacking, portaging, being self-sufficient in the Canadian wilderness gives me a special feeling and appreciation for nature and others.
Our "Heritage Festival" sponsored by the FFA-Ve A program involves many others for a full afternoon of eating, sharing and learning.

Prairie Heights School Farm: SOEP in Conservation

(Continued from Page 13)

Hills area of South Dakota assisting the Bureau of Land Management with controlled timber cuts on public lands.

As I reminisce, Gary, a Prairie Heights vocational agriculture graduate, now in Louisiana, comes to mind. Gary returned to Louisiana after a service obligation, to marry a sweetheart who works in a southern pine lumber mill office complex. Gary's job has him in charge of a 26 member crew responsible for fire control on approximately one million acres of southern pine forest.

More locally, and daily, many additional graduates are utilizing both old and new conservation practices with their home farms in search of more efficient ways of utilizing our earth's resources for our benefit. Helping these students, and others like Andy, Ed, and Gary who have found full-time employment in conservation careers is an opportunity teachers must not miss. In fact, vocational legislation over twenty years ago strongly encouraged existing programs to expand curricula for training in conservation and many other related non-production agriculture disciplines.

Linking SOEP

Our Prairie Heights program has had some extra pluses in helping provide students with a practical, sound knowledge of basic concepts and techniques used in conservation. A sandy, rolling, partially wooded 220 acre school farm, combined with specific semester instructional courses centering on wildlife conservation, forestry, soil and water activities, and resource management, are providing a practical "theory-skills" link in training students. Learning through carefully supervised experiences centering on our school farm laboratory is providing an effective and meaningful way of developing essential occupational competencies. Class, group, and individual experiences are offered to enrich, and in many cases provide the main base, for individually designed supervised occupational experience in conservation.

Over the years, the Prairie Heights program has had the opportunity to provide both short term and long term experiences which aid students in perfecting their competencies. The following examples provide an overview of the experiences gained on the school farm:

- Management of an 80-acre hardwood forest stand. This results in a timber sale of just under 100,000 board feet of oak, cherry, ash, and walnut, netting just over $20,000. A five year Long Term Agreement (L.T.A.) is maintained with local ASCS officials for timber stand improvement practices, pond building and reforestation

- Wildlife and outdoor education programs. Students are involved in setting up and interpreting nature trails for visitors. Annually 1500-1800 elementary and high school students visit during spring and fall. Students are involved in wildlife management programs on the farm and in utilizing information gained in class to manage school land. The area includes a large variety of wildlife. Members daily feed and manage species of the wildlife study providing opportunity for others to share in special experiences.

- Hunting and trapping. Members operate an annual hunting and trapping program for all junior high school students including familiarization firing at the school farm range.

- In helping provide students with a practical, sound knowledge of basic concepts and techniques used in conservation. A sandy, rolling, partially wooded 220 acre school farm, combined with specific semester instructional courses centering on wildlife conservation, forestry, soil and water activities, and resource management, are providing a practical "theory-skills" link in training students. Learning through carefully supervised experiences centering on our school farm laboratory is providing an effective and meaningful way of developing essential occupational competencies. Class, group, and individual experiences are offered to enrich, and in many cases provide the main base, for individually designed supervised occupational experience in conservation.

- Over the years, the Prairie Heights program has had the opportunity to provide both short term and long term experiences which aid students in perfecting their competencies. The following examples provide an overview of the experiences gained on the school farm:

- Management of an 80-acre hardwood forest stand. This results in a timber sale of just under 100,000 board feet of oak, cherry, ash, and walnut, netting just over $20,000. A five year Long Term Agreement (L.T.A.) is maintained with local ASCS officials for timber stand improvement practices, pond building and reforestation

- Wildlife and outdoor education programs. Students are involved in setting up and interpreting nature trails for visitors. Annually 1500-1800 elementary and high school students visit during spring and fall. Students are involved in wildlife management programs on the farm and in utilizing information gained in class to manage school land. The area includes a large variety of wildlife. Members daily feed and manage species of the wildlife study providing opportunity for others to share in special experiences.

With the assistance of local conservation officers, members operate an annual Hunter Education course for all junior high age students including familiarization firing at the school farm range.

