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Number 1



THEME: Pre-Secondary Agriculture

THE AGRICULTURAL EDUCATION MAGAZINE



July, 1990

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Number 1

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ARTICLE SUBMISSION

Articles and photographs should be submitted to the Editor, Regional Editors, or Special Editors. Items to be considered for publication should be submitted at least 90 days prior to the date of issue intended for the article or photograph. All submissions will be acknowledged by the Editor. No items are returned unless accompanied by a written request. Articles should be typed, double-spaced, and include information about the author(s). Two copies of articles should be submitted. A recent photograph should accompany an article unless one is on file with the Editor.

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Adding Substance in Agricultural Education

I have been very fortunate in the past several years to have served in several roles that have presented the opportunity to participate and contribute in some small way to changes occurring in our profession. As president of AATEA, I had the good fortune of participating in the National Summit and was called in at the last minute to serve on the writing team for the Strategic Plan. I wish I could prepare for you the euphoria generated by the writing team in St. Louis as we drafted the Strategic Plan! We were excited and felt to the person that the plan represented a revolutionary change in agricultural education. John Pope, who in his capacity as Executive Director of The Council, attempting to keep the writing team on task, was very apprehensive about using the term "revolutionary;" but the members of the team were not to be denied and convinced Dr. Case that the plan was of that significance.

The Strategic Plan was formally signed by representatives of the various agricultural education organizations at the AVA Convention in Orlando in December. Certainly, the profession has come a long way in the past years. We now have a commitment to an expanded mission based upon sound philosophical values that have served us well in the past and upon which future programs must be built.

The profession is fortunate in having leaders with vision who are willing to accept change and who have the conviction to build programs that will assure an even brighter future for agricultural education. Sure, we have those individuals who are doomsayers and those who bemoan change as ruination for the profession. Furthermore, we are likely to make some mistakes as we embrace future programs. The glory of our future is directly proportional to the risks we are willing to take in building that future.

If we can make a comparison in history to the development of the United States as a free democratic country, the agricultural education profession has captured a vision of an expanded mission and has signed the Declaration of Independence (Strategic Plan). However, as with the history of the country, the signing of the Strategic Plan does not assure the future! The country had to endure a revolutionary war and laborious efforts by many individuals before the vision approached reality. Implementing the Revolutionary Plan for Agricultural Education will require similar but different efforts by each and every individual and component of the agricultural education family. The extent to which we can direct our energies in a cooperative effort towards achievement of the expanded mission will determine our success!

As Editor of *The Agricultural Education Magazine* for the past 18 months, I must say that I am somewhat appalled by the seeming lack of interest in the changes faced by the profession. It seems at times as if the prevailing attitude is - let someone else handle the changes, I am too busy to worry about our future! Who is going to outline the changes and implement the programs designed to meet the goals of



BY PHILLIP R. ZURBRICK, EDITOR
(Dr. Zurbrick is Professor, Department of Agricultural Education, The University of Arizona.)

the expanded mission statement? If we are not concerned about the nature of our programs and don't provide leadership, who will assume that responsibility? Will it be top down regulations from Washington, D.C.? Will it be local educational agency administrators who have only a vague understanding of agricultural education and the values which have made the program so successful? I certainly hope the answer is "no" in both cases! The only acceptable answer is for the profession to provide the leadership and now is the time!

At this point in time, it is essential that the profession add substance to the Strategic Plan. It is crucial that such substance be recognized, promoted, and advocated. Failure to develop tactical plans that carry out the expanded mission for agricultural education will surely undermine the bold thinking and action of the past several years. Our worst enemy may be ourselves! Those individuals who glibly accept change without making the associated and implied changes in their programs are surely enemies of our future. I am reminded of the teacher who remarks, "Whatever they call me, I will still teach the same material." Such is not a substantive change! Similarly flawed thinking is demonstrated by those individuals who believe that we must do away with "traditional vocational agriculture programs." Change for change's sake is not the type of substantive changes that the profession requires. Renaming existing programs, teachers and agricultural education organizations are further examples of change that represent a lack of substance. Flawed thinking!

Substance is defined in Webster's *New World Dictionary* as, "the real or essential part of anything." The challenge to the agricultural education profession is to add substance to an expanded mission. Research, a philosophical base, curriculum development, in-service educational programs, and an enlightened clientele are all required to make the proposed changes reality. We must develop programs that provide preparation of our students for both "about agriculture" and "in agriculture."

Those individuals who believe that by making some minor curriculum revision to existing programs will suffice in addressing the expanded mission have failed to grasp the concept. We are, my friends, not talking about a revision, but rather a new program addressing a new clientele plus a

(Continued on page 21)

Letters To The Editor

Dr. Editor,

I am writing to you in response to the March 1990 *The Agricultural Education Magazine*. The articles of interest were: "Implementing Agricultural Literacy Programs" by Dale A. Law, and "Incorporating Agricultural Literacy In A State Program of Agricultural Education" by Warren D. Reed. These articles were well written and properly presented within the spirit of the 1988 report, "Understanding Agriculture."

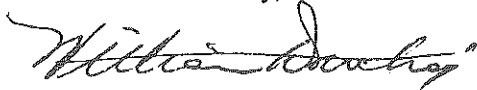
Mr. Law realized the great importance of agriculture to our society and the genuine necessity for it to be actively involved in the classroom. He also realizes the restrictions imposed through state mandates. The Illinois Plan is an efficient way to gain the balance between agriculture and state requirements. Blending agriculture into other disciplines seems to be a good way to reach all students with agriculture.

Mr. Pope stressed the need of agricultural instruction nationally. Our society needs to have some basis in agriculture in order to be a better informed and responsible nation. We are experiencing serious shortcomings presently. This inequality should be resolved to insure our future.

Mr. Reed described the changes in Vocational Education throughout the last 40 years. He explained the new plan developed for California. The article stressed the need of Agricultural Education in career preparation, agricultural literacy education, and agricultural career exploration education. The plan is broken down into three phases in order to ease it into the curriculum and be inclusive to all students. This holds the similar important feature of the worthiness of agriculture.

Through these ideas that are now being pursued, one can see the positive changes that are taking place in agricultural education. Agriculture has been forgotten by the ever increasing urban America. There is a definite need to re-present agriculture in an updated fashion to gain a better acceptance. These three men have excellent ideas to help bring forth changes.

Sincerely,



William Duchaj

Dear Editor,

As a future agricultural educator, I am happy to see changes taking place that will continue to improve agriculture education. Developing new curricula and addressing agricultural literacy are increasingly more important as more people from each generation lose their ties to agriculture.

In reference to the articles "Implementing Agricultural Literacy Programs" page 5 and "Incorporating Agricultural Literacy in a State Program of Agriculture Education" page 15 of the March, 1990 issue, I commend the efforts of educators in the states of Illinois and California. It is great to read that curricula and related instructional materials have already been created to assist in the instruction of

agricultural literacy. However, I have strong reservations about the implementation of these programs.

While various organizations, such as Farm Bureau Women in Illinois, work at the various grade levels to create awareness, this can only serve as a temporary stage in the total process. I would consider this to be a solid grassroots approach to the situation, but it is the role of educators to instruct this material and they should be prepared to do so. I strongly contend that all teachers in order to be certified should have course work related to the food and fiber industry. In the meantime, our current educators need to receive ample inservice instruction so they are agriculturally literate themselves. While high school agriculture educators will be the key to providing information to teachers who seek their expertise, I believe it is idealistic to expect them to actively implement or promise literacy programs below the secondary level unless hired to do so.

I, once again, believe great strides have been made in agricultural literacy and commend the accomplishments of educators. I strongly encourage more participation of leaders at the state level and hope that the above concerns continue to be addressed.

Sincerely,



Mark Winters
University of Wisconsin
— Platteville

Dear Editor,

I wanted to write and comment on three articles that appeared in the March, 1990 issue of *The Agricultural Education Magazine*. The articles written by C.S. Law, J. Pope and W.D. Reed on "Agricultural Literacy" were right on track for agriculture in the nineties and beyond. I couldn't agree more on the need NOW for "agricultural literacy." Many Americans haven't any idea where their food comes from or how it is processed. Within this group are people who are fighting for animal rights and pesticide/herbicide-free food. As the authors pointed out the need is definitely there. The hard job is to develop and implement programs in curriculum that are already pressed for time. Agricultural education nation-wide must help get the ball rolling for an Agricultural literacy program. Americans need to know about their food sources as well as the history of the United States, in which agriculture played some important roles.

Sincerely,



Scott Steers

Computer Technology Resources

A Computer Software Library

The lack of appropriate software that can be obtained at a reasonable cost may be a limiting factor that prevents some educators from exploring the many ways computers could be used. I can't provide you the computer; however, I may be able to direct you to sources for appropriate computer software. I have begun to collect a small software library at U.C. Davis to meet the needs of teachers, teacher educators, graduate students and credential candidates. By providing software that meets the needs of the computing educator, we hope to improve the quality of classroom instruction.

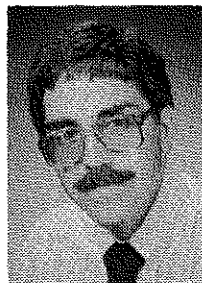
Initially the software is being selected in response to requests from teachers and credential candidates. Current title areas include grading, test making, curriculum resources (ag programs), learning games, utilities, and communication programs. All of the programs included in the library are either public domain, shareware, or demonstration programs of commercial software.

Shareware programs may be copied and distributed freely with the stipulation that users of the program are advised of the shareware nature of this product. The authors ask that if you use their program, you send a \$20-\$40 contribution to help support their efforts in writing similar programs. This is probably a fair price, since competitive software products often sell for twice this amount. In return for your contribution you may receive a manual, technical support, and notices of updates. When users support the shareware concept authors can continue to update their products with new features and distribute good software at minimal prices.

