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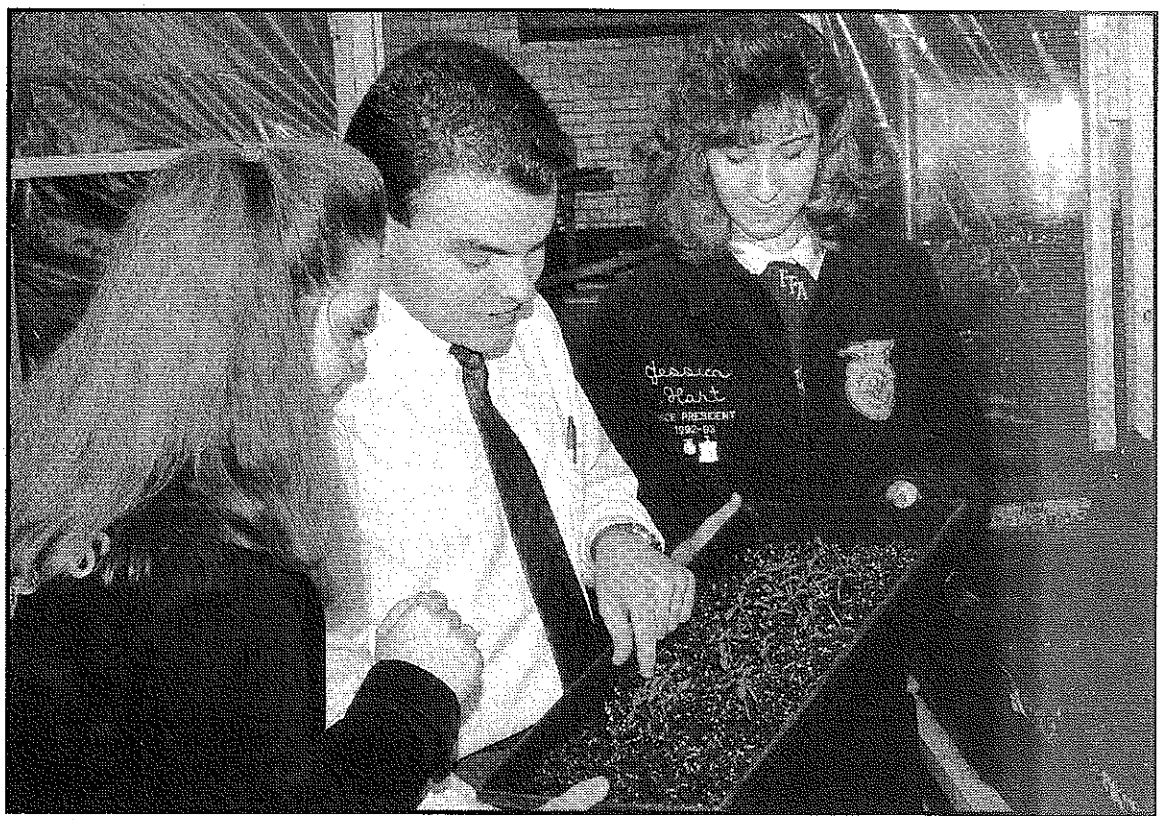

What Teaching Is Really Like

THE
AGRICULTURAL EDUCATION MAGAZINE

Today's Science Tomorrow's Agriculture

September, 1993 **Volume 66** **Number 3**

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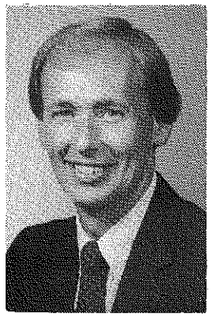
Teaching - Worth the Headaches



BY ED OSBORNE

Dr. Osborne is associate professor and program chair of agricultural education at the University of Illinois. Urbana-Champaign.

In preparing my thoughts for this article, I began listing some adjectives that I felt described what teaching agriculture in the public schools is like in 1993. I ended up with a long list of both positives and negatives about teaching. I decided to validate my thoughts about teaching by asking a group of 18 Illinois teachers to respond to the question, "What is teaching really like?" My thoughts were right on track. Teaching is a love-hate profession. Teachers dislike many things about teaching, but many wouldn't think of doing anything else for a living. This group of teachers described teaching as stressful, frustrating, and disappointing, with long hours, lack of appreciation, and too many responsibilities. One teacher compared teaching to driving in rush hour traffic, where everything around you is in constant motion. The demands never stop. And many agreed that motivating students is their most difficult task.

Yet, this same group of teachers used the following adjectives to describe teaching: challenging, refreshing, rewarding, everchanging, exciting, exhilarating, and fun. These teachers seemed to be saying, "I hate it, but I love it." As one teacher said, "Teaching is the greatest and the worst thing I have ever done. When it works it's great, and when it doesn't, it's the pits." Nearly all complained about the relatively low salary - teaching is not a "get rich quick" profession. But still they teach. Most complained about the long hours, but still they teach. And there are certainly frustrations with administrative mandates and all the things around a school that disrupt attempts at effective teaching. But still they teach. Agriculture teachers are quick to point out that there are many negatives about teaching, but they are also quick to cite the positives. Teaching has its headaches and frustrations, but it's worth it. The following statements were lifted out of these teachers' thoughts and feeling about teaching.

Teaching is one of the most important career's in today's society. It's the key to our future, and the effects that teachers have on students will have a great influence on what these students will or will not be.

Teaching is like trying to fill a one-pound container with two pounds of material.

Motivating students is like going fishing. You dangle that worm out there in front of that school of fish, hoping that all, or at least some, will take the bait.

Teaching is salesmanship and a lot of public relations work, not only with the students, but also with the community and administration.

I have found teaching to be one of the greatest experiences possible.

Teaching challenges your mind and your patience. Everyday is different. Your can make your classes as fun and as exciting as you wish. Most students are genuinely good and want to learn.

Teachers are not considered to be well paid or appreciated, but the thank yous from former students and the joy of seeing a quiet, shy student eventually receive the American FFA Degree make all the difficult times fade into the past.

People seem to respect and like teachers in the small communities, and I like serving my community and having parents and students appreciate my efforts.

When students are asked who their favorite teacher is, most will cite the agriculture teacher, because we spend lots of time with them after school and on weekends and show a great deal more compassion than most other teachers. Students feel that their agriculture teacher cares about them. Sometimes the pressures of teaching are very challenging, but when a student comes up and thanks you, you know you are making a difference.

Students today want to be entertained, so successful teachers have to be creative.

I wouldn't teach if I couldn't work with the FFA. FFA offers many leadership opportunities, builds self-esteem, and helps students become functional and productive members of society. To me, this is one of the best things I can do to improve society and make our world a better place.

To be a teacher you have to love kids and truly believe in what you are doing. You have to believe in your own ability and possess the faith to ask others for help.

If you are a good teacher and care for your students, they will give you the respect you deserve. So often the teachers that complain about students show them no respect, so the students show the teacher no respect either.

There is no such thing as a slow day. The close association that we develop with students is probably the best reward of all. Because of the FFA, I become a second or third parent to many of my students.

If you like a lot of different things going on

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Are You in the Teaching Trenches or Are You Just in a Rut?

BY JACQUELYN P. DEEDS

Dr. Deeds is associate professor of agricultural and extension education at Mississippi State University.

As a secondary agriculture teacher, I used to read *The Agricultural Education Magazine* and note the number of articles written by teacher educators and state supervisors. I remember commenting more than once, "What do they know about what teaching is like today? I want to read what teachers who are in the trenches like me have to say." My personal feelings then, and recent feedback from readers of *The Magazine* precipitated this issue on WHAT TEACHING IS REALLY LIKE.

First let me say in defense of teacher educators and state staff (now that I am in that category) that the close working relationship we maintain with schools gives us a pretty fair idea of what teaching is like. Through school visits and field experience supervision, we work with teachers, students, and administrators, and we understand the relationships that exist. So please do not discount those articles written by teachers educators and state staff members, and remember we were all teachers at one time, too.

The Difference Between a Trench and a Rut

Now I come to the second part of my comment about being in the trenches. I would like us to consider just for a few moments the difference between being in the trenches and being in a rut.

We think of the trenches as being front-line action. As teachers, we can be thought of as the front line in the war on ignorance. We face many challenges and conflicts on a daily basis in an effort to achieve our objectives.

A rut, defined as a worn track or a well used path, sounds comforting. However, the dictionary definition of a rut as a "monotonous routine method of action or procedure from which one is not easily stirred" sounds much less pleasant. The view from the bottom of a rut may not be significantly different than the view from the bottom of the trench, but how we got there and how we get out are very different processes.

How Many Years of Experience Do You Have?

At an inservice program many years ago, someone asked, "How many years of teaching experience do you have?" The question was followed with, "Do you really have, for example, 15 years of teaching experience, or have you had one year of experience 15 times?" It took awhile for that concept to sink in. Surely, I had my years of experience; they paid me for them, didn't they? The speaker questioned us about what we were doing differently now that we didn't do last year or the year before. The

As teachers, we can be thought of as the front line in the war on ignorance.

speaker said if nothing had changed, perhaps we were just getting the same experience over again. Those who do not change and have the same experiences over and over may develop a comfortable rut, but neither they nor their students really advance.

Please don't tell my brother Jim that I said something nice about him, but I realize that one of the things that I respect about him is the fact that he has 28 years of experience teaching elementary school. You know teachers like him - they go to workshops, take classes, read magazines and journals, change their room arrangement, and try new things. In short, they stay excited about teaching. These teachers are in the trenches of education and have a different experience every year.

How Can You Tell If You Are In a Rut?

