The future of agriculture and education bodes well for the future of Agricultural Education!

Is Agricultural Education positioned to be part of that future of agriculture and education?
Agricultural Education -- Investing in Our Future

The theme of this issue is Agricultural Education as the Future for Agricultural Education. Because of the many contributions to this theme from the profession and the limited space available, the Editor has decided to forge his normal space for comments. Hopefully, this will allow more views from the profession to be published. The Editor's Comments will continue in the next issue.

Ed Persons asks the profession to decide if it is possible to make adult education in agriculture a significant item in the continuum of education programs in agriculture.

I n the 1960s and 70s, engineering students at Iowa State University carried complex, computerized equipment strapped on their backs—the bigger the rule, the more status. Today's college students may not even know what a slide rule is. The slide rule is obsolete. Will the computer be obsolete in 2020? Who is brave enough to look at today, predict what will be obsolete, and plan for change? It's not easy to have the courage to predict the future, but many of the authors in the April issue have done so.

McCracken (1993) indicated that to attain the future we need for agricultural education, we must do more than tinker with what we now have; we must, as Gordon Swanson (1991) suggested, undergo a thorough transformation. In this issue of the magazine, it is my impression that we are beginning to tinker with the future for agricultural education.

Robert Haynes, a retired Agricultural Mechanics professor from the University of Idaho, offered me some wisdom when I first arrived in Idaho. He was an avid firewood gatherer, however, his smaller size made swinging the ax more challenging. When I asked for some advice on sharpening my dull ax, he shared that the only way he could cut as much wood as a larger guy was to stop and sharpen his ax more frequently. Most wood cutters say they don’t have time to sharpen their blade, therefore, waste time and energy chopping with a dull ax. Sharpening the ax is exactly what the future of agricultural education is all about. Even the most efficient agricultural education program has niches in its blade and must be honed for the future. As I assembled the articles for this issue and visited with other professionals about the future for agricultural education, a few statements and questions were worth highlighting.

1. Many of the authors cited the ongoing revolution in technology as a factor affecting our present and future. The computer, biotechnology, genetic engineering, and robotics have all been responding to a good deal of fine-tuning rhetoric, but our secondary and post-secondary programs have only recently incorporated this technology. We continue to dabble.

2. McCracken (1993) stated that we want to broaden the mission but we don’t want to change the FFA organization or award program. We want to serve urban students but we insist on their having an FFA program patterned after the one designed for rural farm students.

3. Many have predicted that by the year 2000, education will be the most important industry in the United States. Many of us may question that based on what is happening today in our federal and state governments. The federal and state arena is surely cut and collaboration.

4. Who will teach us? This is the most important decision we will make for the future for agricultural education. We will certainly serve a multi-ethnic society (McCracken, 1993).

5. Swanson (1991) indicated the first and
Reflections on the National Academy Report - What It Means for the Future

On December 18, 1984 U.S. Secretary of Agriculture John R. Block, U.S. Secretary of Education Terrel H. Bell, and Secretary of Labor Raymond B. Donovan, chairman of the National Science Board, announced that a Committee on Agricultural Education (secondary education) would be appointed with the charge to "critically examine vocational and technical education related to agriculture in the nation's public schools" and make recommendations regarding "goals for instruction," "subject matter and its presentation," and "changes needed at the local, state, and national level to implement new and revised agricultural education programs in secondary schools." In May 1985, the Chairman of the Board of Agriculture of the National Research Council appointed the 17-member Committee. During a public symposium in Washington, D.C. on September 13, 1988, the National Academy of Sciences formally presented the report, Understanding Agriculture: New Directions for Education.

Some six years after the announcement that a Committee on Agricultural Education in Secondary Schools would be appointed and more than six years after the Committee's report was released, what are some implications for the future of agricultural education in the public schools that portend from reflection upon the processes used to examine critically vocational and technical education in agriculture and the substance of the report for new and revised agricultural education programs?

The Process

Reflections on the process implemented by the National Academy of Sciences makes it clear that a major critical analysis of national policy and program issues takes time. The Committee's report was released just three months shy of four years after the date it was announced that the Committee would be formed. Future policy and program analyses from which meaningful recommendations for change are likely to emerge will, without doubt, be relatively long term—not quick fixes.