- We hope to show others species on our tours. Here is one of our members telling a tour group about raccoons.

- Planting the forest is offering a continuous supply of firewood from tops and culm trees for share-cutting by students and community members as well.

- A community tree planting program. Some 15,000 to 35,000 conifer and hardwood seedlings are planted annually utilizing the FFA Chapter tree cooperative and tractor mounted planters.

- Black walnut seed collection. During the past three autumns, seeds have been collected for the state nursery and the American Walnut Association. This effort has netted just under 2,000 bushels of green seed at $2.35 per bushel. Members are returned $1.75 per bushel for their efforts.

- Wildlife study area. This project includes the management and daily maintenance, including feed from the school farm, for a wildlife study area which supports buffalo, white tail deer, wild Grand Canyon burros, Canada goose, and more.

- Taxidermy. Each fall wildlife class members utilize community road kills, especially red and fox squirrels, to practice taxidermy. These projects result in FFA and personal exhibit specimens. One class member has her own business specializing in fish mounts.

- Tours and natural interpretation. Students participate in setting up and interpreting nature tours for visitors. Annually 1500-1800 elementary and high school students visit during spring and fall. Vocational agriculture students guide them over the farm woods two mile, figure eight, twenty-eight stop Nature Trail. Students maintain and enrich trail stops each spring and fall in preparing to share the area with visitors.

- Trapping. Members cooperatively trap fur bearers (including a protected badger which was released unharmed) on the school farm each fall season.

- Syrup production. Tapping and boiling down maple sap from the school farm forest highlights tree growth studies each spring by forestry class students.

- Cropping. Students are involved in yearly cropping of the school farm's 60 tillable acres, utilizing approved practices designated in the long-range and up-dated soil conservation plan. Practices used include sod buffers on steep slopes, contour strip cropping, no-till row cropping.

THE AGRICULTURAL EDUCATION MAGAZINE

October, 1984

Leading tours, matching trail signs provide excellent opportunities for class members to improve skills and gain confidence.

- Weather data collection. Daily, since May of 1968, students have maintained and reported weather observations from the FFA Chapter's U.S. Weather Bureau Station.

- Cooperative research. Working with Purdue University's Agronomy and Entomology Departments, plant growth projects and biological insect pest control studies have been conducted. Also, through cooperation with a private research laboratory in Washington, an acid rain study has been launched.

- Local wildlife conservation. Annually, students assist local officials in monitoring wildlife habitat through distribution and planting of wildlife food plot seed, by building nesting structures for water fowl and squirrels, and in releasing quail, pheasants, and mallard ducks.

- Hay ride tours. The vocational agriculture program hosts a continuous flow (even in winter) of hay ride educational tours at the school farm. Visitors are of all ages. Students are always demonstrating and emphasizing conservation practices.

- Outdoor safety programs. Students prepare and conduct outdoor safety programs with the assistance of the area conservation officer. Topics and audiences include: Lavermover Safety, all 5th grade students Snowmobile Safety, all 6th grade students Hunter Education, all 7th grade students Boat and Water Safety, all 8th grade students

- Irrigation. Students have designed, maintained and utilized an irrigation system capable of covering 40 acres with 1" on a 10 day cycle.

- Camp Counseling. Students have assisted with overnight camps of many school youth groups on the school farm with night hikes, camp fire wopers and hay rides.

- Fitness course. A physical fitness trail has been planned, built, and is currently maintained on the school farm. The 1.8 mile, in-station, self-guided trail is open to the public.

(Continued on Page 16)
Forestry SOEP: Headache or Heartbeat

As instructors of vocational agriculture, we recognize that learning through supervised occupational experiences is a very effective and satisfying way of developing essential occupational competencies. We also realize that every program should involve each student in a supervised occupational experience program that is competency based and designed to develop those essential skills needed by students to achieve their occupational goals.

Educational training reminds us that these SOEP programs need to be carefully planned, developed, supervised and evaluated, while practical application shows that occupational activities in collaboration with the local school help make the in-class instruction come alive. With all these positive aspects of a SOEP program, would that thinking that providing a quality SOEP for every student in each program area could be so difficult.