What would be the signs that, as an agricultural educator, you are in a rut? Check your teaching plans. Is the paper yellow around the edges? If so, maybe you are in a rut. Do your references all have pre-1990 (or worse, pre-1970 or 1980) copyright dates? If so, you may be in a rut. Have you tried to move a desk or table and found it waxed to the floor or the floor underneath it a different color? If so, you could be in a rut. Have you prepared a team for the agriselling contest or submitted a student application in computers or agriscience? If not,

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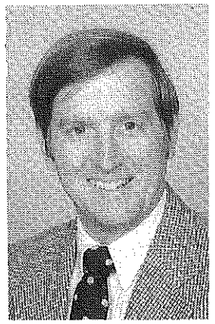
What Teaching is Really Like While Potting, Pinching, and Propagating



BY ALLEN W. CLARK

Mr. Clark is a horticulture teacher at Leland Vocational-Technical Center, Leland, MS.

The teaching of horticulture offers opportunities and challenges for the beginning or tenured educator. Instructing students in the greenhouse poses a new set of situations to deal with when compared to the classroom. The roar of the fan-jet ventilation systems drowns out much conversation and verbal instructions. Voices rise to a level that would be shouting in the classroom. Feet (and clothing) can become saturated with the careless use of a hose or watering can. Clothing can easily be peppered with potting medium while filling pots or cell-pack containers. Plants and seedlings must be gently handled and manipulated in order to insure the best survival.

Helpful Hints in Getting Started

Not all students follow oral or written directions well, and some not at all. What's a teacher to do? Several hints have emerged over my past 15 years of teaching horticulture.

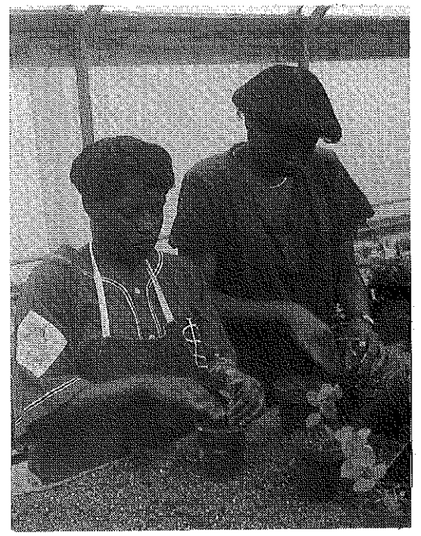
1. Before entering the greenhouse, tell your students what they are going to be doing.
2. Be concise and precise.
3. Ask probing questions for understanding.
4. Use overhead transparencies or modified demonstrations for the visual learners.
5. Encourage students to work in pairs when transplanting seedlings from germination flats into cell packs or segmented containers. The pair can take turns preparing the cell pack label, removing seedlings, transplanting, watering with starter solution, and placing the flats in appropriate locations when finished.
6. Constant monitoring of student progress and activity is a must in the greenhouse.
7. Be flexible when students want to shuffle their partners when working in pairs.
8. Adequate elbow room between groups will prevent unnecessary conversation, "goofing-off", or purposeful sabotage of a neighbor's work.

The Challenge of Special Needs

To add to the physical challenges in the greenhouse, individual student differences can become even more evident in the laboratory situation. Those students who have difficulty grasping theoretical material may perform beyond expected levels with hands-on work. Sometimes more academically able students have difficulty with psychomotor skills. Laboratory teaching in the greenhouse challenges teachers to find ways to work with and challenge students of all ability levels. One way to handle some of these challenges is by continued pairing of students so they assist and learn from one another.

When mixing potting medium, the academically inclined students can grasp the meaning of a 4 : 2 : 1 peat : perlite : vermiculite mixture. Our special students can also prepare the same mixture by following a recipe such as 4 green buckets of peat moss, 2 green buckets of perlite, and 1 green bucket of vermiculite. However, all students should be able to fill flats, pots, and cell packs without a problem.

When sowing seeds in germination trays, observation is vital. Even the best students may be careless with expensive seeds. Initially, use a large seed such as four o'clocks or calendula's before moving on to the smaller varieties. These seeds can be dropped with fingers and evenly spaced in a row. Have a student who reads well check germination information on →



Students transplant seedlings into four inch pots as part of the propagation exercises.

Group partners check the accuracy of the measurements taken.

the seed packet or reference book as to whether the seeds need darkness or light for proper germination.

When transplanting seedlings, allow those who can be careful in handling smaller plants to transplant the more delicate plants. Save the thicker stemmed plantlets such as tomatoes, peppers, or eggplant for your special students to manipulate by the leaves. Constantly check for proper labeling of trays and cell packs.

A floral crop of pot mums can be handled nicely, especially when pairing of students is used. One student can remove buds, while another checks for any missed buds and looks for insect pests. The pair concept can allow one student to mix fertilizer solutions and refill the bucket as another applies four ounces per pot.

Vary Your Assignments by Ability Level

In order to keep all students motivated and challenged, teachers should have a variety of options for reaching objectives. Academically motivated students can figure parts per million solutions or percent concentration solutions. Special students can measure four scoops per gallon of water. A hand mister/sprayer can be used by anyone as they apply plant growth regulators. Your better students can detect the differences in plant growth due to various concentrations by measuring plant height in centimeters and recording it on a chart. Our special students can tell which solution works best or least by visually comparing plant height.

Lateral bud growth is evaluated after removal of the terminal bud.

Vegetative propagation activities can be simple or complex. *Sansevieria* sp., or snake plant, leaves can be cut into sections and placed into pots for regeneration. The special population students can work individually to take terminal stem cuttings of *Chrysanthemums* sp. or *Crassula agentea,* jade plant. Careful supervision of cutting instruments, such as grafting knives, pocket knives, or sharp pruning clippers is a must. Advanced students can quickly perform their tasks and then serve as helpers with the slower students. Gifted students can also demonstrate how to make a 45° slant cut on the stem base and how to properly dip the cut end into a rooting powder. Specialized types of cuttings such as leaf with bud, heel, or smaller cuttings can be required of those capable of this type work.

Almost any horticultural task or lab activity can be readily adapted for ability groups. Considerable thought, time, and planning are required to develop appropriate greenhouse exercises that are educational, rather than just time consumers.

Evaluate Using Industry Standards

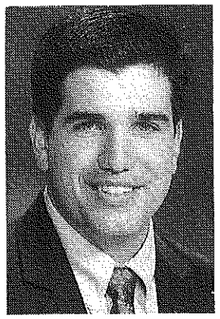
Instructors should incorporate facets of the horticulture industry into their greenhouse work for students. Most lawn and garden centers have a preparation center for mixing of planting media and for potting various plants. If plants are grown for sale, they should be grouped, labeled, and priced using trade practices.

Instilling a work ethic in students is difficult, and should be emphasized and re-emphasized frequently. The honest labor of a student deserves an honest evaluation. Points to consider in the evaluation could include following directions, use of proper containers, quantity of plants transplanted, proper labeling, watering techniques, and proper placement of the completed product. Several days later the condition and care of transplants should also be considered. A checklist may be sufficient to denote adequate or unacceptable work.

The Teacher is Responsible

Regardless of what system or variation we use, instructors must be flexible, creative, and open to new ideas or techniques that will achieve our goals in educating students. We must do more than just expose them to a base of information. We must make sure that all students, regardless of ability level, can learn and succeed in our program. ■

TEAMWORK: The Major Ingredient in a Multi-Teacher Department



BY STEVEN MEIER & CINDY SCHNURIGER

Mr. Meier and Mrs. Schnuriger are agriculture teachers at Clear Creek High School, League City, TX.

Teaching in a high school agriculture department is unlike teaching in other curriculum departments within a school, due to the nature of the agriculture program itself. The agriculture department includes much beyond a day of classroom instruction. Each agriculture program should be different to accommodate the needs of students, school district, and community served. However, several aspects of all agriculture programs remain the same. All agricultural educators are striving to teach our youth agricultural skills and develop mature, successful leaders for our country's future.

As agricultural educators we extend our instruction and supervision outside of the classroom to offer more experiences and opportunities to the students. Some of the areas developed outside of the classroom include supervision of the FFA chapter, supervision of SAEP, development of agricultural leadership and judging team competition. Along with these activities comes extension of FFA chapter supervision to all types of meetings and conventions. All of this talk about program development leads us to a topic of great concern among most agricultural educators — how they can cooperate successfully with other agriculture teachers in their department and/or school district and be confident with everyone's contributions to their program?

All agriculture teachers have their individual teaching philosophies, beliefs, and styles. That does not necessarily indicate that one teacher is more successful than the other. On the contrary, these differences can certainly complement an agriculture department. A key ingredient to a successful multi-teacher department is the appreciation for each other's individuality, talents, skills and personality. One teacher's weakness may be another teacher's strength. The following includes areas of concern for most successful multi-teacher departments:

1) All teachers in a multi-teacher department do not have to be the most knowledgeable in all areas. They should, however, be responsible and knowledgeable in their curriculum assignments and areas of FFA supervision.

2) Honesty, understanding, and communication are the keys to any successful relationship, including that in a multi-teacher agriscience department.

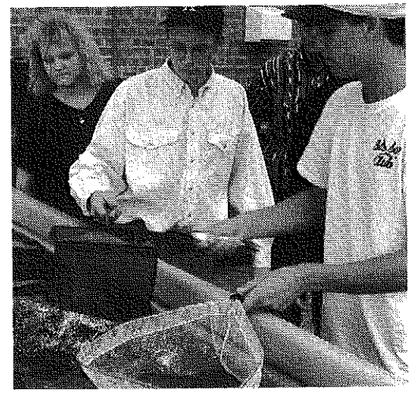
3) Communicate personal opinions and beliefs. However, remember that others will not always agree. It is not essential that everyone agrees all of the time.

4) Be honest and straightforward, yet tactful in expressing your own opinions and beliefs. But remember, others' feelings may be at stake.