A second observation is that careful and critical examination of current programs and policies cannot be accomplished solely by those whose major interests and loyalties are the focus of what is being examined. The 17-member Committee, chaired by a retired chancellor of the University of California-Lowell, included persons with professional interests and experiences in the primary vocational agriculture and educational (teacher, national FFA office, state directors of agricultural education, among many others) and secondary agricultural education (local leadership associations, a school superintendent, and the principal of the then recently established Chicago High School for Agricultural Sciences. The prominent nature of the committee members regarding vocational and technical education in agriculture ranged from supporting current practice to knowing little or nothing about vocational agriculture which resulted in the passion of an old friend and former colleague questioning the utility of what agriculture should be taught. Future efforts designed to examine critically and candidly current policy and programs should be emulated as a strategy for constituting a committee. Instruction in and about agriculture is too important to be left solely to those whose vested interests are primarily the maintenance of current policy and practice.

Parallel to the implications regarding diversity in professional backgrounds and interests of persons constituting the Committee is the implication to form the Committee with a strategy of diverse sources of data, information, opinion, and proposals for change. The Committee visited schools and heard testimony from both persons within and outside vocational and technical education in agriculture that ranged from tradition of education to the status quo (if it isn't broke, don't fix it) to those who seriously and sincerely questioned the need for or value of vocational and technical education in agriculture.

An additional reflection is that the process that culminated with the report Understanding Agriculture: New Directions for Education was initiated by the profession. The call for a national study of agriculture's educational status in agriculture was initiated by the then recently organized National Council on Vocational and Technical Education in Agriculture. This demonstrates that a profession is interested in the future of agriculture education. It is my hope that the authors in the April issue of The Agricultural Education Magazine might cause us to wake-up, dream, and prepare for the future.

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The Third Millennium - It's a Knowledge World

The class of the year 2000—the last graduating class of this century, century, and millennium—will see as much new knowledge and information as the year they graduate as their entire lifetimes. Each week, approximately 40,000 refereed journal articles are published. In the United States, every family can find a high tech product brought to the market place and every day at least 50 new food products are introduced. Scientific knowledge and information have been encoded and stored when produced during the previous 6,000 years of recorded history. As John Templeton in Looking Forward puts it, "More new books are published each month than were written in the entire historical period before the birth of Columbus." As the third millennium dawns on January 1, 2000, the pace that knowledge doubles will increase from the current 19 months to a blustering 11 months. It boggles the mind to try and understand how all of that information can be stored and retrieved—yes please. But Peter Drucker calls this new accelerated information society the "knowledge upon knowledge world."

In the third millennium, the norm will be that information will be very creatively utilized, but creatively produced and stored. Consider, for example, the laser scanner at supermarket checkout counters. The creative use of the Universal Product Code (UPC), lasers, and computers provided consumers with speed at the checkout counter and the supermarkets with labor savings. Next came better accuracy for both consumer and business. Creative businesses began to investigate using the information to manage inventories, order products, and schedule labor and repairs. Other creative businesses were formed to produce supermarikets with new information on promotion effectiveness, display effectiveness, and coupon use. Now the information is available to consumer groups to make sure businesses operate honestly. New creative uses were hatched upon new creative uses..."knowledge upon knowledge" to know that the laser scanner is almost a well-known example, yet it is the bellwether for the third millennium.

School's Out and So is Work

Look to the world in his annual book; School's Out how schools as we know them today will no longer exist because of new technology. Likewise, work and businesses will no longer be the same as they once were. Accelerated information (or "Hyperization" as Lewis Perelman calls it) has forever changed our jobs, careers, and lifestyles.

Information has accelerated because of several technologies but two are the major drivers—communications and computers. Both have greatly enhanced our ability to get information into our lives so quickly that without them society as we know it would cease to exist. Yet the next generation of technologies in both of these areas will completely change us as it did in the past century. And envision the outcome. But envision the outcome as it will be.