The Problems

The difficulty stems from (1) not all my students are interested in the subject area in which they are involved; (2) I do not have the time to follow through on every project to make sure they are meeting the desired outcome; (3) I do not know how to develop an SOEP that is meaningful for every student; (4) my students do not have the funds necessary to develop a good project; (5) if they are not an FFA member, I do not need to stress the element of SOE to them; (6) all of the above; or, (7) none of the above. Pick one or more. It is possible for you and I, on our own personal reason. SOE programs can be a number one headache to all of us involved in developing, maintaining and evaluating instructional materials, and also, that is one headache that can be the heartbeat of your program. Increase participation in the FFA and be a gratuitous slap on the back for both yourself and the student involved in the project.

The teacher can develop a working relationship with both parents and students that many of the area students might enjoy while allowing the teacher an opportunity to keep a pulse on what is going on, or should be going on, in the total vocational agriculture program.

Group Projects

This past year, Yelm FFA in conjunction with the forest industry secured help from local timber companies and found that they could attain non-usable logs and have them delivered to the school for a moderate cost. Using the instructional program's tools and equipment, we cut and split the wood prepared the end product, firewood, for selling. We also got involved with advertising, estimating cord volume, keeping a log of hours worked and skills accomplished as well as other recordkeeping activities. Species identification and characteristics of the trees were also a component of the project.

Although the students did not earn any money from their efforts, they gained valuable work experience and could see the results of their individual contributions and how it could be translated into monetary units per hour worked. We also started a tree top Christmas tree operation that involved selling seedlings, container, and soil for subsequent planting and maintenance of the seedlings. This project will evolve to include transplanting, shearng, advertising and marketing.

Another aspect of the group project was making student labor available to the community for forestry related activities. Approximately 50 students were involved in reforestation and pulling trees at a nearby nursery. Throughout out the group projects, recordkeeping and personal accountability were major factors in keeping earnings, non-cash earnings and income in variable products on hand.

A most important aspect of developing SOEP programs is for students to see that other students have accomplished in different areas and how they can help them attain these goals. The following year, I will be able to use data collected from this year's activities as possible avenues for incoming students.

Money usually talks louder than experience, and SOE programs will speak of their own merits on the total program. It should be noted that not every student is guaranteed to make money, but that the opportunity is there and willingness results in a great personal effort to make a project profitable, learning experience.

SOEP provides valuable learning opportunities for our students, that may be the only time in their lives, with the active motivation and guidance in helping them develop their project. On-site supervision and instruction is essential from the beginning to the end of the term and ever in mind. Help students can gain valuable experience and break down some of the barriers to employment that exist to today's young people. It is in the recognition that they do, SOE programs can supply the rewards and recognition necessary to help them. In this vein, SOE programs are the heartbeat of our program and should be handled with care.

THE AGRICULTURAL EDUCATION MAGAZINE

OCTOBER, 1984
The Importance of SOEPs in Forestry

Supervised Occupational Experience Programs (SOEPs) are a vital link between the classroom and future jobs for students of vocational agriculture. This is true for all curriculum areas of agriculture and especially so for instruction in forestry. SOEPs in forestry should help develop the competencies needed for job entry in one of the many forest-related occupations. Each SOEP should be set up to meet the needs of the individual student.

Before attempting to set up experience programs in forestry, instructors must examine their beliefs concerning SOEPs. What do I want students to learn from their program? How much time should the student spend on SOEP? Is it necessary for the student to benefit financially from the program? Should course credit be given for SOEP work? What about hazardous jobs in forestry? How will I evaluate the student's performance on the job? How much time will I have to supervise the programs? Once these questions have been answered, most forestry instructors will see the need for several different types of SOEPs in forestry. The three main types are SOEPs on-the-farm, on-the-job, and in a school forest laboratory.

Home SOEPs
Supervised home projects are still very important in providing certain students with job skills associated with the production aspects of forestry. The instructor can assist each student who has forest land in developing a management plan. As many management practices as possible should be included in the plan and the instructor should supervise closely to make certain the practices are carried out properly. SOEPs on the home farm are especially advantageous because they most often get the parents directly involved with the student's work.