5) Different teacher personalities appeal to different students. In multi-teacher departments this fact is a plus because students are able to bond to the teacher personality that best fits their needs and style. Allow the students this opportunity. Again, healthy contrast can produce harmony in a department and encourage the department to grow. In addition to the curriculum, the teacher's personality is a major reason why students enroll in a particular course.

6) Don't sweat the small stuff. With the demanding schedule of activities and responsibilities that an agriculture teacher keeps, there is not time to spend on trivial differences. Accept the difference of opinion or consequences and move forward positively.

7) A successful multi-teacher department allows for the division of responsibil- ➔



Agriscience at Clear Creek, like many other high schools, is taking a look at the nontraditional types of agriculture. These students are exploring the aquaculture field by raising and processing fish in a raceway system. This year the students worked with bass and tilapia.

ities and supervision of activities. Agriculture teachers can distribute these by areas of interest. Time can be managed more successfully by sharing responsibilities.

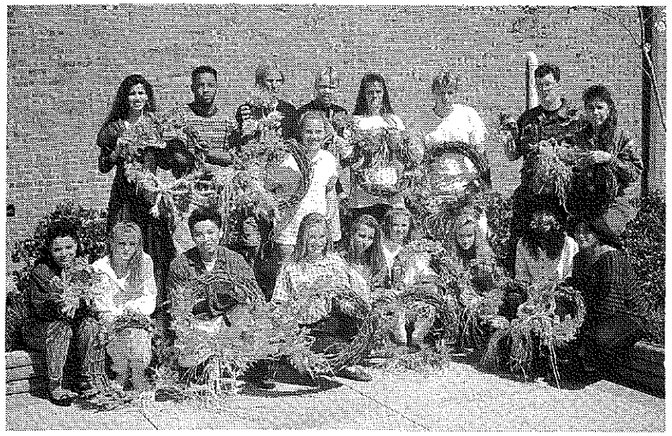
8) If there is an agriculture teacher that is serving as department head, then all additional agriculture teachers must follow the chain of command.

9) If agriculture teachers are entering a new department or school, they should have respect for local traditions. However, the veteran agriculture teachers in the department should be open to new ideas and approaches.

Overall, be cooperative and supportive of your fellow agriculture teachers. A positive relationship among staff will reflect a positive relationship among the students, school, staff, and community.

The variety of students found in most of our high schools today requires diverse curriculum and instructors to meet the needs of these students. The curriculum and course materials in most states have undergone changes, with a goal of preparing as many students as possible for an agriculturally related career. As drastically fewer graduates are taking jobs in production agriculture, an aim of agricultural education at the high school level must be to prepare students for careers supporting production agriculture.

Multi-teacher departments have a key advantage in reaching these goals because each teacher can focus on his/her strengths.The diverse nature of our curriculum increases the need for a diverse teaching team. At Clear Creek High School such a teaching team exists. The total enrollment in agriculture courses at Clear Creek generally averages over



Floral design students learn many skills, not only with fresh flowers, but with dried and silk materials as well. These students completed their fall wreath projects. The Clear Creek Agriscience Department attracts several different ethnic groups and has approximately 50% male and 50% female students.

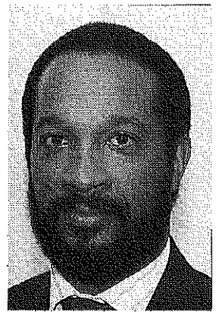
The FFA's Food for America program is especially important in an urban community where agricultural production and processing are unfamiliar to most people. Clear Creek FFA members toured over 1500 elementary and preschool children through the high school agricultural facility just this year. Everyone involved had a wonderful education experience.

300 (2500 students in grades 9-12). Most people will agree that these are good numbers, considering the school's urban location just southeast of Houston. The key to this large enrollment and filling the needs of those enrolled is the ability to offer a wide range of courses. It is essential for the department to have the capacity to provide proper instruction in these courses. By identifying the strengths of each teacher and selecting agriculture courses accordingly, Clear Creek is capable of offering quality instruction in 14 semester courses annually, ranging from Floral Design and Personal Skills Development to Exploring Aquaculture and Diversified Agriculture.

The advantages of a multi-teacher department extend further than classroom instruction and the ability to offer a wide range of courses. Departments having two or more teachers with various fields of interest and expertise also have the advantage when it comes to extracurricular activities in agriculture and SAE programs. More students have an opportunity to participate because more teams can be trained. Numbers are important, but of greater consequence is the fact that each participant is receiving quality supervision, since each teacher/coach is working in his or her most proficient field.

However, the major ingredient for the success of a multi-teacher department is teamwork. Special interests and skills must be identified and responsibilities assigned accordingly. Each teacher must realize where his or her strengths lie and then focus on courses, SAE programs, and leadership and judging teams related to these strengths. By doing so, students will get the most out of the program by receiving the best possible instruction in and about agriculture. ■

A Roller Coaster Ride



BY FREDDIE SCOTT

Dr. Scott is an assistant professor of agricultural and extension education at the University of Arkansas, Fayetteville.

Teaching can be compared to a roller coaster ride. You see how much fun it is from afar and anticipate when your opportunity will arrive. You envision your turn, you board, the excitement begins, and you are tinged with fear.

It starts slowly, and you feel in complete control. Teaching is fun so far. Suddenly, everything falls out from beneath you, and you feel as though you're going to be sick. Then you recover and begin to climb again. Again, another decline, and you begin to wonder, what am I doing here? Nothing ever prepared you for this. As you go through the triple loops, you realize that only crazy people put themselves through this kind of stress. You want to get out NOW! Finally, the car levels off and pulls in at the stop. Despite everything, you realize that it was the time of your life, and you are ready to begin again.

The Teaching Ideal

There are many days like this in the real world of teaching. As one teacher put it, "You just gotta roll with the punches." Ideally, the classroom consists of fifteen above average, intrinsically motivated students whose only concern is learning what you have to teach. These students are all homogenous in their behavior and learning styles. They are all clean, well fed, welldressed, and well mannered. They all look up to their teacher with adoration and respect, eager to absorb all the knowledge and skills deemed important to their well-being.

The Reality of Teaching

In reality, teaching involves classrooms that are overcrowded with students who have a variety of learning styles and behavior problems. In these classrooms there is a mixture of economic, cultural, and social backgrounds. All of these students require teachers with multiple abilities.

Teaching involves being able to provide what the curriculum calls for, while at the same time being able to handle constant confrontation with new standards, legislation, and societal problems. Teaching is having to keep up-to-date with not only subject matter, but with what is going on in the community, on the streets, and on school grounds. Teachers must be able to work cooperatively with parents and school personnel.

The Downside of Teaching

Public education, including teaching, has without question received greater attention in the past ten years than ever before. Since the report *Nation at Risk*, over 100 reports focusing on "excellence" in schools have been released. These reports have resulted in educational reform, task forces, and commissions in nearly every state in the nation. The reports filed by these commissions and task forces have been highly publicized and have resulted in rapid changes, both beneficial and harmful for teachers and education.

With so much emphasis today on standardized testing as a means of evaluating school and teacher effectiveness, teachers are limited with regard to decisions about curriculum and methodology. Curriculum tends to be dictated by standardized testing programs with an emphasis on acquisition of special skills and summative performance. Likewise, some effective teaching programs seem to dictate lesson planning and instructional procedures to be used by all teachers at all grade levels. Such an instructional climate puts teachers in a passive role and offers them little challenge. As a result, teachers who want to go beyond the status quo may be viewed as radicals.

Teaching sometimes becomes a vicious cycle. Students who perceive their education experiences and school as boring, threatening, non-productive, and a waste of time are likely to cause behavior problems and be underachievers. The teacher sees the student lacking drive, tries to motivate them through pep talks and constant encouragement, then fails and becomes frustrated. This cycle continues until the student confirms that school is a waste of time and the teacher decides the student will never amount to anything. It is difficult to break this cycle, but it can be done.

The Upside of Teaching

Teaching in most cases centers around the teacher directing all activities and leading all discussions. Students often perceive their role as passive, and either participate reluctantly or fail to participate. Their work is likely late, incomplete or non-existent.

Students have higher levels of achievement in student-centered classrooms because being involved provides more effective motivation. Classroom activities should be designed to build individual student strengths, interests, needs, and desires, while also meeting the stated goals of the program. Students should be encouraged to assist in selecting projects and

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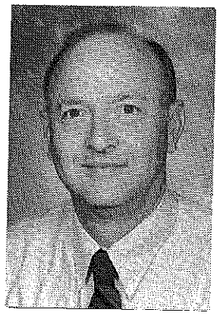
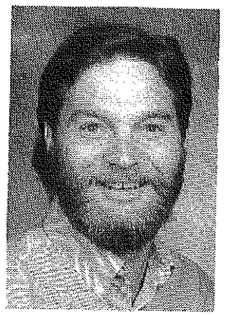
It's Just a Matter of Degree - Integrating Students With Disabilities





BY JOHN BAIRD, BOB CRAFT, & TED MARTCH

Mr. Baird (top) is an agriculture teacher and Mr. Martch (bottom) is a special education teacher at Douglas High School in Winston, Oregon. Mr. Craft is a horticulturist at Wildlife Safari in Winston, OR.

Students with disabilities at Douglas High School in Winston, Oregon, have found an exciting program that answers many of their needs. That program is the Agricultural Sciences and Technology department.

The Agricultural Sciences program has worked with the Special Education Department for over six years, beginning as a tool for behavior development for students with disabilities. As with most good ideas, it developed into a tremendous benefit for not only the students with disabilities, but every student in the school. Students with disabilities first visited the animals and the greenhouse, leaving the classroom to have a little fun. Before long, the students started to feed and water the rabbits and the chickens. They began cleaning cages and keeping the land lab clear of litter and debris.

It was very exciting for them to work with the other students, keeping feeding records and having the responsibility of caring for their own animals. Students in the agriculture classes found a willing group of helpers as they prepared their lambs, pigs, cattle, rabbits, and other animal projects for the fair or special animal shows.