Communications

Motorola, Inc. will launch over 60 satellites into low orbit during the decade of the 1990s that will provide complete cellular telephone coverage for the world. New portable cellular telephones are made of rubber and jewelery. No one, unless they want to, need ever be without instantaneous communication with anyone, anywhere and anytime. One day perhaps we will find ourselves in orbit approximately 22,500 miles above the earth provide two-way data highways to any spot on planet Earth. These data highways move anything electronic—words, pictures, and sound. Suddenly, isolation is no longer a choice, not a given.

Computers

Each passing day, technology increases computer speed and capacity. What Intel's 486 chip does now is the same as what an entire computer complex did a decade ago. On the horizon before the decade is up are chips that make the 486 look like a dinosaur already here. As these chips (labeled optical) computers, carbon hair wires, serpentine wires, and biosips, replace computers and biosips are at least 1,000 times faster than conventional electronic computers. Carbon hair and serpentine wires are so small that 10,000 can fit on a human hair. The result, of course, is that computers already have and will have by the end of the decade essentially infinite capacity and speed. There will not have to use a computer keyboard to communicate with your computer. You can talk simply, write, or touch. The computer will interpret what you want the computer to do in the third millennium become an extension of you—the ultimate tool.

Now put the new communication tools and computers together and presto, major changes are occurring and will continue to occur in ways we cannot even vision today. Let's look at a few major trends. Isolation is now a choice and the computer is your ultimate tool—where will you choose to work? Be educated. Obviously, since work and school are central to this choice they will be where you want, when you want, and for how long you want. The U.S. labor force is approximately 125 million people, yet today over 42 million (one third of the labor force) work at home or from their car. Since 1985, home work has been growing at an annualized rate of 15% per year. Work is now a choice on when, where, and how for a significant number of U.S. citizens. If they choose to isolate in rural America, or near a big city, or in the middle of a large city, it changes day care for their children, transportation needs, clothing requirements, family structure, leisure activities, and food wants, just to name a few.

Likewise, education is becoming choice oriented. The computer and communication tools means that education can be classroom designed as it has been for 200 years, or in the workplace, and form that the student needs and wants. White Sands Missile Range Test Facility in southern New Mexico has 12 Univac computers offer everything from two-year programs to master's degrees (including State University of New York and University of Maryland - in New Mexico?) Education becomes a choice like work—where, when, and how the individual wants. Education in this new world has to be continuous process and timely—this will be "just in time education." Few current educational systems can deliver "just in time education," therefore there will be a massive restructuring in favor of systems that can respond quickly to individual student needs.

Now for a moment, the implications of both work and school being choice variable for individuals. First, what matters the most in what the person can do or what they know is what formal degree or certificate they have. The third millennium will be a world of knowing, not necessarily one of traditional academic degrees. Second, the individual matters a great deal. If the individual has a choice, then that individual has power. Government leaders and organizations have always been known this, but now it is absolutely critical. Daily care and pre-school facilities are now being built into new businesses. Off-site schools are placed in businesses and work places. Thus, this knowledge world is also seamless. The differentiation between school, work, and leisure will be a blur. What is life, school, and work will be fuzzy—where one begins and the other ends will be difficult to see or know. What does a seamless lives in a seamless (global) world. We remember about 10% of what we see, 20% of what we hear, 40% of what we see and hear, but about 80% of what we see, hear, and do. That's the power of a seamless life in a seamless world. When we can see, hear, and do not only in our life but in our work and education as well, our power as an individual is deeply enriched. There also lies the power of the latest computer tool called virtual reality. With powerful computers, individuals can put on a special headset with computer screens, gloves and boots with sensors and the computer will take him into another world they can imagine. Take down the Nile? Go inside a nuclear reactor? Visit with Thomas Jefferson in Monticello? Walk inside a molecule of a chemical? Look inside an engine block while it's being cast? Virtual reality lets you hear it, see it, and do something with it—all in the computer. The potential for biological and material sciences is immense. A molecular biologist can design a new molecule in the computer first, the scientist can walk inside it—see it, hear it, and do with it all in the computer. Agriculture?