Job Placement
Some forestry students who do not have home projects in forestry may receive valuable occupational experience while in a cooperative work program within the forest industry such as working with a logger, private consultant, etc. in job placement programs it becomes very important for the instructor to analyze the type of work the student will be doing. Is it hazardous? Is it educational? Does it interfere with other school work? Is the student practicing proper techniques as taught in the classroom? Is the student treated as a trainee or just another employee? If a student's work is primarily sweeping day after day, he/she might not develop all the job entry skills needed for full-time employment in a forestry job. A student in a job placement SOEP would be better served by a job that provides many different types of work during the training period. The forestry instructor must discuss the purposes of the work experience program with the employer and the student and arrive at a training agreement suitable to all parties. It is also important that the employer have a part in the evaluation procedure used for the program.

The School Forestry Laboratory
A third type of forest-related SOEP can be carried out effectively on a school forest laboratory. In many cases this program may be the only opportunity for students to receive the experiences which develop confidence in their ability to do quality work.

Students prepare to paint and mark individual boundaries on plots.

By Randal Tainter
(Editor's Note: Mr. Tainter is the Vocational Agriculture Instructor at Swainsboro High School, Swainsboro, Georgia 30401.)

Job Placement
Some forestry students who do not have home projects in forestry may receive valuable occupational experience while in a cooperative work program within the forest industry such as working with a logger, private consultant, etc. in job placement programs it becomes very important for the instructor to analyze the type of work the student will be doing. Is it hazardous? Is it educational? Does it interfere with other school work? Is the student practicing proper techniques as taught in the classroom? Is the student treated as a trainee or just another employee? If a student's work is primarily sweeping day after day, he/she might not develop all the job entry skills needed for full-time employment in a forestry job. A student in a job placement SOEP would be better served by a job that provides many different types of work during the training period. The forestry instructor must discuss the purposes of the work experience program with the employer and the student and arrive at a training agreement suitable to all parties. It is also important that the employer have a part in the evaluation procedure used for the program.

The School Forestry Laboratory
A third type of forest-related SOEP can be carried out effectively on a school forest laboratory. In many cases this program may be the only opportunity for students to receive the experiences which develop confidence in their ability to do quality work.

School forest laboratories may be provided by forest industries or be on lands owned by cities, boards of education, schools, etc. Since transportation to and from the school forest can be a problem, location is more important than size; however, the laboratory should be large enough to provide each student with an area on which to work. Much of the work experience can be obtained during exercises on the school forest involving the entire class, each working on an individual plot. The instructor can rotate from plot to plot supervising work which is being done. Work days may be set up after school or on Saturdays during which several students could work on their forest plots. The school forest also allows the instructor to do a better job of supervision in less time while conserving on travel time and expense. At the same time, students receive the hands-on experiences necessary for job entry skills.

The Swainsboro Forestry Program
At Swainsboro High School, we have a traditional vocational agriculture program including livestock production, ornamental horticulture, forestry, welding, electricity, power mechanics, woodwork, leadership, sales and service, etc. About half our students are from farm backgrounds and half are not. We are in an agricultural county with about three-fourths of the land in forests. The forestry industry ranks second to the textile industry in contributions to the local economy.

All agriculture students are encouraged to have a supervised occupational experience program. This is relatively easy for those students with land and facilities available but is sometimes a problem for other students. For some students it becomes necessary to substitute with SOEPs on school-provided facilities. We are fortunate to have an FFA school forest near the campus on which students receive supervised experience for most of the jobs taught in the forestry curriculum. We also have students with SOEPs on home forest lands where they put into practice what is taught in the classroom. In addition, a few students are placed on-the-job for supervised experiences in forestry.

Our forestry program is an important part of the total school program. We offer one full year (two semesters) of forestry. We have seen a need for another year of forestry, but due to the wide variety of offerings in our agriculture department, one hour per day is as much school time as we can provide.

Through our FFA chapter students are able to participate in various individual, team, and class contests and awards programs in forestry. Among these are the home forest contest, the forestry field day contest, and the school forest contest.

The home forest contest is sponsored by Georgia Pacific Corporation and the FFA. This contest offers students cash and equipment for outstanding work on home SOEPs in forestry.