Public-domain programs, sometimes called freeware, are also original works written by programmers who donate their creations to collections or libraries, for no/low-cost distribution to the public. The quality of this software varies with the expertise of its authors. Although rough by commercial standards, a program's appearance may disguise its hidden charms. Public-domain programs often carry copyright notices that protect you, the collector, because they prohibit anyone from selling the actual programs.

Many of the programs found in the software library have come from "commercial public-domain/shareware libraries." These companies operate legally by simply providing copies of disks, a service that costs from \$3 to \$5 per disk. You, in turn, may copy the disk freely and share them with others. Most commercial libraries offer free or reasonably priced catalogs, as well as discounts on quantity disk purchases.

Public-domain/shareware libraries aren't the only sources of software, though. By using a modem you can download software programs from public Bulletin-Board Systems



BY NATHANIEL D. JAEGLI,
SPECIAL EDITOR

(Mr. Jaeggli is Coordinator, California Agricultural Education Computer Network, University of California-Davis.)

(BBS) and commercial on-line information services that specialize in agriculture and education software resources.

I have used different colored disks to code the contents of our library. All of the communication programs contained in the library are on red disks and agriculturally related programs are on green disks. A small plastic case that holds 50 disks makes storing and transporting the library convenient. I also use self-adhesive mailing labels to prepare accurate and legible labels for each disk.

Begin forming a cooperative library of your own by contacting the companies listed in this article and/or by down-loading selected software programs from BBS's. As a result of software libraries such as these, teachers who might not otherwise discover the many benefits of computing can begin to make competent use of computers and appropriate software programs.

Software Resources

- | | |
|--|--|
| <p>APPLE</p> <p>CUE SoftSwap
PO Box 271704
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Pre-Secondary Agricultural Education

Ever tried holding 25 ping-pong balls under water at the same time? Just as you get one pushed down, four pop up! That's what teaching pre-secondary students is like! Their energy level is high and their enthusiasm is never ending. The articles in this month's issue deal with many aspects of the pre-secondary programs in agricultural education. As you read them, reflect on them, and identify ways you can put these ideas into action.

Why Have Pre-Secondary Agricultural Education?

Throughout the articles you will sample pros and cons of the pre-secondary programs. I think there are five reasons to consider.

Number One: Our educational system is **INFORMATION RICH — EXPERIENCE POOR**. Students of today have at their fingertips more information than could be imagined just a few years ago. Look at the changes in agriculture. Today's world of agriculture is one of the computers, DNA manipulation, lasers, environmental expertise, ever-changing scientific knowledge, and robotic equipment — already more important than the hard work and muscle power traditionally associated with agriculture.

Information and technology is changing by the hour. Our world, and therefore agriculture, continues to change and to thrive on change. The change is fast paced. Younger students are able to watch programs such as **CONTACT 123** and **NOVA** on public air waves. These programs provide the latest happenings in the scientific world.

They are provided the information; they know the information; they can take tests about the information; but, they cannot apply the information. Students need to be more than "great test takers". If our country is really serious about improving our educational programs, we the educational community must provide students with the opportunity to gain the needed experiences in life to be successful. Pre-secondary agricultural education can help provide those opportunities.

Number Two: Pre-vocational agricultural education has a great opportunity to expose students to the extended career opportunities available today in agriculture. For too many people the image of agriculture is "weeds, seeds, and feeds". The new opportunities for our students dictate a change in the approach to building linkages with the other components of education and industry. The old way just won't work in today's world. Getting our students started early will assist them in determining their future careers.

Our mission statement must read: to provide contemporary educational opportunities that expose students to the new and exciting world of agriculture, and to prepare our students for the new and existing segments of agribusiness, academics and government.

Number Three: **LEADERSHIP** — Our country needs positive leaders today! They must come from our youth.



BY JOE TOWNSEND, THEME EDITOR

(Dr. Townsend is Associate Dean, Department of Agriculture and Life Sciences, Texas A&M University.)

Pre-secondary programs can help students build the self-confidence and self-respect needed by leaders. Our programs have always been recognized for the leadership component. With pre-secondary students, we can build a positive attitude that these students will carry throughout high school, college and adulthood. We must produce students who want to lead. The people who make the positive differences in our world must not be afraid to take calculated risks. They must be able to balance the benefits of leadership with the responsibilities leadership brings. Pre-secondary programs can provide the opportunities for these students to gain these valuable experiences.

Number Four: **FLEXIBILITY** — Our students must be flexible. At a National FFA Convention three years ago, one of the keynote speakers said that we do not know what tomorrow brings. He went on to say that 70% of the jobs in the Year 2000 have not been defined yet. We must teach students that the old absolutes are not today's standards. In his recent book, Tom Peters said businesses of today cannot live by the old verse, "If it ain't broke, don't fix it". He said in today's world, "If it ain't broke, fix it anyway!"

We must not let old hang-ups such as agricultural education only at the secondary level keep us from succeeding. We must be ready for change and our students must be able to adjust to an ever-changing world. Pre-secondary agricultural education can provide opportunities for students to learn flexibility.

Number Five: **EXCELLENCE** — From an early age we must teach our students to be the best. They will have to learn to have the desire to search out the opportunities and arenas in which to excel. They cannot wait for "things to happen"; they must cause "things to happen". These students must be equipped with the intelligence and persistence to achieve. They must hone their problem-solving skills. Pre-secondary education in agriculture can demand and teach excellence.

Of future agriculture, only one thing is certain — it will confront humanity with still more surprises, opportunities and problems. Students and, therefore educators must recognize that education in agriculture must advance in step with agriculture itself. Pre-secondary programs can provide students a "head start" to grasp and manage the unpredictable world of tomorrow.

Why, When, How and What, To Teach The "Nightmare Group"

Regardless of how you might describe them, most educators and parents would agree that young adolescents are in a class by themselves. "Difficult" may describe middle school students more accurately than "nightmare", but the point is middle school students need special attention. For most agriculture teachers, education is thought of in terms of grade school, high school, and college. The educational system we teach in is much the same as the one that educated us, except for the "middle school".

Only in the last 20 years have public schools treated early adolescents differently from other elementary students. If you are a typical seventh grader in the U.S., you probably attend a school dedicated to young adolescents — middle, 7-8, and junior high schools account for about 80 percent of all seventh graders (Epstein, 1990). But whether your school is K-8 or grades 6-8, upper-elementary students are being recognized as having special needs and education requirements.

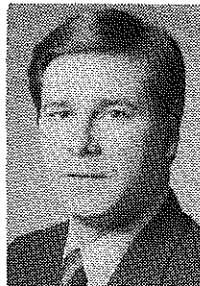
The preparation of upper-elementary grade teachers has also changed. Teacher training institutions now offer teaching method courses targeted at those planning to teach middle school math, science and English. Many universities now offer middle school specializations on the standard elementary or secondary teaching certification. It is clear that education for teachers of early adolescents is also different from that of elementary and secondary teachers.

Why

Those who study the development and learning of early adolescents tell us that middle schools should provide students with 1) exposure to a wide range of subjects, 2) instruction that promotes higher-order thinking skills, and 3) a variety of modes of learning where students are more than listeners and memorizers (Becker, 1990).

I believe education about agriculture qualifies under all three criteria. First, agriculture is not routinely taught to pre-secondary students. Exposure to the study of food and fiber production is precisely the type of academic diversity the middle schools demand. Second, agriculture, as an applied science, allows students to apply scientific principles learned in "core" academic courses. Concepts learned in earth and life science can be reinforced through agricultural study. Agriculture is particularly important to be included in the study of middle school science because virtually no science is taught before the middle school level.

Third, agricultural education has a strong reputation of learning by doing, a learning mode that is often missing from middle schools. Those who view middle school students and teachers as the "upper-elementary grades," and view their curriculum as note memorization, drill work, and daily assignments are simply out-of-touch with today's middle school.



BY BILL WEEKS

(Dr. Weeks is Assistant Professor, Department of Agricultural Education, Oklahoma State University.)

In answer to "why teach agricultural education," I believe that the study of agricultural principles can strengthen middle school programs in ways that are yet unexplored.

When

When might education about agriculture fit in a middle school curriculum? While many middle schools are being pressured to maintain or increase standardized test scores, they have greater academic flexibility than most secondary schools. Three course types predominate the middle school curriculum: 1) Instruction given in certain core academic courses such as Reading, Algebra, Science; 2) Instruction in less central but commonly taught subjects in practical and fine arts such as Physical Education, Art, Home Economics, and Keyboarding; 3) Exploratory mini-courses that included organized instruction in areas not generally covered in a standard curriculum. These short-courses may include topics such as the stock market, outdoor education, consumerism, or robotics (Becker, 1990).

How

How should agriculture be taught? Should it be a core academic course, a non-core, practical arts elective, or a mini-course. The National Academy of Sciences report, *Understanding Agriculture: New Directions for Education* (National Research Council, 1988) concluded the realistic way to teach agriculture is to introduce units of instruction that supplement existing curriculum. Career exploration and applied science were two agricultural curriculum areas that the study recommended for middle schools. The conclusions are important because they say how agriculture education should be taught. Agriculture should be infused into existing curriculum by teaching units or in elective mini-courses that meet for less than a semester.

What

That leaves us with "what to teach about agriculture." Some choose to teach pre-secondary agriculture like a progressive dinner, lightly touching on each area of the secondary curriculum. Teachers can entice students to enroll in freshman level agricultural education by teaching small, activity based units from the regular secondary curriculum.

(Continued on page 19)

The Council "Together We Can"

"Change is rampant in agriculture, and agricultural education must keep pace or become an obsolete remnant of the past. If the agricultural education community is to meet the challenge of change, we must answer two questions: "What are we?" and "What is our purpose?" The agricultural education community must begin answering these questions collectively and in a way that renews, confirms and revitalizes the community's collective sense of esteem, purpose and meaning.