We have the ability to give a scientific name to less than 10 percent of all the life that currently exists on planet Earth. Biotechnology is where physics was in 1900 and Albert Einstein turned the laws of physics inside out. The third millennium will be the century for biology and thus for agriculture. Every day we find new life forms, discover some new aspect of an existing life form or alter known life forms through genetic engineering. Plants and animals in the future will provide not only for our food needs, but for our medicinal, industrial, and energy needs. Additionally, agriculture will be integrated with systems that help foster wildlife and sound ecological balance. In the third millennium, agriculture, will involve medicine, energy, ecology, industrial products, and pharmacology. Obviously, all of these fields are merging into a seamless new order.

The Third Millennium

Much of the 20th century was spent breaking the world down into smaller, specialized units that could be more easily managed. We separated the business world into accounting, finance, management, and marketing, just to name a few. We broke life into biology and psychology. We separated education into vocational and academic. We fragmented and broke apart every whole to better understand the parts, and in some cases, just because it was easier to look at a part than a
whole. But the computer and communications world has changed all of that. We now seamlessly view the whole and understand better how individual societies and the world function. No business problem is usually just a marketing problem. It will usually have accounting, finance, and management, not to mention sometimes political aspects. Life is never so simple as being a plant or animal - we exist together, even with the good and bad viruses - that is, within an ecology. Some people know they are going to college; others find the vocational route better; yet the two intermix and become seamless in a knowledge world.

During the last two years, computers have helped understand a coded language among plants. Does it mean the trees communicate via allelochemicals (similar to odors) with other trees to warn them of the presence of a pest? Do other trees possess their own natural insecticide and the pest doesn't attack them? Trees talking to each other? Could the new pesticides of the future be computers and allelochemicals? In a knowledge world, the struggle will be the norm and the norm of today will be the strange. John Maynard Keynes said it best in 1935, “The difficulty lies, not in the new ideas, but in escaping from the old ones...”

References
Dow Jones and Company. American Demographics, various issues.
Taylor Books.

Reflections on the National... (Continued from page 5)

tion can, if it has the resolve to do so, initiate and facilitate a process that examines its purposes and programs.

The Committee's Recommendations
Reflection on the Committee's conclusions and recommendations highlights the Committee's unwavering insistence on dealing with major philosophical and policy issues: Why teach agriculture or teach about agriculture? What subject matter and skills should agriculture education cover? The Committee and revised programs that the Committee proposed are grounded in the philosophical underpinnings of the Why? What? and What? questions.

Implication: The soundness of current and yet to be initiated proposals about the future of public school education in agriculture will be determined in large measure by the extent to which recommendations for reform respond to the challenges presented by these three basic policy issues.

A second reflection regarding the Committee's recommendations was the realization that if new and revised agriculture education programs were to materialize, the traditional model for change in vocational education would not be challenged but circumvented. Since the early 1990s major policy and funding changes regarding the teaching of agriculture in the public schools have been the direct result of federal legislation for vocational education. The Committee was well aware that, if its recommendations for change were to be implemented, the traditional impetus for change in federal legislation--would not be a major force.

This leads to the annoying reality that implementation of recommendations for change would require leadership from those with a vested interest in vocational and technical education in agriculture. For new and revised programs to emerge, it was evident that support would be required from superintendents and principals, school board members, teachers, students, parents, and the public.

The Committee's principal conclusions and recommendations were few, but far-reaching. First, agricultural education is more than vocational agriculture. "Agriculture is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing agricultural education studies." And second, major revisions are needed within vocational agriculture. The Committee's recommendations introduced the concepts and words education "in" agriculture and education "about" agriculture (agricultural literacy) into the lexicon of agricultural education.

To what extent has there been change and reform in agricultural education since the late 1980s? To what extent is agricultural literacy, as well as vocational agriculture, an important dimension of educational programs in public secondary schools? Are recent changes in agricultural education programs more substantive than cosmetic? Answers to these and other relevant questions are presented in the Committee's recommendations through the bottom-line issue: To what extent have the recommendations of the Committee on Agricultural Education in Secondary Schools contributed to substantive reform in agricultural education? Hopefully, reflection about the process and recommendations of the Committee provides insights helpful as the profession continues to dream and plan for the future of agricultural education.
New Curricula and Approaches Dominate the Future for Agricultural Education

Agricultural education began in the public schools to meet the needs of the times. In the early 1900s, the United States was changing from an agrarian to an industrial society. Prosperity for agricultural education demands making adjustments.