In 1986 it was decided to have students with disabilities raise their own lambs for the county lamb show. They filled out loan applications, kept feeding records, exercised their lambs, and prepared for the show. At the show, they went into the ring for confirmation and showmanship, and they participated in the auction that evening. They handled their lambs so well that they won ribbons. This not only excited the students with disabilities, it also excited the teachers, parents, and other students. They realized that the students were able to handle themselves very well. After that students with disabilities enrolled in classes around campus, participating in normalized education using modified curricula that could be used to evaluate progress on a competitive scale. The Agricultural Sciences and Technology program remains the most popular and leads the way in expanding the horizons of students with differing abilities.

One Student's Success Story

At the 1992 National FFA Convention in Kansas City, Steve Gould received the American FFA Degree. Steve was in special education programs all the way through grade school, middle school, and high school. At the high school, with the opportunities opened to him through the integrated classroom concept, Steve was able to learn the skills needed to obtain competitive employment and to conduct numerous individual agricultural projects. Steve's projects were done at school and in the community. Through the work experience and individualized instruction phases of his education, Steve was able to learn many skills that could not have been achieved in the traditional classroom. Steve has gained employment at the Wildlife Safari, a local animal park, where he works as Head Gardener. Steve now supervises students of all levels of abilities as they learn job skills at the Safari.

Contributing to the Future

Many of the students who have worked in the program have pursued careers in special education and agricultural education. These students return to Douglas High School and tell of the exciting things they are doing in their own classrooms. Students' personal achievements are enough reward, but when we consider the impact made on future agriculture students by so many ambassadors for integrated learning, we see how FFA is becoming more effective in shaping our nation's future.

The success in working with students with disabilities is the result of considering three aspects of individual development: (1) vocational, (2) social functional, and (3) physical emotional. The FFA program has been and

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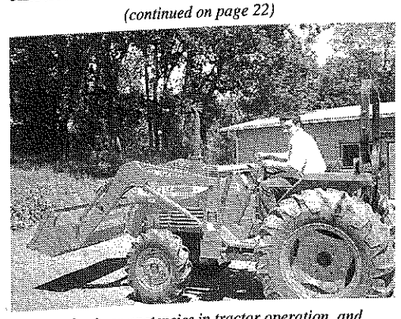
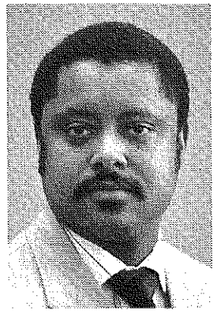
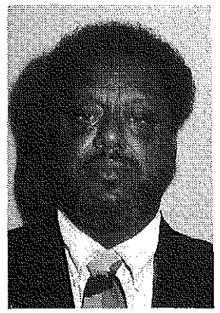


Learning basic competencies in tractor operation and maintenance can provide students with marketable skills and an opportunity for success.

Why Teach?





BY LARRY POWERS AND WILLIE POWERS

Dr. Larry Powers (top) is an associate professor of agricultural education at North Carolina Agricultural and Technical State University, Greensboro. Mr. Willie Powers is an agriculture teacher at Terrell Middle School in Dawson, Georgia.

Frederic W. Terrien very succinctly described the teacher when he stated that:

It is painfully clear that their status, or "position with relation to the total society," remains unresolved. Because of their important role, they are the carriers of "certain supermundane values." The status of teachers is somewhere on a continuum. -- But most of all, they are the sanctioning agents for the young, the guardians of morals, the arbitrators of conduct, and it is in this status that they are remembered.

Given the complexity of the teachers' role and teachers' perceived status in society --- why would a person select teaching as a career choice? Let's ask a teacher. In this article a successful teacher will discuss teaching agricultural education in the public schools and how or why it is a noble and rewarding profession.

Why Teach?

I started teaching in 1974 and have taught agriculture every year since. My first inclination was to teach for a few years and change to something else. A few years has turned into 19. Basically, I attribute staying in the profession to a love for the students and the feeling of helping someone in life to achieve. Teaching agriculture at the secondary level is a very good career choice it does not limit the individual to classroom work and/or activities. In order to be successful in the classroom the prospective teacher needs to have or develop three types of skills and knowledges: (1) technical or required knowledge base, (2) teaching methods/strategies, and (3) interpersonal or people skills.

Knowledge Base

The teacher's knowledge base of agriculture serves as the basis for planning, developing, and implementing the local agriculture program. Agriculture teachers have responsibility for planning the local agriculture curriculum based upon student needs and interests. This flexibility permits teachers to select appropriate activities and learning experiences which may take place in the classroom, laboratory, or at some selected location in the community.

Teaching Methods and Strategies

When planning activities the teacher must consider student interest/ability and usefulness in life (to the student). And the students must see the results. Activities must be fun, simple, and directed toward the accomplishment of predetermined teaching goals. The activities that I plan at Terrell Middle High School in Dawson, Georgia, are fun and enjoyable for the students. The following narrative briefly describes some of the activities that I plan for my students.

Students are grouped, and each group is assigned specific tasks and activities pertaining to producing or growing plants. Each student is assigned a specific task, and individual grades are given. Each day students seek ways to improve and make their plants grow and thrive. This is a competitive activity. The student effort expended is evidenced in final result of their projects. Professional educators refer to this teaching technique as cooperative learning.

Floriculture is another interesting area we work on at Terrell Middle High School. Students find inflating and decorating balloons fun and exciting. This activity teaches students mixing, blending, and matching colors. A successful teacher cannot be afraid to be creative and innovative with respect to teaching strategies.

Interpersonal or People Skills

Interpersonal or people skills may be the most important component or skill that a successful teacher possesses. The successful teacher naturally likes and enjoys working with people and establishes a personal/professional relationship with each student, based upon mutual respect. The teacher must be persistent on a daily basis, because every day is different. You cannot rely on what you did yesterday as experience for today. The school year is 180 days as far as the students are concerned. The teacher must come to work every day flexible and ready to deal with situations that may occur.

The teacher has to be prepared to deal with real-life situations. For example how should the teacher deal with a child that has been up most of the night experiencing domestic problems, or the child that obviously needs to address personal hygiene, or the belligerent child?

Attitudes of students differ from region to

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Research in Teaching

Excellence in Agricultural Education Programs

BY GEORGE WARDLOW

Dr. Wardlow is an associate professor of agricultural education at the University of Arkansas, Fayetteville.

"How can I make my agriculture program one of excellence?"

While a few of us in agricultural education may believe that perhaps the educational excellence movement has passed us by, many agricultural educators and other vocational educators believe that our programs, too, can be exemplary. For several years, this author was engaged in research which addressed that issue (see Wardlow, Swanson & Migler, 1992.) We believed that "exemplary" or "excellent" vocational programs existed and that the rest of the profession could learn from these programs if we could observe them and make note of the unique attributes that made them excellent.

To accomplish our task, we spent many days in schools across the U.S. The list of institutions included both secondary and postsecondary, both public and private. Each was identified by a national panel of vocational education leaders, and by leaders within their respective states, as having "exemplary" vocational education programs. Following is a discussion of the attributes of exemplary programs from our study. If having an exemplary vocational program is an objective, then beginning with these may be a place to start.

A positive **school climate** in exemplary institutions is pervasive. Facilities are attractive, well-maintained and inviting places to work and learn. Resources for supplies and equipment are more than just adequate. The researchers were led to suggest that there may be some "critical threshold" of funding below which staff typically consume large amounts of energy in worrying over how to maintain their programs, but above which staff no longer have such a worry and can focus on the needs of students.

Morale is good among both students and teachers in programs of excellence. Teachers and students alike express pride in their institution, their programs, and in their fellow student and teachers. **Teachers genuinely care about their students,** and students hold their teachers in high regard as experts in the field.

Good communication exists among all personnel. Administrators are knowledgeable about the programs, and instructors feel they can freely discuss concerns with administrators. There is an **observable attitude of trust and respect** among all school personnel.

Pervasive in exemplary institutions is an overt expression of developing and maintaining **high quality standards**. There is a strong sense of the mission of the programs and institutions; the majority of administrators, teachers and students can readily articulate the purposes of their programs. Many of the programs and institutions have an institutional theme which constitutes an identity for the institution among its constituencies, such as, ". . . the institution that cares."

Administrators in exemplary institutions are very people-oriented and practice participative decision-making with their staff members. They maintain high expectations for themselves and for their staff members, which establishes a de facto standard of excellence in the institution. These **administrators are risk takers** who aren't afraid to commit personnel and resources to new projects. They accept the risk of failure as the price of success. Exemplary institution administrators are flexible, willing to consider new ideas and encourage their staff members to be creative. Many are creative and flexible to the extent that they circumvent bureaucracies or systems in order to solve problems.

Among the most important attributes of administrators in institutions with exemplary programs is their ability to **instill a sense of vision and mission** in their faculty members, support staff, students, and communities. They devote much of their time to setting long-term goals and delegate many of the day-to-day managerial functions to staff members.

Among the most important characteristics of **teachers** in institutions with exemplary vocational programs is an **attitude of caring**. Regardless of age or grade level, students in both secondary and postsecondary institutions report that teachers sincerely care for each of their students. Students feel that teachers are patient and willing to create opportunities for students to discuss their needs. Teachers **practice esteem building and promote student participation in their education**. While these **teachers maintain high expectations** for themselves and for each of their students, they readily accept the diversity of their students and create a positive classroom climate. At all

(continued on page 17)

Teaching Agriscience

Effects of Fertilizer Deficiencies

BY SHEILA BARRETT AND PHIL BROWN

Ms. Barrett is an agriculture teacher at Fullerton High School in Fullerton, California. Mr. Brown is an agriculture teacher at Porterville High School in Porterville, CA.