It is essential that bold, innovative thinking be encouraged and revitalized to prevent stagnation and rejection. More than ever, the community needs fresh ideas. Meetings and forums must be a safe and comfortable place for risk taking and innovative thinking.

The agricultural education community will lose nothing of the past by moving together to embrace the challenges and opportunities of the future so long as the essential values are upheld and not discarded."

The Strategic Plan for Agricultural Education

It was with this philosophy and one of "Together We Can" that agricultural education came together to develop a comprehensive, dynamic document called The Strategic Plan for Agricultural Education.

In February and March, 1989, agricultural educators representing all organizations associated with formalizing instruction in agriculture, attended the National Summit on Agricultural Education. The purpose of the National Summit was to provide leadership training to organizational leaders and to come to consensus on commonly held values of the community, thus forming a foundation for the strategic plan. Also, in the identification of commonly held values, the participants of the national summit developed the following twenty-two statements of resolve or resolutions to adhere to throughout this planning process:

1. Develop a united national presence and collectively move toward great achievements in education and agriculture.
2. Align personal and program agendas beneath a single overarching mission.
3. Pursue the national mission with integrity and high expectations of excellence.
4. Demonstrate by actions the confidence and faith placed in publicly-stated bedrock values.
5. Move with one will and speak with one voice on crucial issues and opportunities.
6. Charge the National Council for Vocational and Technical Education in Agriculture with the responsibility of being "servant leader" in the coordination and orchestration of the national presence.



BY JOHN POPE, SPECIAL EDITOR

(Mr. Pope is Executive Director, The Council for Vocational and Technical Education in Agriculture.)

7. Promote trust, teamwork and synergy through an unyielding national commitment to the Three C's: Communication, Cooperation, and Coordination.
8. Encourage and recognize bold thinking, creativity and innovation.
9. Recognize the strength in diversity; move towards oneness, not sameness.
10. Expect and encourage participation, initiative, leadership and integrity in every role, at every level.
11. Expand the network of relationships between education and science, business, industry, government, the arts and the community.
12. Providing cutting-edge technology, training and information, and promote life-long learning at every level throughout the profession.
13. Move proactively rather than reactively; focus on desired long-term outcomes rather than temporary short-term problems.
14. Maintain bridges between the old and the new; embrace change while honoring and preserving traditional roots.
15. Serve as role models and mentors; lead by example.
16. Seek out deeper resources and expanded financial support through effective marketing.
17. Aggressively, honestly and professionally tell our story in every school, community and nation in which we operate.
18. Honor our obligations and actively contribute to each community, state or nation in which we operate.
19. Reaffirm dedicated stewardship of the environment.
20. Challenge each individual and organization to translate the National Mission and the seven National goals into reality with specific objectives and action plans that are measurable, realistic and attainable.
21. Accept accountability for decisions and actions.
22. Regularly review our mission, values, goals, priorities and objectives, making appropriate course corrections.

The strategic plan is defined as the above resolutions along

with the value based mission statement for agricultural education and seven national goals. From the process of the summit, the following are agricultural education's mission statement and goals:

The mission of agricultural education is to provide a total dynamic educational program.

We aspire to excellence as we recruit, prepare and support individuals in agricultural careers.

We serve the people and inform them about agriculture, its needs, opportunities and challenges.

We value:

- providing instruction in and about agriculture.
- serving all populations.
- developing the whole person.
- responding to the needs of the marketplace.
- advocating free enterprise and entrepreneurship education.
- functioning as a part of the total educational system.
- utilizing a proven educational process which includes formal instruction, experiential learning, leadership and personal development.

Overarching national goals that are realistic and clearly understood by everyone in agricultural education will help focus our combined energy. In this context, 'goals' are not meant to be a specific target but rather focal points to set overall priorities for agricultural education and serve to focus and guide decisions of our values. Specific objectives that carry out the seven goals below will be formulated by each of the various agricultural education organizations and state leadership teams through various tactical plans.

Goal 1: To update instruction in agriculture and expand programs about agriculture.

Goal 2: To serve all people and groups equally and without discrimination.

Goal 3: To amplify and expand the "whole person" concept of education including leadership, personal and interpersonal skills.

Goal 4: To develop educational programs that continually and systemically respond to the trends and demands of the marketplace.

Goal 5: To provide the stimuli that will foster the spirit of free enterprise and develop creative entrepreneurship and innovation.

Goal 6: To provide leadership and cultivate strong partnerships in the total educational system.

Goal 7: To elevate and extend our standards of excellence in classroom and laboratory instruction, supervised experience and student organizations.

As mentioned earlier, state leadership teams and national agricultural education organizations have developed specific objectives and action steps, referred to as tactical plans, under the overarching mission and goals. The strategic plan along with the various tactical plans are meant to be documents that will constantly be reviewed, revised and updated. One mechanism in performing this task will be to continue an annual summit meeting for national and state leaders in agricultural education. Through this mechanism, much "grass roots" input will be sought in order to keep the plan contemporary.

So, in conclusion, why is all of this sophisticated planning necessary? Today's fast-track is frustrating our efforts at planning. In the past we were able to use sound forecasts to anticipate trends and set our long-range course accordingly. But in this era of continuous change, forecasting may not always be accurate. When the best predictions go awry, programs are forced to become reactive rather than proactive. Instead of working on progress, we become distracted by putting out fires.

There is a solution, however, since we can no longer anticipate what we think will happen, let us focus on what we truly want to create. Since we can no longer *predict* the future, the best alternative for agricultural education is to *invent* it. By working together we can create a vision of a better future that will lift our programs out of the present and permit a focus on educational opportunities instead of problems.

At the summit we began to envision a more unified agricultural education program and we saw ourselves moving toward aligning our efforts to achieve a more comprehensive agricultural education program of greater consequence to ourselves and the world.

While it is true that a steady stream of wrenching changes, bad press and bad news have contributed to the image of education in agriculture as merely "coping" or "hanging in there," we see a different image emerging. The primary vision is the image of agricultural education as a cohesive, dynamic, forward looking movement of millions of change-agents. Unified by an over-arching mission, confident in our publicly stated values and energized by mutually agreed upon goals and objectives, we enthusiastically embrace the opportunities of a changing world without discarding the positive values and traditions of the past.

If the profession can become unified around this vision, it will inevitably bring out the best, constantly drawing more ideas, solutions, zest, energy, confidence, cooperation, imagination trust and teamwork from everyone in the profession.

"The future," wrote Harry Lauder, "is not a gift — it is an achievement." The challenge facing the profession is to articulate a vision of the future which mobilizes the entire agricultural education community enabling higher levels of achievement through commonly held values, goals and objectives. This document suggests the need for a new expanded vision and identifies value based resolutions through which the vision can be achieved. There is no question that agricultural education will achieve together what none of us could achieve alone.

About The Cover

A project to incorporate agriculture into elementary curriculum is currently being pilot tested in Illinois. The experimental kits were developed cooperatively by the Illinois State Board of Education, the University of Illinois Agricultural Education Department, and the Illinois Science and Math Academy. Teachers participating in the study attended an inservice workshop to prepare them to use the incorporated material. Teachers were given hands-on experience in using the eight kits that are being tested.

Community Resource Specialist in Agriculture

A Vision of Pre-Secondary Agricultural Education

Agricultural education is in the midst of the age of accountability. The saying, "If programs are doing their job well, we have nothing to fear," has little bearing on our present situation. The push towards a "back to the basics" curriculum, contributing to low student numbers, and reduced funding has sent agricultural educators scrambling to justify their programs. This situation is not isolated within agricultural education, however. Our entire educational system is in the midst of a crisis situation. Employers, parents and even students are demanding a restructuring of our educational system.

Moving Beyond Vision

Agricultural educators are uniting in order to meet the needs identified by our society regarding education. We have envisioned many promising new directions for agricultural education. We envision agricultural education reaching wider and more diverse audiences. We envision our curricula expanding to include many new areas such as agricultural literacy, career awareness, conservation and natural resources. And we envision a plentiful job market for graduates from our programs. As I envision the future evolution of agricultural education, I think of a theme article in the January, 1990 edition of *The Agricultural Education Magazine* entitled "Start With The Vision; Succeed With The Plan" (Zadra, 1990). In order to utilize our visions to create successful changes in agricultural education, we must develop a plan.

As we work toward restructuring agricultural education, our plan must be to the benefit and improvement of the total educational process. The teacher of agricultural education has a tradition of effective resources and methods to use in the classroom. Problem based teaching and experiential instruction have long been the means of reaching our higher learning goals. Now is the time to assess those methods which serve us well and incorporate them into the total school curriculum.

To develop a curriculum based on quality of instruction rather than quantity of instruction is no simple undertaking. Elbert Hubbard said, "The world is moving so fast these days that a man who says it cannot be done is generally interrupted by someone doing it" (cited in Raudsepp, 1981). The time is right to make our move. As we incorporate agriculture into the pre-secondary classroom, our implementation strategy must take us well into the twenty-first century.

To maintain accountability, agricultural education must reach all students. We can no longer be satisfied with only serving students through our agricultural classes. We must work cooperatively within the total school system to bring



BY KEVIN ENDERLIN

(Mr. Enderlin is a Graduate Student, Department of Agricultural Education, University of Illinois, Urbana.)

education about agriculture to each and every student. Secondly, the responsibility of educating America's youth must involve everyone. A more cooperative relationship between the local school system and the surrounding community must be developed. Our expertise in community relations is a necessary resource in reaching this goal. The relationship between the agricultural community and the high school agricultural program has long been based on cooperation and mutual benefit. We as agricultural educators must accept the responsibility of initiating such community involvement within the total school system.