The view by the authors is from a national perspective. They have visited in most states, met teachers, and learned about programs. The authors have had an advisory group of highly respected agricultural educators, in-depth discussions with national leaders, and probing research into the nature and direction of programs. Observations are easy to make about programs and needed modifications. One short statement is all that is needed to summarize: local programs and state-level direction for programs vary tremendously among the states. Variations will shape future direction programs will take. Efforts in teacher education are changing at the same time that the need for inservice education is increasing.

Ten Guiding Observations and Statements for the Future

Bringing clarity to observations and orienting them for the future is a challenge; nevertheless, there are several statements:

1. Relevant agricultural education is in the best interest of the people individually and of the United States as a collection of people. Meeting the basic needs of people for food, clothing, and shelter depends on continuing education that adequately meets these needs. Such education will be at all school levels, with emphasis beginning in the middle schools.

2. Agricultural education is moving closer to the heart of the instructional system of education and away from a job-skill focus. This is evidence by (a) efforts to integrate academic and agricultural education and (b) emphasis on agricultural literacy. This trend will continue and may include areas beyond science.

3. Emphasis on science principles and applications has been highly beneficial and will continue to be so in the future. This direction has given a needed credibility to agricultural education. It has enhanced the achievement levels and interests of students who elect to enroll in agriculture classes, especially those classes that have substantive content in agriculture.

4. A large number of traditional programs remain in the United States. These programs focus on agriculture and the greenhouse, with many serving important needs in areas where crops and livestock are important. More production agriculture programs are needed to enhance the instruction by expanding the base in agriscience. Instruction in production agriculture will continue in many locations. (We need food!)

5. A major opportunity is in environmental science and related technology. Just as agriscience has provided renewed vitality in many of their responsibilities, environmental science is the opportunity to serve new students not otherwise enrolled in agricultural education classes. Emphasis must include a science-based approach attuned to a one-world environment. This will involve less instruction on the rural aspects of the environment, such as wildlife and hunting. More emphasis will be on sustainable development and international dimensions involving the developing and developed nations.

6. National emphasis on raising expectations for students will continue. The future of the farm is a challenge; nevertheless, there are several statements: agricultural education is in the best interest of the people individually and of the United States as a collection of people. Meeting the basic needs of people for food, clothing, and shelter depends on continuing education that adequately meets these needs. Such education will be at all school levels, with emphasis beginning in the middle schools.

7. Hands-on instruction will continue to improve but the nature of the instruction will change. More schools and courses will have agri-science laboratories, greenhouses, and few, for example, will have agricultural mechanics laboratories to teach welding, pipe fitting, concrete construction, or computer-based materials. Less will use be made of brochures, pamphlets, non-systematic job sheets, and government bulletins.
9. A shortage of qualified teachers and other educators to lead agricultural education is occurring at the time when a huge need exists for energetic, dedicated professionals. Teacher shortages are particularly a concern when programs are in a mode of growth and expansion. Teacher education programs are filling roles in university beyond meeting the needs of local programs in agricultural education. This raises a great need for re-focusing agricultural teacher education.

10. The non-public sector will become more involved in agricultural education providing instructional support materials, inservice education of teachers, and content training for all groups. Changes in missions of state education agencies and private educational groups have left a tremendous void. Teachers want inservice education in ways not now available. Partnerships will be made with providers of inservice.

Professional Roles and Opportunities
As agriculture teachers have become more responsible for local program development, the need for professional involvement has expanded. Fewer and fewer states are issuing curricular guidelines and providing supervision of teachers to see that the guides are implemented. Agricultural education can be strong by retaining enthusiastic professional commitment at the local level.

Professional organizations that focus on needs in agricultural education can play an important role with teachers in local programs. Agricultural education will reach out and establish linkages with other agricultural educators and appropriate individuals outside of the agricultural education. All agricultural educators must be involved in the leadership. The future of agricultural education and its contribution to the state will be determined by the willingness of agricultural educators to work together to meet the challenge. Agricultural Educators Must Not Forget Who They Are
Agricultural educators must remember that they are agricultural educators. Educational facts must not pull them away from their mission—a mission to teach agricultural education. Instruction must focus on agriculture and the emerging science and environmental education.