(Continued on Page 20)
The Importance of SOEPs in Forestry

(Continued from Page 19)

forestry. Students with home projects involving forestry are encouraged to come up with an idea. Interpretation motivates them to do a better job with their SOEP. Management plans are set up for each forest and record books are kept for each planting period.

There are ten events in our forestry field day contest. These include tree planting, compass reading, selective marking, forest management, tree identification, sawtimber estimation in standing trees, pulpwood estimation in standing trees, ocular estimation of tree heights and diameters, identification of insects and diseases, and land measuring. All these events test the students' skills in skills that are directly related to work experience in forestry. The events in the contest are updated annually to keep up with changes in the industry.

The school forest contest is sponsored by Union Camp Corporation and offers cash prizes for class winners and individuals. The contest is a real motivational tool for classwork and laboratory work because every part of the instructional program in forestry is evaluated by a panel of judges. Judging includes the management plans, methods of boundary identification, fire protection, maintenance of signs, planting plots, harvesting plots, hardwood control plots, prescribed burning plots, course of study, resource center, tree identification notebooks, records on individuals plots, and public

In addition, each student is rated on the class by the class sponsor and the class average is part of the judging score. The class must work as a team with every member participating. A poor performance by any single student is penalized to each student.

If a particular student is doing poorly on any phase of the program, other students provide assistance to remediate the problem. The result is that each student spends more time observing collections, notebooks, record books, individual planting plots, and studying to exams from disappointing other class members.

BOOK REVIEW


The Use of Computers for National Development, a collection of papers on the use of computers in development, is an annotated bibliography. The annotated bibliography provides an overview of a wide range of abstracts concerning computing techniques in agriculture.

The booklet is divided into ten categories: Computer Applications - Specific and Policy Papers; Computer Applications - Various; General Systems Approaches to Agricultural Development; Operating and other Programming Operations Research and/or Technical; Microeconomics; Records and Information Handling Systems; Rural Planning and Sector Analysis; Simulation and Modelling; Instrumentation; and Listing.

Each category contains a listing of papers presented at a variety of agricultural-related conferences or abstracts of papers published in journals. The author, title of the paper or article, where the paper was presented or published, date, and number of papers is provided. Following the title is the abstract of the paper. The abstracts are products of application research completed or for developing.

The booklet, Use of Computers for National Development, is most appropriate for college students and college teachers interested in an annotated bibliography of practical applications of computing techniques in agriculture for developing countries.

For students and teachers of forestry, I recommend:

The Increment Core is a standard tool to determine the age of a tree. The core can be broken easily if not properly used.

OCTOBER, 1984
Forestry: Inexpensive and Popular

(Continued from Page 21)

that these tools are relatively inexpensive to buy and, if students work in groups of three or four, total costs can be kept down. Students are given basic instructions on how to use the instruments and then groups are assigned an area of about one-half to one acre of forested land to do an estimate of standing timber. This exercise also will combine knowledge and skill learned in dendrology and silviculture sections of the class.

Forest Harvest: Many of my students enroll in the class in order to take part in this section. The main emphasis is chain saw operation which can be very dangerous to teach if safety precautions are not observed. My experience has been that students who have had past experience with the saw can be the most careless. Thus, I start every student with basic instructions in chain saw safety. This is done through lecture and the use of a circular developed by Pennsylvania State University, Cooperative Extension, called Power Chirp Saws, Trimmer Care and Use. Students are required to fill out a worksheet for use with the circular, and to pass a written safety operation test. I also use films on chain saw safety and guest lecturers on saw operating and safety. After about three weeks of in-class instruction, students start working with the saws. We first go through operations, maintenance, trouble-shooting and sharpening.

Students are then divided into groups of three or four per saw and we start actual operations. I demonstrate proper technique in felling and bucking and then have each group a certain area in which to cut marked trees and fallen timber. I try to allow three to four hours per student on a saw. It is important that students wear proper safety gear when operating a saw. This includes hard hat, eye protection, ear protection, chaps, boots and gloves. It is also important that the instructor constantly supervise the activity.

The forest harvest section can also utilize the knowledge that students gain in previous sections of the class such as the forest measurement section. An example activity is to measure the standing board feet of a tree, convert it to cord, then cut the tree down and into four foot bolts and determine how accurate their measurements are.