A Community Resource Specialist

In order to accomplish these goals, a **Community Resource Specialist in Agriculture** should be implemented in each school district at the pre-secondary level. This person would work cooperatively with the pre-secondary teaching staff, school administrators, and members of the community to build a positive, working, school-community partnership. The final outcome of this relationship would be a constantly updated curriculum, which would prepare students to become useful and productive members of their community.

Duties of the Community Resource Specialist

- 1) To implement and maintain local school-wide advisory councils in order to provide assistance to board members, administrators, and faculty in improving the quality of education within that system. Through the use of such advisory councils, coordinated by the community resource specialist, a channel of communication and support can be maintained between the school system and the surrounding community. The advisory councils would be responsible for investigating all aspects of school operations and relaying suggestions for improvement to school administration and board members.
- 2) To develop and maintain a pre-secondary curriculum which would incorporate **agricultural principles** into basic skill theory. Many in agricultural education have spent

a great deal of time and effort designing our classes in such a way that they are appealing to our students. Yet a surprisingly small percentage of the total student population enrolls in our classes. If a successful incorporation of agricultural principles into basic skill courses at the pre-secondary level could be accomplished, education about agriculture would reach all students.

- 3) To periodically provide inservice training for pre-secondary teachers to assist them in incorporating agricultural principles into their curriculum. Because such a small percentage of our total population receives any kind of formal education about agriculture, many pre-secondary teachers do not have an agricultural knowledge base to transfer to their students. In order to succeed in enlarging our audience base, we **must educate the educators**. The community resource person can play a vital role in educating pre-secondary classroom teachers about agriculture.
- 4) To team-teach incorporated material when necessary. Many teachers are reluctant to teach subject matter with which they have little experience. As an agricultural educator, the community resource specialist will have the knowledge base needed to assist the classroom teacher in these subject matter areas. Students will then have the opportunity to learn the basic skill theory and how it applies to the real world from experts in both disciplines.
- 5) To operate and maintain an instructional applications laboratory. This would be a separate facility used by classroom teachers', with the assistance of the community resource specialist, to provide laboratory experiences which could not be provided in the teachers home room. Maintaining quality laboratory facilities in classrooms is becoming increasingly more difficult because of insufficient educational funding. If the funds available for laboratory facilities within a school system were pooled, a properly equipped and supplied laboratory facility could be made available to students.
- 6) To prepare and organize field trips and arrange for guest speakers using the community as a resource, thus involving the community in the educational process. An extremely valuable pool of human resources exists within each educational community. Community members with expertises in various subject matter areas can be found in ag businesses, in the Cooperative Extension Service, in the Soil Conservation Service, and in junior colleges or universities. Classroom teachers do not utilize this pool for several reasons. Many times they are not familiar enough with members of the community to know how they can be used as teaching resources. Secondly, they do not have the time needed to coordinate such activities. Due to the community resource specialist's close ties with community members, the utilization of these human resources can be accomplished.
- 7) To provide counseling to students interested in pursuing careers in agriculture. Students are forced to make career decisions at a very young age because of the tracking system developed for students at the secondary level. It is becoming increasingly evident that a great deal more time must be devoted to career counseling at the pre-secondary level.
- 8) To develop out-of-school "Experience Agriculture Programs" for students or groups of students. At the pre-

secondary level, a student or groups of students would be involved in short term "Experience Agriculture" activities. Each student would be required to attend at least two "Experience Agriculture" activities during the year. At Agscience Awareness Club meetings, students will present reports to the membership regarding the "Experience Agriculture" activity they participated in.

- 9) To advise Agscience Awareness Clubs. An Agscience Awareness Club would exist at each K-8 grade level. Time during the regular school day would be periodically allotted for club meetings and discussion sessions. Because a club exists at each grade level, and club discussions are held during regular school hours, every student in the school system would be required to hold club membership. Club functions would be based on two primary purposes.

First, to assist in developing students affective domain of learning. Through club discussions, students will begin to develop beliefs and attitudes regarding current agricultural issues and trends. And secondly, to develop leadership, communication, and community relations skills in its members.

What Agricultural Principles Can be Incorporated

The Central Region Committee on Agricultural Literacy, American Association of Teacher Educators in Agriculture, has recently completed a position statement addressing many aspects of Agricultural Literacy. The following is a description of agricultural content which should be included in a comprehensive agricultural literacy curriculum, developed by the committee.

Agricultural Literacy programs should focus heavily around content areas suggested in the National Academy of Sciences report, *Understanding Agriculture: New Directions for Education* (1988). The following topics should be basic to a comprehensive program of agricultural literacy.

1. An understanding of the broad definition of agriculture.
2. How food and fiber originate.
3. How food and fiber are processed and distributed.
4. The global economics of food and fiber.
5. Food safety and quality issues (preservation, pesticides, etc.)
6. Wise use and management of natural resources (water, soil, minerals, energy, the oceans).
7. Global climate issues (deforestation, water, soils, drought, etc.)
8. Global population issues related to food production and distribution.
9. Human and animal health and nutrition issues (diet, animal agriculture, etc.)
10. The application of science and business principles to agriculture.
11. Agricultural trade issues.
12. Geopolitical issues related to food.
13. Care for indoor and outdoor environments, including lawns, gardens, interior plantscapes, recreational areas, and parks.

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Expanding Our Mission: Pre-Secondary Agricultural Education

Educational programs in agriculture have historically focused on career preparation for secondary students. The Smith-Hughes Act (U.S. Congress, 1917) provided funding to support Agricultural Education programs in public secondary schools in the United States. For nearly 50 years, such programs concentrated on preparing students for careers in production agriculture.

Following the Vocational Education Act of 1963 (U.S. Congress, 1963), mission of Agricultural Education programs were broadened to include career preparation in agriculture other than production. This expansion, although mandated by Congress, was prompted by changes in the industry of agriculture and society in general.

Since the 1963 Vocational Education Act, even more significant changes in agriculture and society have occurred. Technological advances have increased the productivity and efficiency of American farmers. Currently, approximately two percent of our nation's workforce is directly involved in production agriculture. However, it is estimated that over 20 percent of the workforce is employed in agriculturally related careers.

Increased productivity as a result of the technological advances in agriculture has created a situation requiring fewer persons employed in the production sector. As consumers of agricultural products and stewards of our natural resources, each and every citizen has a vested interest in the industry of agriculture. Earlier in our nation's history, nearly every resident had ties to production agriculture through relatives or acquaintances who were farmers. However, with each succeeding generation, the average citizen will be one step further removed from production agriculture.

Expanded Mission

Many of the issues and problems facing agriculture today are important to more than those persons who are employed in the industry. Food safety, soil conservation, wildlife conservation, and animal welfare are examples of issues which directly affect agriculture but are of serious concern to a broader range of citizens. Policies at the local, state, and national levels which are developed to address such issues will be formulated based on input from a variety of special interest groups. Hopefully, the input from each perspective will be based on facts rather than sensationalism or hype.

Recognizing the changes which are taking place in agriculture and society is an important first step in the process of expanding the mission of agricultural education. This plateau is where most agricultural educators find themselves today. However, an unanswered question remains, "How can we provide information to the general public which enables them to make informed decisions regarding issues affecting agriculture?"



BY BOB BIRKENHOLZ

(Dr. Birkenholz is Assistant Professor, Department of Practical Arts and Vocational-Technical Education, University of Missouri-Columbia.)

One possible solution is to infuse instruction *about* agriculture into the public school curriculum. Efforts such as "Agriculture in the Classroom" and "Food for America" have been initiated with varying degrees of success in many schools. These programs have been conducted as volunteer efforts through the cooperation of elementary school teachers, agriculture teachers, and FFA members. However, schools which do not have secondary Agricultural Education programs have limited opportunities to participate in such programs. Ironically, students in schools which lack secondary agriculture programs would likely benefit most from information about agriculture, food, and food production.

The Curriculum

Another alternative solution would involve a structured curriculum at the seventh or eighth grade level. The curriculum may be designed to accommodate a module within an existing course or to encompass an entire quarter, semester, or year-long course. This approach appears to be counterproductive to the 'back to basics' movement which is prevalent in public education today. However, it could be argued that instruction related to an understanding of the crucial importance of agriculture, food, and food production is just as 'basic' as reading, writing, and arithmetic.

Curriculum content is also an important consideration in designing a program to provide agricultural information for junior high or middle school students. Students should be exposed to the broad scope of the agricultural industry with lessons focusing on each sector including production, supplies, services, and marketing.

Instructional units should also focus on the role of the government in agriculture ranging from production controls to restaurant inspections. Individual lessons and projects should be designed to provide students with practical experiences which illustrate how the industry of agriculture directly affects everyone. Lessons on careers in agriculture should also be incorporated to enable students to explore the range of opportunities available in the industry.

The curriculum should provide activities which illustrate the practical applications of science and mathematic principles. Laboratory exercises which illustrate seedling germination, photosynthesis, transpiration, and asexual reproduction in the plant sciences and nutrition, genetics, and environmental management in the animal sciences should be included. Such exercises would provide real life illustrations of otherwise abstract concepts in addition to enhancing student understanding of agriculture. Utilizing this approach would contribute to the development of student abilities to synthesize information from a variety of sources in an educational system which has been criticized in the past for a compartmentalized instructional approach.

The Teacher

In addition to the issue of curriculum, the issue of staffing such a course is a major concern. Many schools have utilized secondary agriculture teachers to provide instruction about agriculture at the junior high or middle school level. This situation may tend to reduce the effectiveness of the secondary agriculture program by limiting the time available for individualized instruction, SAE supervision, and FFA activities. Furthermore, the majority of secondary agriculture teachers received their teaching training as vocational educators. Although the vocational philosophy is highly valued in regard to the career preparation orientation of the secondary program, instruction about agriculture at the pre-secondary level may be more effective when it is based on a modification of that philosophy.