In this project you will work with a partner and test the effect of four fertilizers on young seedlings. You will measure the growth rate and observe the appearances of the experimental seedlings and compare your observations with similar ones on seedlings of other fertilizers. The control seedlings will be given all the necessary nutrients. All of the seedlings will be grown under identical conditions of light, temperature, and moisture.

Procedure

1. Obtain 12 seedlings that have been grown in washed sand. Both corn and sunflower work well in this experiment. Obtain 4 glass growth jars (i.e., mayonnaise jar) and label them:

   A: Fertilizer Solution _____
   B: Fertilizer Solution _____
   C: Fertilizer Solution _____
   D: Control Solution (Complete Fertilizer)__

2. Now prepare the aluminum lids for the test by punching four holes into each lid. Hole size is determined by the size of the seedling. One hole is for adding distilled water to your plants and the other three are for the plants themselves. Label each hole in the lid 1, 2, and 3, so that you can identify the individual plants.
3. Add 200 ml of distilled water to each bottle.
4. Add each of the fertilizer ingredients that you have selected. Remember to follow the directions from the fertilizer label as you add the ingredients to the water. MIX THOROUGHLY AFTER EACH ADDITION.
5. When the bottles are ready, obtain twelve 10-day old corn or sunflower seedlings that have been grown in washed sand. In addition, obtain a few pieces of cotton. The plants should be about 8 cm long. Rinse the roots of the plants carefully in distilled water to remove the sand. Wrap a piece of cotton around the stem of each plant and insert three plants into the lid of each jar.
6. Arrange the jars neatly in the greenhouse space assigned to your class for daily observations. REMEMBER ALL JARS MUST BE LABELED WITH YOUR NAME AND THE DATE.

Results

When the plants are in place in the greenhouse, measure the height of each plant and record the data in your laboratory manual. Repeat the measurements once or twice each week for three or four weeks and note the appearance of the plants. Notice the appearance of the experimental seedlings of the other students as well. At the end of the experiment, summarize your results and compare data with the rest of the class. ■

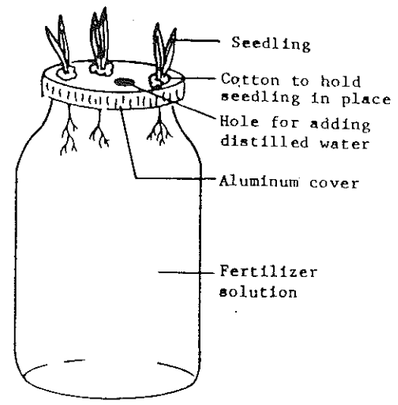
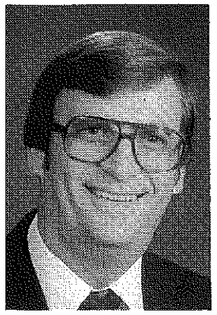


Figure 1. *Seedlings are grown in a jar to test for nutritional requirements. The jar must be kept completely filled by adding distilled water to replace water lost from the fertilizer solution.*

Strengthening Programs Through Problem Solving



BY JIM DYER

Mr. Dyer is a doctoral candidate and graduate teaching assistant in agricultural education at the University of Illinois, Urbana-Champaign.

After accepting my new appointment at Hometown High School, my first action was to open a new account at the local bank, thus becoming part of the community. I boldly walked into the bank and introduced myself to the teller: "Hi, I'm the new agriculture teacher at the high school!" An older gentleman farmer sitting in the bank turned to his companion and laughingly sighed, "Oh no, not another one."

Undaunted, I walked across the street to the local Piggly Wiggly grocery. After all, if I were to be a part of the community, I should patronize the local businesses which make up that community. After collecting some items in the grocery basket, I proudly displayed my new checkbook to the cashier. Noticing that there was no name or address printed on the check, she questioned me about its use. "It's alright," I assured her, "it's a new account. I just opened it up. I am the new agriculture teacher at the high school." "Security to register one!" was her reply.

Being difficult to discourage, I next attended my appointed meeting with the assistant principal of Hometown High. He was in charge of discipline in the school. After a cordial hello, he sat for a moment in silence staring at me. Finally he spoke. "Why are you here? Did you get fired from your last job?" "No," I countered, "I wanted a more rural setting. Hometown has that setting." "No one *wants* to teach at Hometown High," he replied. "We'll see how long you last."

Now daunted, it was time to begin. When the students finally arrived, I found the agriculture program to be a "dumping ground." The students in the agriculture program were so academically disadvantaged that only four of the 123 students had a *C* or better average. Most of them also had multiple suspensions on their records. The program was at rock bottom!

Unfortunately, many of us can name a few Hometown High Schools — programs with low-quality students, little or no administrative support, opposition from the guidance department, limited community support, and poor image. Likewise, some of us can relate to one or more of these symptoms being present in our own programs or in other programs which we consider to be good. Even in the best of programs, however, these situations can be demoralizing — not only to the teaching staff, but also to students enrolled. All of these programs can be strengthened, however, with a proper plan of action.

The first step that needs to be taken is to recognize what is a symptom and what is a true problem. If this distinction is not made, teachers spend their time and efforts treating symptoms, rather than curing the illness. For example, if there are low-quality students in my program, why? Is it because my teaching behavior favors a lower-quality student? Are quality students being steered away from my program? Before any plan can be undertaken, the correct problem must be identified. Therein lies the key to successful problem solving — the identification of the problem.

Identifying Problems

How can I identify problems with 100% accuracy? I probably cannot, although the level of accuracy that one can attain is amazing. The key is to reflectively think, to analyze the problem from all aspects, jotting down descriptors, finding common ground, then correctly identifying that commonality with the causes and the problem to be solved.

For example, let us look at Hometown High. My long-term goal was to develop a quality program overall, with strong emphasis on all three components: classroom instruction, FFA, and Supervised Agricultural Experience (SAE) programs. What problem(s) would I encounter? At this point in time I could not be sure. However, I could list some descriptors of the current situation. Those included: (1) low-quality students, (2) little administrative support, (3) poor program image, (4) low student self-esteem, (5) limited guidance support, (6) an agriculture classroom and agricultural mechanics laboratory located at the end of the building where few students and/or teachers pass, and (7) outdated instructional equipment and teaching materials. From this list one can readily determine that there was more than one problem at work, although many of these descriptors are actually "symptoms" of a larger problem.

The first step that needs to be taken is to recognize what is a symptom and what is a true problem. If this distinction is not made, teachers spend their time and efforts treating symptoms, rather than curing the illness.

Identifying Symptoms

How do I determine which descriptor is a symptom and which is a problem? First, I need to ask myself why in each case. For example, "Why do I have low-quality students?" "Why is there little administrative support?" "Why is the image of the program low?" Possible answers to the first may be "because my program is used as a dumping ground." Again I must ask why. A possible answer this time may be "because the administration does not support my program." With this revelation I have just identified descriptor number one as a symptom. It will do no good to develop a solution here. Even if successful, the problem will re-emerge. I next proceed to descriptor number two: little administrative support. Once again I ask why. A possible answer is that the administration does not feel the program has much to contribute to student development. Why do administrators feel this way? A possible answer is that someone did (and is doing) a poor job of public relations. Again I apply my why question. What possible answers could I get — not enough time, limited public relations ability/knowledge, it is not my job, and so on. None of these are acceptable answers. I must schedule enough time, I have the ability and know how to write a newspaper article, it *is* my job. I have now identified the overall problem as poor public relations. This means that descriptor number two (administrative support) was also just a symptom. The same process would be followed with the remaining descriptors in search of other problems.

The point to be remembered is that in our treatment, we must be careful to treat the problem and not one of the symptoms. Otherwise, the original problem will re-emerge.

Treatment of Problems

Now that the problem has been identified, a treatment can be applied. Notice, however, that the problem identified was not one of the original descriptors. Many times this is the situation.

From a medical standpoint this concept is perhaps more easily understood. If I experience a headache, I usually take two aspirin tablets for the "problem." But what if the same headache reappears? If this happens, the headache was only the symptom. The real problem may actually be eyestrain, sinal problems, a reaction to last night's activities, or something much more serious. The point to be remembered is that in our treatment, we must be careful to treat the *problem* and not one of the symptoms. Otherwise, as previously noted, the original problem will re-emerge.

Goal-Setting

The ability to solve problems is important to us in our everyday personal and professional lives. Everyone encounters problems, but those who are most successful keep them in proper perspective.

Metaphorically, problems are obstacles in the road between where I am and where I want to be. To get there I have but two choices: remove them or go around them. Unfortunately, there is sometimes no way to get around, so I must remove (solve) the problem. The key to the whole process, however, is to know where I am going in the first place. Otherwise, I spend my life removing obstacles that are not really in my way, going nowhere. I must have a goal that I am moving toward or the obstacles become too great to move — the problems become too overwhelming to solve.

As an agriculture teacher, I must know where I want my program to go. I need long-term goals with tremendous rewards, which can be broken down into short-term goals with reasonable rewards. These goals must be attainable in the short term, however, or the problem solving process fails at this step. If I am not rewarded often, I may not view the obstacle worth moving, or the problem worth solving. The goal at the end of the road must be great enough, yet close enough, to make the journey worthwhile and prevent our giving up along the way — a problem which many agriculture teachers face.

Ultimately, it is the teacher's ability to set goals and attain those goals through problem solving which determines the success of all agriculture programs. The great ones do a great job solving problems, the poorer ones do a poorer job. If we as professionals are to be successful, we must develop our ability to solve the problems we face each day.