New approaches will be used. These new approaches must be unique, but do not mean that agriculture is complete removed from the curriculum and that production agriculture is not continued. The authors have observed schools where the agriculture teacher has lacked a well-equipped agricultural mechanics laboratory. However, these problems can be overcome. This approach must meet the needs of students who bring new situations and different needs to the classroom from the experience of the past. More students are from nontraditional families and haven't had the opportunity to grow up interacting in the work environment. Educators will reflect varying cultural backgrounds and have limited understanding of our agricultural system. No evidence exists that these trends will reverse themselves over the next few years. Agricultural educators will adapt or they will not serve the needs of these individuals.

One "Must Continue" for Agricultural Education
Agricultural educators are known for their individualized attention to the needs and backgrounds of students. They help these students set goals and develop personal and leadership skills. The goal-setting, personal development, and leadership skill focus of older curricula and practices are in danger. Certainly, the nature of the focus will change to embrace new directions in leadership development. It will change to accommodate the backgrounds of students in positive self-concept development. The National FFA Organization is currently developing new orientations in many programs areas.

The tradition of emphasis on personal development must continue. Strategies and examples will need to be redirected. Attention to the personal development needs of students has likely been more beneficial than any other program component in the past. Let's keep it a high priority!

Positive Public Image
The many wonderful things that are happening in agricultural education are not in a positive image in the mindset of the public. Publics include students, parents, teachers, administrators, agricultural industry personnel, and the general public. Agricultural educators need to be authorities on agriculture in the local community. They need to become an extension of the agricultural education program. The way this will be done is changing as communities and school districts change. The future begins now. What the future is like will be up to agricultural educators. In some cases, image problems could be overcome. This requires professional leadership. Agricultural educators need to remember that they "practice a profession" rather than hold a teaching job. Being professional will make a difference.

3-D Image provided by
Brothers Brotherton
Ag Communications Center
University of Idaho,
Moscow, ID.
A Supervisor Looks at the Future for Agricultural Education

Perhaps one of the hardest things for those of us active in the field of agricultural education is to know how agricultural education will be in the future. How will the program look or will it even be in existence? Will it still be a part of the public school system or will the programs be consolidated and relegated to some other venue? What will be the future administrative and oversight structure of our secondary agriculture programs? I don’t have a crystal ball that tells me the answer to these and other questions but I do think agricultural education will continue to undergo significant changes. As we go through and make these changes, there are a number of key points that I think we need to keep in mind.

We must meet the changing needs of our students, whether they are on the elementary, secondary, postsecondary, or adult levels. As agricultural educators, we have to look to the future and continue to ask ourselves, what are the needs for the field of agriculture and then make the changes necessary to meet those needs. We have moved away from a program that has focused on secondary students training to be farmers to a more diversified program that has instruction almost from birth to the groin in a wide area of interests and specialties. Many of us have no undergraduate college preparation in the areas of computers, horticulture, aquaculture, biotechnology, or botany. Until recent years we did not even know what some of those words meant. What does the future hold? How are we teaching students how to raise plants in space? What effect is biotechnology making in our programs? What effect is distance learning making on how we reach students?

Any changes we must make continue to include the three components of an agricultural education program - classroom instruction, supervised agricultural experience and leadership development. These components will change with the composition but they must always be a part of our program. Much research has been done on the classroom or on the role of hands-on experience and the variety of techniques that teachers have available for their use. McCracken (1994) provides a good overview of the research that has been done about how to teach agriculture. He says: "Resolved to be an excellent teacher will require immense effort to learn the science of teaching, and then to apply that science by employing the best of one's abilities and talents in the art and craft of teaching" (p. 8).

Supervised agricultural experience programs (SAEP) have evolved from the traditional "larning program" to more school-based and business-industry-based experiences. The Nixon Administration of a few years ago moved the SAEP program to the Department of Agriculture in the state of Missouri, an example of the type of facilities that will become more popular. The center is located on a 20 acre tract of land. When completed, it will feature a classroom/science laboratory, livestock facilities, a two acre lake, an outdoor amphitheater, 25% outdoor classroom, crop identification plots, and walking trails. The Lilton Center is designed to provide students with hands-on experience in the animal science, plant science, and natural resources areas. These type of facilities provide opportunities for students to have SAEP’s who would not otherwise have the opportunity.