Teaching students at the junior high or middle school level may also require additional coursework for teachers to become fully certified. Many states have unique teacher certification requirements for junior high or middle school teachers. Therefore, secondary agriculture teachers who desire to teach at the 7th or 8th grade levels may be required to complete the additional requirements.

The Goal

Agricultural instruction at the pre-secondary levels should be distinctly different from the instruction provided at the secondary level. Whereas the goal of traditional secondary

Agricultural Education programs has been for career preparation, pre-secondary Agricultural Education should be designed to enhance student understanding of the role of agriculture in our lives.

Agriculture teachers should avoid the temptation of using pre-secondary agriculture classes to recruit students into the secondary agriculture program. Granted, some students may enroll in the secondary program as a result of the experiences received in a pre-secondary class; however, student recruitment should not be the overriding objective. Furthermore, there appears to be an ethical question of justifying a pre-secondary Agricultural Education program which is designed to bolster the enrollment of the secondary program. Serving the needs of students is an appropriate basis upon which to provide pre-secondary agricultural instruction; recruitment of students is not.

Conclusion

There is a tremendous need to prepare students to become informed citizens with the capacity to make intelligent decisions regarding agriculture, food, and food production. As residents of a country with an abundant supply of food and natural resources, we often take much for granted. Agricultural educators have an obligation to increase the level of understanding about the importance of the agricultural industry to our way of life. Policies addressing issues related to agriculture in the future will undoubtedly be based on input from non-agricultural interests. It is imperative that those who contribute to the policy development process understand the implications for the industry which supplies the basic needs of food, clothing, and shelter. To do less would risk the stability of the agricultural industry which is so important to the security and economic well-being of this country.

References

- United States Congress (1917). The Smith-Hughes Act, Public Law 64-347.
- United States Congress (1963). The Vocational Education Act, Public Law 88-210.

Community Resource Specialist in Agriculture — Pre-Secondary Agriculture

(Continued from page 11)

The history and contemporary significance of agriculture for all U.S. citizens, especially relating to the subject areas of nutrition, economics, society (sociology), and environment, should be understood by all (Russell, McCracken, Miller, 1989).

Summary

Can we justify adding pre-secondary staff to an already insufficiently funded educational budget? I think we can and we must. But we must share our visions. We must share them with administrators, teachers, and members of the community. We must help them to envision an educational process in which decisions on how and what students learn are arrived at mutually between the school system and the

community. We must help them to envision students educated through a constantly updated curriculum involving inquiry, problem solving, and experiential learning. We must help them to envision a need to educate all students about agriculture and the agricultural career opportunities available to them. We must help them to envision a plan; a plan that will turn our visions into successes.

Much activity is occurring in the area of pre-secondary agricultural education across the country, but we are not yet succeeding. An extremely small percentage of pre-secondary students are receiving any kind of formal education about agriculture. Articles in this issue focus on a need to incorporate agriculture into the pre-secondary curriculum. A community resource person at the pre-secondary level is only a vision. Together from such a vision we can succeed with a plan.

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Pre-Secondary Agriculture: Preparing for the Future

The bed of my next door neighbor's pickup truck should be enshrined in the Smithsonian as a representative slice of Mid-America. There is seldom a day that passes that a hodgepodge of baseball bats, soccer balls, and basketball equipment cannot be found mixed in with the tools of his trade. He even has a duffel bag full of those little orange pylons that the kids run through, dribble around and jump over to improve their agility. Every team member on the Sidekicks even has his own personalized water bottle with name and number proudly displayed on the side in various colors of acrylic paint.

If you are the parent of a child between the ages of five and fifteen, what I have just described is a fairly common sight in most neighborhoods. Practice after school and games on the weekend turns the family car into a shuttle bus to and from the park. It is very evident that all this effort has its rewards. The trophies, t-shirts, and pictures that our little neighbors, Jenna and Aaron bring by the house are without question a very significant part of their young lives. The attitudes developed and the bonds formed from such experiences will, for most of us, last a lifetime.

One of the growing responsibilities that agricultural educators face in the 1990's is to develop, in the public sector, a similar kind of positive association with agriculture. This fact is true not only for students enrolled in our secondary classrooms but for all those young impressionable minds in our elementary and middle school classrooms.

The Game Plan

If we take a lesson from the "little dribblers" we will discover the philosophy: the younger you start them the better they will become. Unfortunately, in most cases, our youngsters in urban and suburban areas receive very little exposure to the real world of agriculture. Agriculture in the Classroom has made significant strides in a number of states, but there are many opportunities and stones yet unturned.

The Agricultural Science teachers at Nacogdoches High School have implemented a two-fold plan intended to increase agricultural awareness in the public schools. Their objectives were:

1. To create an awareness of the importance of Agriculture in elementary school age students.
2. To promote a positive image of careers in Agriculture.
3. To recruit future students for the Secondary Agricultural Science program.

The FFA's Food for America program is being utilized as a vehicle to inject agriculture into the social studies and science classrooms at the elementary level. A review of the list of essential elements for social studies and science in Texas, grades K-6, reveals a number of agriculturally related topics ideal for the infusion of agriculture into the curriculum.



By DALE PERRITT AND DALE MORTON

(Dr. Perritt is Associate Professor, Stephen F. Austin State University, Nacogdoches, Texas; Mr. Morton is Ag Science Teacher, Nacogdoches High School.)



A variety of instructional aids were used to teach the subject matter.

Social Studies

The American Economic System:

- * identify basic economic wants (food, clothing, shelter) of all people.
- * distinguish between goods and services.
- * identify persons who provide goods and services in the community.
- * distinguish between making (producing) and using (consuming) things.
- * describe ways a community satisfies needs for food, clothing, and shelter.
- * give examples of specialization and division of labor in the community.
- * understand Texas's economic relationships to other states and to the world.

- * identify examples of the factors of production (land, labor, capital, enterprise).
- * describe buyers' and sellers' reaction to price (laws of supply and demand) and market clearing price.

Science

- * observe selected properties of plants and animals.
- * describe the human use of plants and animals.
- * relate knowledge and skills of science to careers.
- * measure the growth of plants and animals.

These elements are but a few of the many areas where agricultural examples work as well and, in many cases, better than examples traditionally used.

The First Half

The Agricultural instructors at Nacogdoches enlisted FFA members to teach the Food for America curriculum. Last fall, 120 fourth graders were presented a five-day curriculum during their regular class periods. This instruction was, of course, directly keyed to the state adopted list of essential elements for the fourth grade. The difference was that ag students used agricultural examples to assist the teacher in the classroom.

At a time when peer tutoring and counseling is being utilized in many areas, perhaps the best pre-secondary agricultural science teachers are our secondary students. The results of the Food for America instructional unit would seem to indicate that there is some merit to this type of instruction.



Fourth grade students completed a follow-up survey three months after the instructional unit.

Three months following the instructional unit, a review quiz was completed by the fourth grade students. Eighty-

nine percent of the fourth graders passed the quiz. The quiz, which queried the students regarding the sources of agricultural products and how these products are used, was a planned part of the instructional unit. Some investigation revealed that only a few hundred FFA chapters nationwide utilize this program and even fewer actually complete the program. Completion of the program involves the administration of the follow-up survey and the recognition of the elementary school students and teachers that participated in the program.

The Second Half

Secondly, the agricultural science instructors at Nacogdoches are making a concerted effort to develop agricultural awareness in eighth grade students. This ongoing attempt to educate prospective students to the merits of the ag science curriculum is the result of two years of planning and preparation. Educational reform during the mid 1980's pushed many of the traditional ag science students into college preparatory tracks. This exodus of top students required a rethinking of the agricultural science curriculum as well as the methods used to lure students into a quality program.

The teachers and administrators at NHS persuaded Texas Utilities, and a number of volunteers, to develop a videotape aimed at educating eighth grade students and their parents on the merits of the agricultural science program and the FFA. The first year after production, this videotape was shown to more than 450 eighth grade students in Nacogdoches. The tape was also made available for interested students to check out and take home for their parents to view. The comments of a number of parents indicated that they had no conception of the real content contained in the secondary agricultural science program and the FFA. Copies of this video are now in the hands of over 600 FFA chapters. The rest, as they say "is history."

The lesson to be learned from interaction with elementary and middle school students is that the interest generated and the crop harvested is directly proportional to the cultivation methods practiced. The opportunities are present for us to make a difference in the way young people perceive agriculture. Many other groups with tremendous resources are ready and willing to teach our children the "non-consumptive theories" which may, down the road, handicap livestock and poultry production. Some of these groups are having a tremendous impact in the areas of "humane education" and "outdoor education." The privilege of informing our pre-secondary students about the rewarding lifestyle we call agriculture is one we cannot afford to miss.

I have a feeling that this summer when some of those Nacogdoches fourth graders hit that "horse hide" over the fence, or when they kick the "pig skin" through the uprights this fall, their perceptions about agriculture will be a little different.

What a Bean Can Do for You!

Can you remember back to first grade when the teacher asked everyone to bring a bean to class? Remember going home to mom, searching the pantry for just the right bean; then on the next morning, conjuring up stories of Jack's magic bean on the way to school? In our class, Mrs. Walker carefully helped us place our magic beans in wet paper towels. Each day we checked our beans; childish bets were placed on whose bean would sprout first; and, in a few days, my very own "magic" bean came to life. This simple agricultural experiment, based on applied learning, left a life-long impression on me.

This same principle of applied learning is the mainstay of agricultural education. Research has shown that application is a preferred method for academic instruction, but in many cases it is not being used. We, in agricultural education, have much to offer the academic educators, but unfortunately many times a stigma is attached to persons in the vocational or agricultural education area. We must begin an aggressive program to enlarge the role of the agricultural educator in the face of shrinking budgets and enrollments, and actively market a new role for modern agriculture in the overall scheme of education. A good place to begin this program is in pre-secondary agricultural education.