As a footnote, teachers need to be creative in solving problems. Some obstacles that we envision as being insurmountable can actually be solved with a little initiative. For example, how did Hometown High solve the problem of the location of the agriculture facilities preventing teachers and students from becoming acquainted with the program? Some of the solutions included sponsoring a buffet-style country-ham breakfast for the faculty, but not providing plates. Faculty members had to hunt for them in the classroom and agricultural

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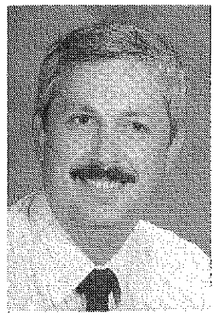
Teaching Computer Records



BY KEN LOCKRIDGE

Mr. Lockridge is an agriculture teacher at Gallatin R-5 School, Gallatin, MO.

Computers are here to stay. I'm sure we have heard that statement, and I feel most would agree. When computers were first introduced in our departments, they were new and different from anything our students had experienced. To quote one of my fellow teachers, they were the "candy" we could use as motivation to help teach subject material. The honeymoon is now over and we must overcome the stigma many people have concerning "playing" on computers. Computers are a remarkable tool that we must use to help our students learn in our classrooms. We also must work to avoid having these tools set unused in a corner of the classroom, gathering dust because we are not comfortable using them.

Ideally, we expose our students to computers on a regular basis in our own classrooms, as well as in other departments. Still, some instructors not know how to employ these superb teaching tools we have at our disposal. I feel one important use is individual student SAE records. A favorable setting for computer use in teaching record keeping would be the following:

A. Students first use a record book to understand record keeping principles and practices.

B. The department is blessed with one system per student or has access to a computer lab.

C. The students are comfortable in using the systems.

D. A computer record keeping program is available and tailored to students' needs.

E. As instructors, we understand the program, the system, and are proficient in using both.

That would be nice. Instead, many departments are facing beginning students who need to learn record keeping basics. Simultaneously, we are trying to teach a computer record system on too few system stations, often using a record program that is more complex than student needs require.

The easiest way to teach computer record keeping is to spend adequate time teaching the basics using a conventional record keeping book. This approach will lessen the problem of the student simultaneously trying to understand record keeping and the computer record keeping program.

In Missouri we have developed a record book tailored to meet our needs as agricultural educators. It is simple and straightforward, yet adequate for the student with the simplest to the most complex SAE program. Also available is a set of sample entries for the Missouri Record Keeping Book, with a companion set of forms properly completed with accompanying transparencies. Using these sample entries allows the instructor to teach the basics of record keeping without having the different individual situations complicating the classroom atmosphere.

Completing the Beginning Inventory and Beginning Financial Statement is necessary to show a starting point in record keeping. The student needs to understand that one of the purposes of records is to measure growth, not simply track receipts and expenses. This starting point is necessary; growth cannot be measured without establishing a starting position. The depreciation schedule can be started now. However, some instructors like to wait until completing the first three month's entries before introducing this part of the record process. This gives students confidence after making these entries and does not tend to overwhelm them with depreciation at the same time they are trying to grasp the simpler aspects of record keeping.

Once receipts and expenses are entered for one month, categories are totalled and monthly totals transferred to the twelve month cash flow form. The Missouri Record Book is straightforward, with headings on the cash flow form matching categories on the receipt and expense forms. This process, though simple in theory, is the source of much frustration for students. This is caused mainly by errors in addition and transposition. Here again, having all students completing the same entries allows them to help and cross-check each other.

After completing the twelve month cash flow, students complete the end-of-year inventory and depreciation schedules, with the necessary totals from all three forms carried to the financial statement and then to the Profit and Loss Form.

Striking a workable solution to the second point described, adequate student work stations, is much more difficult if you are limited by equipment. Try different approaches, such as two students per system, or rotating students between the desk and computer until you find →

the method that works in your situation. I do not have a definite solution to this. However, I do feel each situation is usually unique, requiring you to be innovative in your approach to this problem.

The third point, student familiarity in computer use, is less a problem now compared to when computers were first introduced. Student exposure to computers and their use is currently much higher than a few short years ago. Most school systems now offer computer keyboarding at the junior high level, so secondary students should enter your program with basic computer skills. Little progress will be made if the students use a "hunt and peck" technique. These students can find assistance in other departments in improving their keyboarding skills. We cannot justify the time required in our regular class to teach keyboarding. We must find extra help for these students so they can progress with the rest of the class.

The fourth point, the computer record program, is the most important thus far. Finding a computer program that works "hand-in-glove" with the record book is a task worth much time and attention. We must not cloud the student's understanding of records by exposing them to a complicated program that takes a simple entry and then hides that entry in a maze of figures and reports that challenges even the most skilled in deciphering. There are programs available that will allow maximum transfer of knowledge from book to system. This may require an effort in tailoring the program to match the manual record keeping steps, and even in matching the appearance of the input "screens." If this is done, the time spent in learning how to complete the record book will be most beneficial in grasping the proper use of the record program.

Step by step procedures should be drafted to allow the student to use the computer program. If the program matches the record book, the student will feel more confident. Having completed the entries in the record book by hand, students will know what the resulting program totals and reports should be. I have found this to be the easiest and least confusing for the student.

The final point, that of instructor knowledge of the computer and program, is easily addressed. We practice welding so we can better instruct our students. We attend workshops and seminars on the use of power tools and equipment. We ask our fellow teachers for help, demonstrations, and techniques to solve problems we encounter in other areas of our field. Why should we do less for this area of our teaching? The bottom line is to do our homework and prepare ourselves to do the best job we can to teach our students to make profitable use of these marvels of technology. ■

Research in Teaching . . .

(continued from page 12)

times they are professional in their demeanor and maintain a high level of technical competence.

Students in exemplary vocational institutions exhibit a **strong sense of pride** in themselves and in their institution. They are involved in their programs and strive to maintain professional standards among themselves. In nearly all cases, active student organizations exist.

The curriculum in institutions with exemplary programs is strongly influenced by industry- and community-based advisory committees. While the technical content comes from the advisory process, it is tempered by the teaching methodology expertise of the instructors. The instructors maintain a strong sense of individual ownership in their curricula. Additionally, these institutions have well developed support services, such as career counseling, placement programs, and general education programs which support the vocational programs. They also do a good job of marketing their programs to their communities. There was a general expectation of faculty members to "get out of the building" and into the local community.

What is it about these institutions that allows exemplary vocational programs to "happen" within them? Some of the reasons should come as no surprise to you, they did not surprise us. Indeed, we are already aware of many of these factors, but few of us put all of them into practice. Additionally, it could be the unique combination of most or all of the factors which is precursory to excellence. My only response to an institution or educator who challenges me on this is, "Try them and find out, please!" ■

Reference

Wardlow, G., Swanson, G. & Migler, J. (January, 1992). **Assessing the nature and operation of institutional excellence in vocational education.** Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Teaching - Worth the . . .

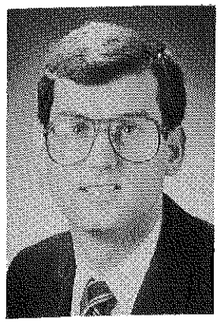
(continued from page 3)

at once, teaching is a good profession for you. If you like order, structure, no deviation from the norm, and tend to work on only one task at a time before starting the next one, then teaching may not be for you.

I can't imagine doing anything else. If I couldn't teach, I don't think I could be happy as an individual.

After one teacher described the headaches, extra activities, frustrations, time spent with kids other than his own, unproductive meetings, lack of money (except for athletics), and administrative problems, he concluded by saying *"I would do it all over again."* ■

Calculating Horsepower: A Student Learning Activity



BY DONALD JOHNSON

Dr. Johnson is associate professor of agricultural education at Mississippi State University.

Across the nation, agricultural educators are incorporating more mathematics and science concepts into the courses they teach. This is an extremely positive development. However, busy teachers often find it difficult to develop hands-on learning activities that allow students to experience the concepts being studied in the classroom.

This article describes a simple learning activity that allows students to gain hands-on experience with horsepower concepts and calculation. Hopefully, this article will stimulate teachers to develop and share additional hands-on activities that can be used to teach science and mathematics in agricultural education.

In the United States, the horsepower unit is the commonly used measure of the power output for internal combustion engines and electric motors. One horsepower represents the ability to do 33,000 foot-pounds (ft. - lbs.) of work in one minute. Horsepower can be calculated using the basic formula presented below:

$$HP = \frac{F \times D}{T \times 33{,}000}$$

where,

HP = Horsepower
F = Force (lbs.)
D = Distance (ft.)
T = Time (minutes)
33,000 = A constant

A common method of teaching students about horsepower is to introduce the concept and formula and then assign word problems that require use of the formula. Although this is an acceptable teaching method, the word problem approach is not especially motivating or enjoyable for students.

The author has found the student activity presented in this article (Figure 1.) to be an excellent alternative to the traditional word problem approach to teaching horsepower concepts and calculation. Use of this activity takes advantage of students' natural preference for active, hands-on learning experiences.

Figure 1.

Horsepower Learning Activity

Learning Activity:	Calculating the Horsepower Output of a Rechargeable Electric Screwdriver.
Objectives:	Upon completion of this learn ing activity, students should be able to calculate horsepower when work output and time are known (or measured).
Reference:	Any engines or physical science textbook.
Equipment & Supplies:	One rechargeable electric screwdriver; one pulley; a piece of string (approximately 10 feet long); one variable weight (e.g. bucket with varying levels of water, sand or some other load); watch with a second hand; spring scale; measuring tape; calculator.
Procedure:	1. Obtain necessary equipment and supplies from your instructor. 2. Attach the pulley to the screwdriver. Secure one end of the string to the pulley. 3. Attach the other end of the string to the load. 4. Hold the screwdriver at chest level. Have another student measure the distance from the **top** of the load to the bottom of the pulley. Record the **exact** measurement below. Distance =_____ 5. Use the spring scale to weigh the **heaviest** load the pulley and screwdriver will raise. Record the exact weight below. Force =_____ 6. Raise the load by switching the screwdriver "on".