The local program should have a mission statement that has been developed with input from parents, students, local agriculture educators, and local school officials. The mission statement needs to be supported by all groups and should identify the clientele and purposes that the programs will serve. This mission needs to be clearly communicated and then carried out. Because of the rapidly changing nature of agriculture, the mission statements must be re-evaluated on a regular basis to make sure that the needs of the students and the industry of agricultural education are complete and continue to meet the needs of our students.

Local programs in the future will need to continue to maintain a broad base of support in the local communities. This may mean looking at alternative delivery systems that may be training for a very specific occupational area (i.e., diesel mechanics, animal health technology, agribusiness sales, etc.), the program must have the support of the entire community so that when additional resources and/or programs are needed, the support will be there.

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References


Choose Your Vision (Continued from page 14)

tion for agriculture may place the "group instruction" on the airwaves, and the adaptation and implementation through planned, but limited personalized face-to-face sessions.

Paying for adult instruction will continue to be a major problem. In the Council study (The Council, 1992), only 15 of 152 sample spending and expenditures for adult education in agriculture. Three states spent 84% of the total reported. Using significant media to support adult education programs in agriculture does not appear to be a reasonable option. With the demand for the new tax money, it is unlikely that major policy shifts to increase adult education spending will occur. Adult educators will have to seek a new vision where education is a commodity sold to those who use it to the extent that the public recognizes the private return on the experience. If adult education in agriculture is to expand, it will have to depend upon the users for a greater part of the financial support. As users pay the demand for relevance, quality, easy access, and accommodation of individual needs will increase.

What does this mean for teacher education? Adult education will no longer be something that just happens. It will be something that will require careful planning, a customized curriculum that can prepare teachers to be facilitators and prepare teachers to be management experts will look different. New curricula are known in most teacher education institutions. It may be necessary to develop specialized, regionally based programs for adult education in agriculture if teachers are to be adequately prepared. A regionalized program of inservice professional development where adult teachers remain competent would be a natural "next step."

Agricultural educators could be a part of the new vision for adult education in agriculture, or they could simply stand by and watch the eventual demise of adult education as a significant part of the agricultural education continuum. It is time to choose.

References


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Supervised agricultural experience programs (SAEP) have evolved from the traditional “larning program” to more school-based and business-industry-based experiences. The Nixon Administration of a few years ago moved the SAEP program to the Department of Agriculture in the state of Missouri, an example of the type of facilities that will become more popular. The center is located on a 20 acre tract of land. When completed, it will feature a classroom/science laboratory, livestock facilities, a two acre lake, an outdoor amphitheater, 25% outdoor classroom, crop identification plots, and walking trails. The Lilton Center is designed to provide students with hands-on experience in the animal science, plant science, and natural resources areas. These type of facilities provide opportunities for students to have SAEP’s who would not otherwise have the opportunity.

The local program should have a mission statement that has been developed with input from parents, students, local agriculture educators, and local school officials. The mission statement needs to be supported by all groups and should identify the clientele and purposes that the programs will serve. This mission needs to be clearly communicated and then carried out. Because of the rapidly changing nature of agriculture, the mission statements must be re-evaluated on a regular basis to make sure that the needs of the students and the industry of agricultural education are complete and continue to meet the needs of our students.

Local programs in the future will need to continue to maintain a broad base of support in the local communities. This may mean looking at alternative delivery systems that may be training for a very specific occupational area (i.e., diesel mechanics, animal health technology, agribusiness sales, etc.), the program must have the support of the entire community so that when additional resources and/or programs are needed, the support will be there.

(Continued on page 18)
NVATA: Working for OUR Future

BY MERRILL RICHTER AND MARSHALL STEWART

Agricultural Education is in a dynamic and exciting time! The major reforms occurring in the educational and agricultural arenas across the nation are creating new opportunities we must seize and work to the advantage of the students, teachers, and communities we serve. During this time, it is imperative that the agricultural education community come together and work as a team to ensure future growth and success. As the member of the community representing teachers, it is critical that NVATA play an important role in this movement.