With increased urbanization, the advent of the technological age, and the decline of the American farm, agricultural education has likewise declined. This is indeed unfortunate. The National Research Council agrees: "Agriculture is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing vocational agriculture studies." The council further states that an "agriculturally literate person's understanding of the food and fiber system includes its history and current economic, social, and environmental significance to all Americans."

Enrollment in agriculture programs peaked in the late 1970's and is now declining about one to three percent annually. While the direct agriculture educational involvement of students has declined, the concepts behind agricultural education are as viable today as they ever were and should be expanded not condensed. These concepts include the "hands-on" application approach to learning. This article will deal with the concept of utilizing a vocational horticulture lab as the basis for an integrated curriculum in agricultural education, science, and math in the pre-secondary setting. For the purposes of this article, pre-secondary will be considered as middle school (grades 6-8).

Let us first take a look at the current status of pre-secondary agricultural education. In short, it is almost nonexistent, and when it does exist, it is generally a watered down version of the freshman level high school ag course. A review of the literature has provided few meaningful exceptions to this trend.

The Hereford Middle School in Monkton, Maryland, has an exemplary program, Virginia is in the final stages of cur-



By DON KUEMPEL AND WILLIAM F. SPIVEY, JR.

(Mr. Kuempel and Mr. Spivey are Agricultural Science Teachers, Lexington High School, Lexington, Texas.)

riculum modification of an existing agriscience education for the middle school, and a noteworthy study was conducted in the Valley Center Middle School in Arizona. Other programs exist on a sporadic basis. Studies have shown current agriculture courses, that have changed little in recent decades, tend to not integrate other areas of the academic curriculum such as health, science, math, life science and nutrition.

"A Nation At Risk" called for new directions in the education of American students in the areas of science and math. A 1980 report by the USDE and NSP characterized Americans as "scientific illiterates." It found that students received too little instruction in science and mathematics to prepare them for their roles as workers and citizens in a highly technological society (NSF & USDE, 1980). A pre-secondary curriculum emphasizing the traditional applied learning concepts of agricultural education would go a long way to rectify this situation.

Barbara Hansen states that, "According to research that was cited in the Curriculum Guide in Agribusiness and Natural Resource Education, it has shown that experiences in the elementary and middle schools may be closely related to future occupations of the individual. Vocational exploration at these levels broadens the understanding of the individual of the world of work and may direct his or her interests toward tentative vocational areas and goals."

She further states that, "Educational experiences provided during this phase of career development prepares the individual to assess and pursue the career options open to them . . . the student may be able to choose those high school courses which relate to his or her personal attributes, satisfactions and career knowledge."

The National Research Council found that, "Beginning in kindergarten and continuing through twelfth grade, all students should receive some systematic instruction about agriculture."

I propose that middle schools provide exploratory courses in agricultural education utilizing horticultural science. Instruction is to be enhanced by the use of a greenhouse lab. This lab can vary in degree of sophistication and should be designed with local climate, budgetary compliance, and spacial restrictions.

The major emphasis of the agriscience program is to provide middle school students with an introduction to agriculture as it relates to horticulture, and to relate horticulture to academic classes such as science, math and technology. The basic use of the lab is for agriculture courses which emphasize plant and soil science. Projects can vary from landscaping to gardening and ornamental plants.

Due to the wide variety of state and local requirements, this article cannot make specific recommendations. Our intent is to motivate consideration of programs which can utilize this concept. Your courses vary in their emphasis from one grade level to the next and should take into consideration local variables such as demographics. All courses should heavily emphasize the use of applied laboratory experimentation.

Beginning courses may introduce the students to the concepts of plant growth and the component parts of the greenhouse. Other courses may emphasize horticulture in the areas of gardening and commercial ornamental plant production. Environmental concerns may be taken into account with the use of projects to beautify the campus, including the use of interior and exterior landscaping. Technology is introduced with the use of computerized records and plant production using methods such as hydroponics and drip irrigation. Sample curriculum items for courses may include:

1. Plan and discuss leadership activities related to Horticultural Science.
2. Explore career opportunities in Horticultural Science.
3. Recognize safe work habits as applicable.
4. Discuss plant growing components.
5. Discuss plant growth and development.
6. Discuss plant propagation.
7. Explore plant breeding.
8. Understand and illustrate Mendelian genetics.
9. Identify plants.
10. Explore economic contributions of agriculture.
11. Introduce soil science.
12. Illustrate hydroponics/drip irrigation.
13. Discuss fruit and nut production.
14. Demonstrate and understand asexual and sexual reproduction.
15. Utilize computers as related to agriculture.

The agriculture lab is utilized by teachers in other areas of the academic curriculum. Math teachers can coordinate with the agriculture teacher to use the lab to demonstrate the use of the metric system or can have plant projects which demonstrate ratios, proportions, probability and fractions. Computerized math projects could be created utilizing plant project results placed in data bases or manipulated on spread sheets.

Science teachers can articulate with the ag teacher to have a myriad of projects demonstrating Mendelian genetics, growth stages and use of scientific method. Life and health science classes can coordinate with the ag classes to demonstrate food production, nutrition and the importance of plants in our environment. The lab allows the student to apply the traditional lecture and book lessons with projects generated in the lab.

The agriculture teacher serves both as a resource and as potential team instructor with the academic teachers. Close coordination in planning lessons which integrate the agriculture lab and ag teacher in a series of both short and long term horticultural related projects is required.

By introducing agriculture classes into the middle school and integrating the agriculture teacher into the academic classes, the role of the agriculture teacher is expanded. By use of an integrated program, all students are exposed to agricultural education in a positive and progressive light. Perceptions of agriculture programs and teachers by students, parents, teachers and administrators are enhanced. Students should enjoy learning because of the use of applied techniques. Students should begin to formulate ideas concerning vocational and professional interests. When students enter high school, agriculture courses should be viewed with a more positive attitude, thus increasing enrollment.

As our society becomes more technologically oriented, we as agricultural educators need to modify our existing programs to meet the needs of today's society, or we will go the way of the family farm. We need to address the needs of students at a pre-secondary level and implement programmatic reform at this level. As we approach the 21st century, agriculture can continue to contribute, as it always has contributed to this country. We must be bold; we must aggressively market our product and skills; and we must adapt to a changing student population and society.

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Junior High Agriculture: A Means of Expanding Our Instruction

Having spent fourteen years as a teacher educator in North Dakota, I saw many demographical changes occur that affected secondary vocational agriculture programs. There were the prosperous years in the mid to late 1970's and early 80's when programs were expanding in scope and student numbers. That was followed by the recent five to seven years of declining enrollments and cutting back of course offerings in vocational agriculture.

Declining enrollments in rural areas of rural agricultural states as well as increased academic requirements forced school officials and agricultural educators to examine the scope of local agricultural education programs in secondary schools. Teachers were teaching agriculture classes with very small enrollments. Solutions had to be found that would provide meaningful classes and provide the local agricultural education teacher with a full-time position. One such solution was to expand agricultural instruction to the junior high level.

Rationale

Agricultural education programs at the junior high level generally focus on instruction about agriculture - a concept supported and recommended by the Committee on Agricultural Education in Secondary Schools in their report *Understanding Agriculture: New Directions for Education*. This type of instruction acquaints students with the industry of agriculture and the scope of career opportunities available within the industry. It may spark an interest in some students that had not previously given a thought to studying or pursuing a career in agriculture. In that case, it serves as a means of recruiting students for the secondary program. Instruction at the junior high level also broadens the number of individuals in our society that may be more agricultural literate.

Instructional Characteristics

There are several characteristics of instruction that I feel should be considered in the delivery of junior high agriculture classes. First, the classes and instruction should be dynamic. Teachers must generate interest in agricultural subject matter through their own enthusiasm. If classes are boring and lack dynamics, students will not want to enroll at the high school level.

Secondly, instruction should be unique. If the classes offered consist only of the traditional basic production agriculture and agricultural mechanics, that is what students will think the high school program entails. Hopefully, a viable program of the 1990's will be more dynamic.

Thirdly, instruction at the junior high level should be activity centered. Good activities used to teach scientific agricultural concepts and skills will expose students to the type of instruction (hands-on) they will receive in a good high school program.



BY VERNON D. LUFT

(Dr. Luft is Professor and Occupational Education Teacher Educator, Department of Curriculum and Instruction, University of Nevada-Reno.)

Fourthly, instruction should incorporate new technologies. Exposure to technology in agriculture demonstrates to the students the changes that are occurring in which they can be a part of.

Program Ideas

Some agricultural education teachers in North Dakota found themselves in the situation described earlier. Their secondary enrollments were declining, and with increased academic requirements, they found class sizes too small to justify reimbursement by the State Board for Vocational Education. Some classes had to be combined or canceled. Teachers then did not have a full schedule teaching agriculture. Rather than teaching a scattering of other courses or supervising a study hall, many chose to develop classes for the junior high level.

The classes offered for junior high students were usually required of all students at the selected grade level. Some schools offered the classes for eighth graders while others offered them for seventh graders. Some classes were a semester long, others were nine weeks, and others lasted an entire year depending on what best fit the local school situation. The subject matter varied — some were teaching agricultural mechanics skills, some were teaching basic production agriculture, and some were teaching about careers in agriculture.

As junior high agriculture instruction became more widespread in North Dakota, teachers began to ask the questions: What should we be teaching these students? How long should we have them in a program? What are some interesting activities we could do with students of this age group? Many of these questions were addressed to me in the Department of Agricultural Education at North Dakota State University. I felt a good way to provide assistance to these teachers was to develop a course of study guide for junior high agriculture instruction.