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The Senior Project

BY SUSAN S. CAMP

Dr. Camp is an associate professor in the Department of Vocational-Technical Education at the State University of New York, Oswego.

One of the eight models for integrating vocational and academic education that was outlined by Grubb et al. (1991) was the use of the senior project or capstone approach. Let's explore how we can use the senior project in agricultural education to accomplish many of the goals of education, to increase cooperation of vocational and academic teachers, and to improve the reputation of agricultural education and its product, our students.

A major complaint of modern education is that we teach or give knowledge in little boxes (40 minutes of math, 40 minutes of history, and 40 minutes of technology), but we never show or teach our students how to put all the boxes together to build their lives. The problem-solving approach is one way of having students practice putting it all together. We can use this throughout elementary and secondary school. But the senior project does a great deal more for the student.

The premise of the senior project is that students have been attending school for 11 or 12 years, have gathered and digested a great many facts, and have possibly solved several problems along the way. But what, in all of this, has prepared them to take this knowledge and use it outside of the school? The capstone approach is a tool for bridging that gap between book learning and the real world of the high school graduate.

In instituting the senior project into an agriculture program advanced planning must be done with school administration, and other teachers. These teachers, along with the student and the agriculture teacher, will plan the project and identify outcomes for each student. The new senior will do most of the planning work with guidance from the teachers. Students should be aware of the project requirement well in advance of their senior year. Time requirements and credits awarded must be outlined.

Senior projects will vary with the interests, time constraints, abilities, and access to resources of each senior. The projects might be experimental, entrepreneurial, or employment in nature.

Phases of the project would include planning and approval, actual implementation, and reporting (a written report and an oral defense). As we look at the senior project and identify the integration and application that takes place, we can show the bridging that is so instrumental in taking the student from the school to a citizen in the real world.

Examples of senior projects are listed below.

Horticulture Student

a) Conduct an experiment with the Poinsettia crop.

b) Analyze the market for spring bedding plants and create a market plan for the month of April.

c) Establish a landscaping business and establish a customer base in the fall for early spring start-up.

Equine Science Student

a) Survey all equine facilities in the county to determine employment needs for fellow graduates.

b) Volunteer to assist a local equine 4-H club by becoming an assistant advisor or setting up clinics or workshops each month.

c) Organize and execute an open or youth horse show for profit.

Of course there is always cooperative work experience, but this can take less planning on the part of students and may not challenge their creativity. Other teachers will be extremely helpful in asking good questions that can give direction to the project and to the reporting of outcomes. And this cooperation will be one of many ways to demonstrate the worth of your program and the ways that AGRICULTURE is part of everyone's life.

The senior project may require the restructuring of some courses or the entire curriculum. Often seniors will have little if any ability to work independently or to access resources that they will need to carry out the project. As teachers and students cooperate in planning the variety of agriscience, agribusiness, production, and agricultural mechanics projects, all will be made aware of the need for better integration of basic studies and agricultural applications in the real world. Remember, to teach me to weld you have me practice, to teach me to prune trees you have me practice. So to teach me to think and solve problems you must have me practice. Agriculture teachers can institute the senior project in their own classrooms. But by involving other teachers the result will be a more successful experience that transfers 12 years of education to the real world.

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A Roller Coaster Ride . . .

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other class activities.

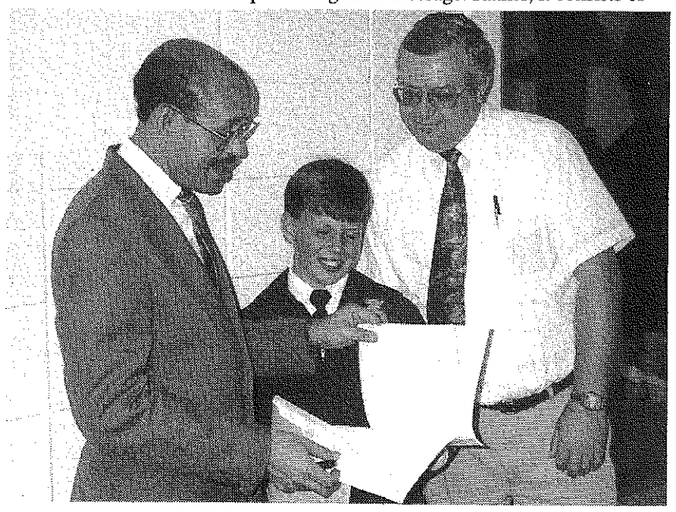
Matters of personal style also make a difference in the classroom environment. You must be confident and competent in order to win the respect and trust of students. Students must know that you care about them. Encouragement or a friendly conversation can do wonders for motivation.

Teaching is satisfying. One pleasure is seeing a student develop. Another is the satisfaction of intellectual interchange with young people possessing questioning minds and fresh ideas. Still another comes from pulling together ideas in a wide-ranging discussion, asking the right question at the right time, and finding the right example to clarify what was previously unclear. Real satisfaction is found in students who respect and admire their teachers.

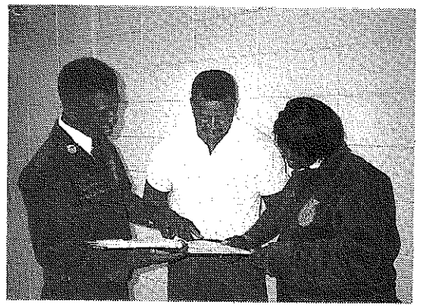
Ending the Ride

A gloomy picture of what teaching is like may have been painted in this article, but in reality, there is a tremendous sense of satisfaction and accomplishment from working with students. Teaching is exciting and rewarding work, but like other professions, it is demanding. It requires that we clearly understand what should be done to bring about the most desirable learning in students and be highly proficient in the skills necessary to carry out these tasks.

Yes, teaching is a great profession - full of stimulating, rewarding opportunities. But it is also very demanding, for teaching is not, as some critics seem to think, a simple matter of presenting one's message. Rather, it consists of



Teacher educators are actively involved with many state and local FFA activities. Dr. Walter Taylor, Department Head of Agricultural Education and Experimental Statistics at Mississippi State University, confers with Boyce Cole, agriculture teacher at Mize and a Junior FFA member preparing for competition. (Photo courtesy of Jackie Deeds)



Good teachers of agriculture use FFA competition as a learning experience. Anthony White, agriculture teacher at Rolling Fork, Mississippi, questions students after the State FFA Opening/Closing Ceremonies Contest about what they learned.

complicated communications and management problems. We in the profession are making a difference in the lives of students who will be the national and world leaders of tomorrow. ■

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Calculating Horsepower . . .

(continued from page 18)

Record the number of seconds required to completely raise the load.

Time = _____

7. Calculate the horsepower developed by the screwdriver using the formula below. (Remember to convert your measurements into the correct units for use in the formula).

$$\text{Horsepower} = \frac{\text{Force (lbs.)} \times \text{Distance (ft.)}}{\text{Time (minutes)} \times 33{,}000}$$

$$= \frac{\text{---------- x ----------}}{\text{\_\_\_\_\_ x 33,000}}$$

= _____ Horsepower

The inclusion of more mathematics and science concepts in high school agriculture courses is an extremely positive development. The challenge to teachers is to remain creative and retain their commitment to providing active, hands-on learning experiences for their students. Teachers are strongly encouraged to share activities which they have found to be successful. ■

Why Teach? . . .

(continued from page 11)

region, as well as county to county -- no two students or schools are alike. Managing student behavior and conduct is an important aspect of the teacher's role. The following suggestions

Being able to see the results serves as a motivator for students. These students learned a tremendous amount of agricultural science while producing these plants.

may assist you in securing appropriate conduct from your students.

1. Establish a personable and professional relationship with each student.
2. Encourage students to ask questions during class.
3. Familiarize yourself with your student's home environment and let them know that you know about them and their circumstances.
4. Plan instruction to include upper, as well as low ability students.
5. Help students build confidence in their ability and positive self esteem. You should acknowledge learning success and plan activities to achieve the same.
6. Create a positive, comfortable learning atmosphere in your class.
7. Use punishment as the last resort.
8. Refer to all students by name or the name they like to be called (if appropriate for school).
9. Treat all students fairly and impartially.
10. Never embarrass a student, especially in front of other students.
11. Probably the most important of all--serve as a role model for the students.

The teacher must be compassionate, loving, caring, concerned, and above all, a friend. Teachers should feel like they are teaching their friends at school. Teachers should be optimists, not pessimists. Teachers that set low standards and rely on fear and intimidation will not be successful working with students. When all else seems to fail, don't forget that students are human.

Summary

School children are looking for leadership and guidance. Since many students cannot get this at home, they seek it indirectly at school, and in many instances in a negative way. As a teacher of agriculture, you should utilize diversity to make the agriculture curriculum relevant, interesting, and an important part of your educational system.

I give full credit for my 19 years as an agriculture teacher to the three P's which are precious and dear to me. The three P's are prayer, preparation, and persistence. Prayer can be taken out of the school, but you cannot take if from the individual. I pray for guidance and persistence in order to be a successful teacher. If teachers are prepared mentally, physically, and academically and want to work they can make it. ■

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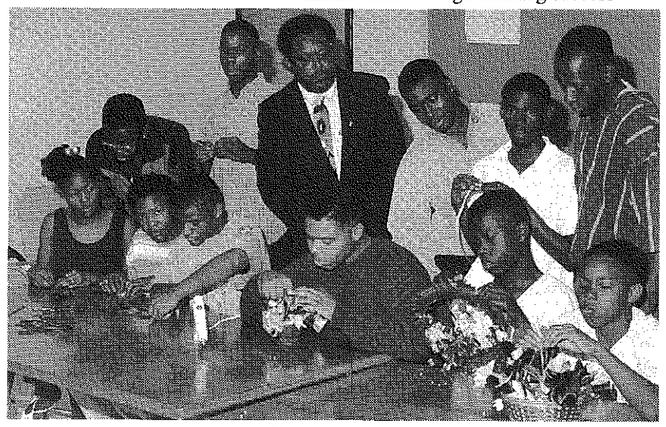

Floriculture is a very interesting area. If activities are properly planned — the teacher will be able to get and keep student interest.