Summary

In general, the course is designed to give students a basic understanding of forestry. I have found that many students who thought they would like to pursue a career as a professional forester are somewhat discouraged by the amount of math and science involved and thus re-evaluate their career objectives.

On the other hand, the skills, such as chain saw safety, are those that students will use in the future and often will enable the student to supply home needs (firewood). In some cases the students will be able to develop more advanced supervised occupational experience projects from what they have learned.

BOOK REVIEW


Agricultural Computer Programming: A Practical Guide was written to be used by farmers, ranchers, county agents, 4-H members, and vocational agriculture teachers and students. It is written in easy to understand language and the authors use analogies throughout the book to make the material more meaningful and understandable. The authors' goal is to help students in developing computer programming in non-technical terms.

They cover what computer programs are, what they can and cannot do, what to look for in a good program, and why every computer program will not work on every computer. In addition, they wanted to provide the reader with the opportunity to develop a simple but useful computer program. They accomplished their goals well.

The book is divided into 22 chapters. The first three chapters deal with the introduction to computer technology, the basics of what constitutes a computer program, and an introduction to computer hardware. The next 14 chapters deal with the development of computer programs that have various applications in agriculture such as a decision-making program, machine capacity program, a loan payment program, a crop comparison program, a ration formulation program, and a loan amortization program. Each chapter is written in simple, easy to understand terms and the authors do an excellent job in describing the processes involved.

They write the program in "English" and then translate the program into "computerese." This approach is very helpful to those who are novices in the computer area. However, the book has much application for those who have much more skill in computer applications in agriculture. The final 5 chapters in the book discuss using printouts, making programs easy to read, program conversion techniques, buyer computer programs, and learning more programming.

Agricultural Computer Programming: A Practical Guide is an excellent reference book for students and teachers in agricultural education. In addition, for those who want to teach units on agricultural computer programming, this book would be an excellent text for students of vocational agriculture.

Both Dr. Levine and Dr. Walden are extension farm management specialists and agricultural economists and have been heavily involved in instructing farmers, ranchers, county agents, vocational agriculture teachers, and others regarding computers and computer applications in agriculture. Thus, their background and practical experience have prepared them well to write a book of this nature. I highly recommend this book as a reference and a text.

Jimmy G. Creek
Associate Professor
Dept. of Agri. & Ext. Educ.
Institute of Food & Agricultural Sciences
University of Florida
Gainesville, FL 32611

BOOK REVIEW


Teacher Education in Agriculture was written by some twenty-nine leaders in the profession. This second edition offers great thought and insight into the profession in the 1980s. This publication focuses upon the current issues facing the status of teacher education in agriculture.

Chapters one, two, and three deal with the development of the need for, and programs of teacher education in agriculture, respectively. Chapters four, five, six, and seven deal with the objectives for preparing teachers and recruiting and selecting teachers.

Chapters eight through nine describe the aspects of the curriculum. Specifically, it include, general education, agricultural subject matter and occupational experiences, professional education and field-centered experiences.

Chapter ten relates to student personnel services in teacher education. Chapter eleven is about inservice education for teachers of agriculture, while chapter twelve discusses graduate study for teachers of agriculture.

Chapters thirteen and fourteen deal with the evaluation of teacher education programs and research in teacher education agriculture, respectively. Chapter fifteen deals with the future of teacher education in international agriculture.

Chapter sixteen focuses on philosophy for teacher education, and the last chapter, seventeen, discusses the current issues and future outlook of the profession.

A real strength of this book, as related by the Editor, lies in the diversity of its many authors. Although allowing the reader exposure to varying ideas and positions in the profession, it provides a common emphasis on high quality programs. This book should be considered essential to the library of any teacher educator in agriculture, and may be of great interest to any member of the agricultural education profession.

George Wardlow
The Ohio State University
Columbus, Ohio
Stories in Pictures

SOE Programs Utilize

Contests

Home Visits

Classroom Instruction

Community Awareness

Land Laboratory Activities

Small Group Instruction

(Photographs courtesy of Frank B. Flanders and Ned Stump.)