A summer school class was offered in curriculum development. We decided to concentrate our efforts on developing

suggested units and topics for the junior high level. The instructional characteristics mentioned previously were considered as the course of study guide was developed. Some of the units and topics included in the guide were:

Introduction to Vocational Agriculture

- Understanding the Importance of Agriculture
- Understanding the Vocational Agriculture Program

Dynamic Careers in Agriculture

- Finding Yourself a Career in Agriculture
- Preparing for Agri-business Employment
- Examining Special Jobs in Agriculture
- Exploring Supervised Occupational Experience Programs as a Means of Getting Started on a Career in Agriculture

Leadership

- Becoming a Leader
- Using Parliamentary Procedure
- Preparing and Delivering Speeches and Demonstrations

Backyard Farming

- Locating and Planning a Garden
- Using Tools and Equipment for Gardening
- Preparing Soil
- Planting the Garden
- Watering the Garden
- Weeding and Fertilizing the Garden
- Determining and Correcting Garden Problems
- Harvesting Garden Crops

Lawnmower Safety and Maintenance

- Practicing Safety Is Your Job

- Identifying and Using Lawnmower Maintenance Tools

- Operating Lawnmowers
- Maintaining Lawnmowers

Small Animal Care

- Having Pets as Companions
- Identifying Breeds of Pets
- Grooming Pets
- Feeding Pets
- Keeping Your Pet Healthy

Personal Dollars and Sense

- Valuing Our Possessions
- Using Your Money Wisely
- Balancing a Checkbook
- Analyzing Your Pay Check

These and other suggested units were included with the idea that each teacher could choose the units that best fit the time schedule of their program. It would also be up to individual teachers to develop the content and activities included within each unit and topic.

Conclusion

Agriculture instruction at the junior high level presents an opportunity for agricultural educators to broaden the scope of their programs. It can be used as an opportunity to teach about agriculture, provide career exploratory experiences for students, and to recruit students for the secondary program. It is an opportunity that we must use for the benefit of our programs and the students involved. We need to do our best to make instruction at that level meaningful and viable for our students.

Why, When, How and What, To Teach The "Nightmare Group"

(Continued from page 7)

Although this method has worked successfully for many agriculture teachers, it seems only applicable to 8th grade students. If education about agriculture for 6th and 7th graders is managed in the same manner, we take the risk of leaving students with the impression that they have already taken agriculture before they enter high school.

The attrition rate that plagues every high school academic and extracurricular activity may well be attributed to an over-zealous middle school that offers every activity from yearbook to home economics, from chess club to pom pon. We should not be surprised that students are apathetic to Student Council, FHA-HERO, and FFA when they are high school juniors. After all, they have had the same course content and been involved with the same activities for years. While education about agriculture may be appropriate for all pre-secondary students, education in agriculture should be reserved for students entering a secondary agriculture program.

The question remains of what to teach about agriculture in a middle school program? Because early adolescents are developing long-term attitudes about education and the world of work, it seems appropriate for education about agriculture be presented in as positive and enjoyable way as possible. Below are objectives that I believe we want students to attain in a middle school agricultural experience.

Students will develop a positive attitude towards agriculture.

Students will develop a positive self-concept.

Students will recognize agriculture as food and fiber production.

Students will learn to apply basic earth and life science principles.

Students will learn basic economic principles.

Forgive me if I sound like a Veg-O-Matic pitchman, but if I could suggest a middle school agricultural curriculum unit that could do all that, would you try to implement it? And if you could not teach the unit yourself, are the above listed objectives ones that you would encourage middle school teachers to teach?

Youth Gardens

What curriculum unit could fit such a group of objectives? The forward to *School and Home Gardens* (Quear, 1926) describes the agricultural education activity of Kansas City public schools in the early 1920s, "The chief use of (agriculture) in school is to bring children facts concerning food production and plant life. Where gardens have been conducted for several years . . . boys having garden work are thirty percent more rapid in mental, moral, and physical development." It is an agricultural program that has had a long and successful track record, one that vocational agriculture has never fully embraced, and one that is enjoying a phenomenal resurgence.

(Continued on page 21)

Agricultural Mechanization

Changing Values in Agricultural Mechanics

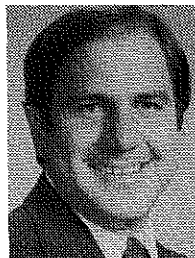
Every day the agricultural mechanics laboratory is full of a series of small, but significant, events which seem to flow at an endless pace. These events can be serious or humorous. They may provide very profound experiences or may be just brief smiles of quiet distraction. Whatever the case, each event that occurs in a teaching environment is a learning experience. What may seem as rather insignificant to us may have a strong influence upon someone else.

Several years ago, actually it is more like a lot of years ago, I can remember viewing a class videotape which focused upon the development of human values. I cannot remember the specific class, the instructor, nor the name of the videotape, but I do remember the message. A person develops their values at a relatively young age, usually the early teens, and those values remain with the person until he or she experiences what is referred to as a major psychological event. Major psychological events could include things as the birth of a child, the death of a parent, a natural disaster such as a tornado, and probably the most devastating psychological event, the death of a child. Each of these events may have a very dramatic effect upon our personal values.

Recently, I have experienced a series of small, but relatively significant, events which have led to a change in my perspective of agricultural mechanics education. The first event centers around a conversation I had with one of my undergraduate students. Several days ago we were discussing a research project he was performing in the agricultural mechanics laboratory. As we were discussing some details of the project, he indicated that in a plant science class he was the only one able to calculate the area of a circle without being provided the use of a formula.

In our agricultural mechanics classes we emphasize the cognitive abilities to be able to solve problems and he was amazed to find that so many upper-division college level students could not solve such a simple problem. Folks, we have got a very real problem which I hope will have a major impact upon all of us to change our values related to agricultural mechanics education. All of our students need the cognitive abilities to be able to solve fundamental mathematical problems. We must provide instruction at a practical level from which students will have opportunities to make accurate calculations.

Another event occurred within just a few days of the previous event. An agriculture teacher from my state called my office to see if it was okay for participants in our state agricultural mechanics contest to use one of those slide rule type calculators to determine the amount of concrete for a particular job. Have the instructional programs of agricultural mechanics digressed to the point where students can no longer do simple area and volume calculations without



By JOE G. HARPER, SPECIAL EDITOR

(Dr. Harper is an Assistant Professor, Agricultural Education and Communications, University of Nevada-Reno.)

the use of some aid? I think the next time I set up a concrete problem I am going to use metric measurements based upon the standards of the American Society of Agricultural Engineers. By doing so I will be able to determine the relative extent to which students can solve problems by using their minds rather than some other, so called easier, way.

A third event occurred during the same week. A friend called from one of the University's research farms indicating that he had a problem with a particular tractor and asked if I or some of my students could figure out the problem. The next morning the tractor arrived very promptly with the rather perplexing problem of little or no power steering. Several students expressed an interest in the trouble shooting project so I assigned the task.

The students inquired at the local repair facility if they had any suggestions. The students were surprised to find that the professionals were well aware of the problem, had conducted some tests, and were quite frank that they were unable to find a rational possible solution. The students became very concerned and I even suggested that we consider not attempting what appeared to be a rather difficult problem.

At first all the students but one agreed that we were probably in over our heads. However, the next day, promptly at the crack of dawn the hydraulic test equipment was being setup after a night of reading pages of testing strategies. It took about two hours of testing various hydraulic circuits before a possible cause was isolated by a relatively low pressure reading on a sensing circuit. The students, with a bit of research under their belts, theorized that a pressure relief valve on the low pressure, high volume charging circuit appeared to be the malfunction.

The removal and disassembly of the suspected unit revealed not only a broken pressure relief spring but also a charging pump which was in the process of self-destructing. However, the problem was not totally solved as the steering was very sporadic. Further analysis indicated that the primary problem was that the steering wheel would not turn! So much for expensive test equipment. Events such as this one tend to renew the spirit regarding the effectiveness of problem solving instruction. This particular learning experience

was a success because the students perceived that success was possible but not certain and were challenged to solve a rather perplexing problem using a systems approach to problem solving.

While these three events may not seem significant to you, they had a very sobering effect upon me. Recently we have seen very dramatic changes in educational programs towards new technologies and education programs. We must provide educational programs in agricultural mechanics which go beyond the teaching of manipulative skills. The equip-

ment used by the modern agriculture industry is much too sophisticated to be understood by the mere repetition of hands-on skills.

As an instructor of agricultural mechanics I have had a change in values from an emphasis on manipulative skills to more balanced programs of teaching cognitive abilities and affective behaviors as well as psychomotor skills. All students will need to be able to master a wide variety of abilities in order to be able to survive a lifetime of working with technology especially in agricultural mechanics.

Adding Substance in Agricultural Education

(Continued from page 3)

significant revision of the "in agriculture" programs in many states. There must be significant efforts undertaken in curriculum development, in-service education, revision of undergraduate teacher preparation programs and with the

philosophical base of both the "in" and "about" agriculture programs! As recommended by the National Research Council report **Understanding Agriculture New Directions for Education** agricultural education must become more than vocational agriculture!

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Why, When, How and What, To Teach The "Nightmare Group"

(Continued from page 19)

In 1988 the National Science Foundation awarded a \$2.1 million grant to Life Lab (National Research Council), an elementary education program designed to give students an understanding of science and nutrition through the process of growing a garden. Students learn about soil, photosynthesis, recycling, and integrated pest management. They also learn how to solve problems, keep records, and think logically. Youth gardens have also been integrated into science curricula for special needs students (Weil, 1984). Students must decide what to plant, estimate their profit, keep records, and market their product.