The Senior Project

(continued from page 19)

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Are you in the Teaching . . .

(continued from page 4)

you may be in a rut. Is technical agriculture update a part of your annual summer plan? If not, you could be in a rut.

Get Out of Your Rut and Into the Trenches

When we are in the trenches we have others working beside us to reach the same objectives. When we get stuck in a rut it usually takes assistance from someone not in the rut to get us out. One thing I hope will help get us out of the rut is reading what other teachers say concerning what is good about teaching and what they do that keeps it fresh and exciting.

If you find you are one of those walking the well worn path that threatens to become a rut, change your direction or dig your way out.

Education is learning from others. In this issue learn about working with special students, both gifted and challenged. Consider the challenges of multiple instructor departments and the highs and lows that teachers experience. As you read, remember that those who teach agriculture, whatever they may be called in your state or whatever level they teach, are a special group with a lot to offer each other.

If you find you are one of those walking the well worn path that threatens to become a rut, change your direction or dig your way out. Consider asking someone you respect, with multiple years of experience, to throw you a rope and help you out of your rut. Those in the trenches would be glad to have you help them fight the good fight of agricultural education. ■

Strengthening Programs. . .

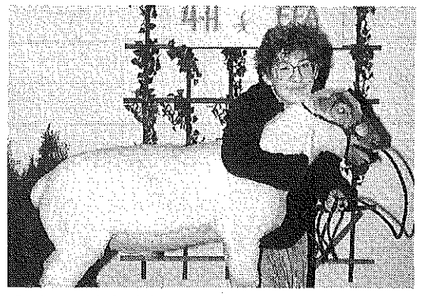
(continued from page 15)

mechanics laboratory before they could eat. Faculty members were given poinsettias for Christmas, but they had to visit the plant science lab to pick them up. Teachers could purchase snacks at cost from the vending machines located at the back of the agricultural mechanics lab. To gain student exposure, all homecoming floats were built in the agricultural mechanics lab by each school class and various clubs. All-day petting zoos and demonstrations were held. The agriculture facilities were used as the meeting site and livestock grooming center for all 4-H clubs in the community. The possibilities were, and are, endless if one is determined to reach his or her goal and can solve problems along the way. ■

It's Just a Matter of . . .

(continued from page 10)

continues to be dedicated to the total individual, which makes the system work for all students, and provides special opportunities for those with disabilities. The system approach treats all students as individuals with differing abili-



Students with disabilities can achieve great success through their SAEP and through FFA programs like the lamb show, where Amy Garland showed her blue ribbon lamb.

ties; **it's just a matter of degree.** By adopting many of the similarities between agricultural education and FFA and special education and Special Olympics, we can go a long way to improve the educational experiences of all students.

Educating to Bring People Together

Agricultural education has a lot to offer programs that deal with the unique problems of individuals with special needs. Including students with disabilities adds a new dimension to the learning experiences of all students, by developing lifelong friendships while, learning more about the threads that tie us all together, rather than the fears that divide us. ■

Coming in October . .

Teaching Agriscience

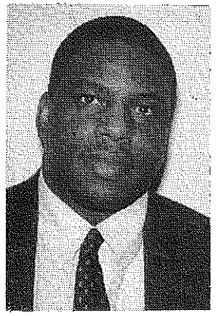
- Curriculum
- Collaboration
- Image
- Integration

plus feature columns on

-Ag Ed in Elementary Schools

-Teaching Tips

Educating Small Farmers With An Outreach Program



BY CAREY L. FORD

Dr. Ford is an assistant professor of agricultural education at Tennessee State University, Nashville.

In recent years, farming has become more and more competitive and is based on innovative ideas and technologies in a global agricultural industry. Small farmers are facing many complex problems and are definitely caught in the middle deciding which direction to take in the years ahead. They need educational programs that are designed to develop their managerial skills and technical knowledge.

Mission and Goals

By 1990 nearly all 1890 land grant institutions had entered into a cooperative agreement with the United States Department of Agriculture/Farmers Home Administration (USDA/FmHA) to provide technical assistance to small farmers who were having problems showing positive cash flow. The goals of the Educational Outreach program at Tennessee State University are to: 1) develop and implement the outreach program so that eligible farmers who are interested may acquire farm ownership loans and operating loans, 2) develop and enhance business management and marketing skills of selected FmHA borrowers and applicants, 3) develop the financial documentation of the farm business to the point where graduation to a commercial lender is feasible, and 4) develop a long range base for self-sustaining farm business analysis services through existing associations and institutions.

Outreach Efforts

The Educational Outreach program is housed with the Tennessee State University Cooperative Extension Service. The staff is comprised of a manager and two farm management agents who work closely with agricultural extension agents and FmHA supervisors in 13 target counties. Information about the program is disseminated using brochures, publications, news articles, radio and TV programs, and news stories in local, regional, and state newspapers. Other means of promoting the Educational Outreach program include information meetings, social events (church and community activities), and direct contacts.

In 1992, the farm management agents had direct contact with 319 individuals who expressed an interest in learning more about the outreach program. Nineteen FmHA borrowers and 39 farmers enrolled in the educational outreach program to improve their managerial skills in the following areas: record keeping, cash-flow management, marketing farm products, agricultural lending, management of resources and production practices, and making business decisions. A majority of the participants have less than a high school education and are full-time farmers. Most of these farmers have alternative farm enterprises. Nearly all the participants are between 50 to 70 years of age and have annual incomes that are less than $20,000.

Educational Activities

The farm extension specialists are assigned to educate 20 to 25 selected FmHA borrowers and small farmers. Participants in the program are identified with direct contact and recommendations from the agricultural extension agents and FmHA's county supervisors. The farm management agents meet monthly with each farmer, utilizing individual methods such as one-on-one farm visits and office meetings.

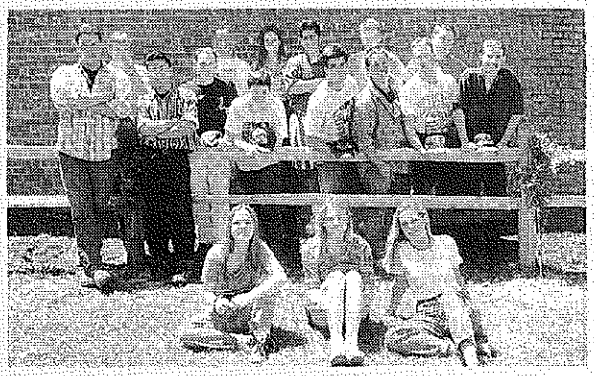
In 1992 three workshops were sponsored by the Educational Outreach program to enhance the participants' knowledge in the following areas: 1) record keeping and cash flow management, 2) loan application programs of FmHA, and 3) swine production and marketing. Nearly 60 farmers attended each workshop. Participants attended a field pesticide demonstration on soybeans, corn, and cotton at the Agricultural Research Center in Memphis, Tennessee.

Summary

John Justbuddy, National Director of the Educational Outreach program (FmHA), pointed out that this program has helped delinquent borrowers bring their loans current. These include present operating loans and all other scheduled loans. Several farmers have graduated from the FmHA program. This program has been a valuable asset to the FmHA and has saved taxpayers many dollars.

The Educational Outreach program was initiated in 1991, and farmers who enrolled in this program have made these improvements: 1) developed an understanding of agricultural lending practices and loan applications, 2) developed an understanding of record keeping and managing cash flow, and 3) utilized their farm records and agricultural governmental agencies in making business decisions. Future plans include employing more farm management agents to carry out the educational activities and expanding the outreach program to educate participants about current technologies in production practices and alternative farm enterprises. It is anticipated that more field demonstrations and tours will be integrated into the program. ■

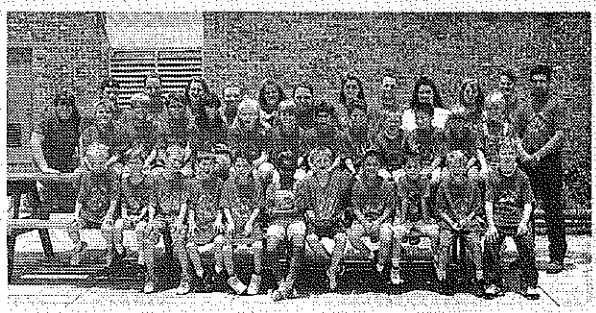
STORIES IN PICTURES



The agriscience students pictured above are enrolled in the Landscaping class. They are proudly displaying their finished product. The students installed a rail fence accented with Carolina Jasmine. This area of landscaping is in a memorial park on their campus. (Photo courtesy of Steven Meier and Cindy Schnuriger).

Hickory Flats High School agriculture teacher Clark Orman makes agriculture teaching a family affair. All three daughters competed in state-level leadership contests at the 1993 Mississippi FFA convention. Angela completed a year as Jr. State Sentinel, and her twin Allison was elected as Jr. State Treasurer. Jennifer, a senior, was elected as FFA State Treasurer, and mother Miriam was there to support the whole family in their efforts. (Photo courtesy of Jackie Deeds)

The Mississippi FFA Alumni Association honors a rookie agriculture teacher in each district to provide encouragement to first year teachers. Ronald Childress, of Green County High School, was the South District and State Rookie Agriculture Teacher for 1993. (Photo courtesy of Jackie Deeds)



The Clear Creek FFA sponsored the second Annual Clear Creek FFA Agriculture Summer Camp for 26 first through fifth graders. The camp was a great success, with everyone enjoying a fun-filled educational experience. '(Photo courtesy of Steven Meier and Cindy Schnuriger).