In some areas agricultural education teachers have enhanced the youth gardening movement, (Barnes, Schulte, and Landeen, 1990) but more often than not this agricultural education project has been proposed, implemented, and successfully operated without assistance from the local agricultural education teacher. The publication *National Gardening* regularly features outstanding youth gardening programs, many started with small grants from the National Gardening Foundation. The weekly public television program *Oklahoma Gardening*, produced by the Oklahoma Cooperative Extension Service, recently added youth gardening projects as a regular segment of their program. Many youth garden projects started as specialized 4-H clubs, devoted to vegetable and flower production.

Youth gardens are one way that middle school students can be exposed to agriculture in a positive way. Similar cur-

riculum units can be incorporated in social science and consumer education courses. Pre-secondary students can be your worst nightmare or your most rewarding group teaching experience — you may get both in one day.

Agricultural education for middle school students is more than agricultural literacy but more than watered down vocational agriculture. It is curriculum units that reinforce academic principles taught in core middle school courses, and it is experiences that ensure students will have a positive attitude concerning agriculture.

Suggested Resources

A Child's Garden Chevron Chemical Corp., Public Affairs, 6001 Bollinger Canyon Road, San Ramon, CA 94583

The Youth Gardening Book, by Lynn Ocone and Eve Pranis, National Gardening Association, 180 Flynn Avenue, Burlington, VT 05401.

Let's Grow! 72 Gardening Adventures with Children, by Linda Tilgner, Storey Communications, Pownal, VT 05261.

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Junior FFA for Pre-Secondary Students

The advent of pre-secondary agricultural education and FFA membership at the 7th and 8th grade level has created possibilities and challenges for the agricultural education profession. The profession must meet these challenges and explore possibilities on both the local and state levels.

Challenges created by pre-secondary agricultural education

Many challenges have been expressed as this new arena opens to us. How can we recruit these younger students into the program? How will we deal with potential five to seven years of age difference in our students? How can we retain students and prevent FFA burnout? How will agricultural education instructors find the time to teach and advise programs with a potential 50% increase?

Consider the possibilities of a Jr. FFA Association

One possibility for addressing these challenges has been working in Mississippi since 1974. The Mississippi Jr. FFA Association grew out of a need for a recruitment tool and the desire of many younger brothers and sisters of FFA members who wanted to be involved with the organization. The association elected the first state officer 16 years ago and has gradually developed a complete structure including degrees, awards and contests.

The Mississippi Jr. FFA elects a complete slate of state officers and has a separate delegate body that meets at the state FFA convention. The Jr. officers help conduct ceremonies and present awards, which provides valuable leadership experience for these young people. The Jr. Association offers a chapter degree and a state degree patterned after the FFA degree program and is based upon participation, leadership and the member's SAEP. The Jr. Association even presents District and State Star Degree awards.

The Jr. FFA in Mississippi has developed its contest program to coincide with the regular FFA contest events. Jr. members compete in the leadership contests such as public speaking, parliamentary procedure, and creed speaking. Jr. chapters also field teams in the various skills events which are offered on federation, district and state levels. Although some Jr. chapters allow membership prior to the 7th grade, competition is limited to the 7th and 8th grade students.

Jr. FFA as a recruitment tool

Throughout the history of secondary agricultural education, FFA has been touted as the best recruitment tool available for encouraging students into the program. The Jr. FFA can provide that same function in the pre-secondary program while also providing students with personal growth and success experiences. Lee James, agriculture education instructor and FFA advisor in Weir, MS, said, "The Jr. FFA is the most important recruitment tool we have. It has held our membership steady while that of other schools around us without Jr. chapters has declined."

Bill McGrew, Mississippi FFA executive secretary, indicates that the Jr. chapters seem to be most successful in smaller communities where there is less competition for



BILL
MCGREW

Not
Pictured

LEE
JAMES

Not
Pictured

BY JACQUELYN P. DEEDS, BILL MCGREW AND LEE JAMES

(Dr. Deeds is Assistant Professor, Department of Agricultural and Extension Education, Mississippi State University; Mr. McGrew is Executive Secretary, Mississippi FFA Association; and Mr. James is Agricultural Education Instructor, Weir High School, Weir, Mississippi.)

young people's time. He said the chapters that make up the more than 700 members of the Jr. Association are primarily from small towns with active FFA chapters. It is difficult to determine Jr. FFA impact on the overall state membership because not every school has a Jr. chapter.

Membership age differences

"You don't show a 6-month-old calf against a 2-year-old heifer, and it's not fair to make a 7th grade member compete against a senior." This was the analogy used by McGrew to provide a rationale for the Jr. Association contest and awards program. The Junior contests allow students to have early success against students their own age and background. Many states currently have a beginning level competition or contests designed for first year (formerly 9th grade) members. The Jr. Association has moved the competition level two grades lower while still allowing for 9th grade level contests for those schools without Jr. chapters.

Student retention or burnout

Agricultural education and FFA may want to look at the retention and burnout question in the same way we view a sports program, like baseball, that starts children at a young age. T-ball players who have the interest, desire and parental support, regardless of skill, will continue to play at least through high school. Students who are interested in agriculture, have the desire to achieve, and the parental support, will continue in an agricultural education program.

Gayle Crowder was both a Jr. and Sr. Association state officer and a recent American FFA degree recipient. She said, "Burnout is not a problem with students who are interested in the Jr. FFA. The progression of awards and activities in FFA always gives students something new to look forward to, and the way our Jr. Association is set up, it keeps members working to achieve at all levels." James agrees that those who suggest a burnout problem are selling the FFA organization short. He said, "We have enough variety and depth in the FFA program to keep students coming back for new and more challenging experiences."

James added, "The key to retention is getting a jump on the SAEP. Students get to start as 7th graders and have almost immediate success." He said all of the American FFA degree recipients from Weir in the last several years have been Jr. members. He can cite several examples of how former Jr. state degree holders have gone on to the State FFA Degree with SAE's started as Jr. members. James figures his retention from Jr. to regular membership is about 85%, which is better than most first to second year secondary programs.

Instructor load and pre-secondary programs

One major challenge is the agricultural education instructor's time commitment to a potentially greater clientele. Having a pre-secondary youth organization does not double the amount of FFA advising time. James found that the Jr. chapter increased FFA Alumni participation and in some areas actually reduced his work load. He said, "Because Jr. members can't drive, many of their parents have to drive them to meetings and events. This has exposed more people to the organization and made them real supporters of the total program."

Many of the Jr. chapter advising activities can be handled by alumni members and older FFA members. Many advisors

use the Jr. FFA as a means of reinforcing learning in older students through a peer teaching experience. It is a good learning experience for the parliamentary procedure team to help train the beginning team. A former creed speaker can help direct the next year's Jr. participants, and skills team members get necessary review by drilling Jr. team members in identification, etc.

James cites one of his biggest time savers from Jr. FFA participation is in the area of award applications. Starting SAEP record keeping at an earlier age gives the students a good foundation for degree and awards programs. He teaches computer skills to the Jr. members by having them fill out proficiency awards. The income and activities from Jr. membership do not count toward state and national awards, but when students are ready to apply there is little he has to help them do.

Consider the possibilities

Pre-secondary agricultural education programs offer many challenges. We need to take a long look at all of the options and possible delivery systems that will meet the needs of this new clientele. A Junior FFA Association? To quote the Mastercard commercial, "Consider the possibilities."

Community Resource Specialist in Agriculture — Pre-Secondary Agriculture

(Continued from page 13)

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NOTICE

The 1991 Themes for The Agricultural Education Magazine, along with the names and addresses of the Theme Editors, are listed on the back cover (Page 24).

1991 Themes

Issue	Date Due	Theme Editor
JANUARY Agricultural Science	October 1, 1990	Wesley E. Budke Agricultural Education The Ohio State University 208 Agricultural Admin. Bldg. 2120 Fyffe Road, Columbus, OH 43210-1099
FEBRUARY Agricultural Literacy	November 1, 1990	Jacquelyn Deeds Dept. of Ag. Extension Education Mississippi State University P.O. Drawer AV, Mississippi State, MS 39762
MARCH Computerizing Instruction	December 1, 1990	Barbara Malpiedi Kirby Agricultural Education School of Agriculture NC Ag. & Tech. State University, Greensboro, NC 27411
APRIL New Directions in Adult Education	January 1, 1991	Robert Martin Agricultural Education 201 Curtiss Hall Iowa State University, Ames, IA 50011
MAY The Expanded Mission	February 1, 1991	Eddie Finley Agricultural Education 488 Agricultural Hall Oklahoma State University, Stillwater, OK 74078-0484
JUNE Agricultural Education 2025	March 1, 1990	Lou Riesenbergl Dept. of Ag. & Extn. Education 223 Morrill Hall College of Agriculture University of Idaho, Moscow, ID 83843
JULY The In-Agriculture Curriculum	April 1, 1991	Jack Elliott Dept. of Ag. & Extn. Education College of Ag & Natural Resources 410 Agriculture Hall Michigan State University, East Lansing, MI 48824-1039
AUGUST Enhanced Problem Solving	May 1, 1991	Thomas Dormody Agricultural Extension Education Box 30003 Dept. 3501 New Mexico State University, Las Cruces, NM 88003
SEPTEMBER Focus on Teaching (Annual Issue)	June 1, 1991	Ed Osborne College of Agriculture 124 Mumford Hall 1301 W. Gregory Drive University of Illinois, Urbana, IL 61801
OCTOBER Urban Mechanization	July 1, 1991	Glen Miller College of Agriculture Dept. of Ag. Education 222A Forbes Bldg. University of Arizona, Tucson, AZ 85721
NOVEMBER Impact of FFA Leadership	August 1, 1991	Stacy Gartin Agricultural Education Agricultural Sciences Bldg. West Virginia University, Morgantown, WV 26506-6108
DECEMBER Supervised Agricultural Experience	September 1, 1991	David Cox College of Agriculture Dept. of Ag. Education 222A Forbes Bldg. University of Arizona, Tucson, AZ 85721