The current mission of NVATA states that NVATA is a professional organization providing leadership and service for agriculture teachers. NVATA was originally organized to advance agricultural education and promote the professional interests and growth of teachers. Today, NVATA serves as a voice for vocational and technical education in agriculture on a state and national level and attempts to monitor and influence legislative issues affecting agricultural education. Besides serving present members, the NVATA seeks to recruit and prepare and encourage students who have a desire to teach agriculture. Finally, NVATA is dedicated to professional development, nurturing a spirit of unity among classroom teachers, developing professional pride and recognizing excellence in teaching.

It is clear that the NVATA has a vital role to play in the future of agricultural education. In preparing for the challenges that lay ahead, since October 1, 1994, the NVATA board of directors has charted an aggressive course of action that is sure to result in a stronger organization and agricultural education community. Those new initiatives include, but are not limited to, the following:

• Development of an instructional materials package entitled, "Risk Management in American Agriculture." This is a partnership between the NVATA, Commodity Futures Trading Commission, and the National FFA Foundation.
• Management of the FFA Agriscience Teacher of the Year Program beginning January, 1995.
• Starting a new initiative to recruit youth to teaching agriculture.
• Creating a beginning teacher orientation and mentoring program.
• Development of a new member/welcome package for all new NVATA members.
• Development of a new NVATA recruitment video to outline the benefits of professional membership.
• Development of ideas for future promoting and communicating the achievements and successes of agriculture teachers.
• Implementation of a Congressional/Leadership Forum for agricultural educators.
• Creation of a leadership and personal development institute for agriculture teachers.
• Publication of a new booklet highlighting excellence in SAF's.
• Aggressive pursuit of new educational technology and materials for agriculture teachers.
• Development of a partnership with the National Council for Agricultural Education to promote and market the Professional Growth Series.
• Addition of new technical workshops offered through sponsorships of the National FFA Foundation.
• Development of a clear agenda and strategies to support these initiatives.
• Actively participating in the Vision 2000 conference and process.

Each of these initiatives will require human and financial resources to be achieved. However, the net result for success of these agenda items for NVATA will be the creation of the best teachers' association our customers have access to and an agricultural education community that makes a positive difference to the students and communities across the nation.

As one looks to the future of agricultural education, it is clear that the ultimate success of the effort will rest upon the ability of all the constituency organizations to find areas of commonality and to work together. This will not be easy and will require joint ownership, trust, leadership, and strong commitments. However, as was pointed out in the Vision 2000 conference (July 1994) it must occur if the effort is to be as successful in the future as it has been in the past.

Our motivation for making the future of agricultural education work is simple: it is the students (secondary, postsecondary, and adult) who sit in the agricultural classrooms across the nation. After all, what we are working for here is OUR future!

Agricultural Education and Living History

BY TOM MORAIN AND J. L. ANDERSON

I've found a good one!" the young girl in clean white court shoes exclaimed as she showed the perfect ear of flint corn to her parents. The girl, dressed in reproductions of 1830's clothing, complete with mud and rain- yard on his boots, looked up from husking corn and announced that the ear belonged in the pile of corn to be saved for next year's seed. The girl's parents, observing from a few feet away, were pleased with their daughter's enthusiasm and soon joined in the husking.

This recent encounter occurred at the reconstructed Pheon Freeman farm at Old Sturbridge Village, Massachusetts, but it could have occurred at any one of the many living history museums in the United States and Canada. These museums are dedicated to documenting, preserving, and demonstrating rural traditions and farming practices in historic settings. The young girl at Old Sturbridge Village, like millions of children and adults across the continent who visit living history institutions, participated in the production of agriculture, her own private section of Farming 101, living history style. The questions and issues raised during her session were the ideal ear of Rhode Island White-Capped Flint served as a practical lesson in genetics, the seasonal nature of farm work, and the importance of child labor on the farm. Although it would be too much to expect that the young corn husker completely appreciated the significance of the activities at Old Sturbridge Village, they are still important. The memories of the sights, sounds, smells, and her own participation can provide a starting point for that girl to gain a greater understanding of the past.

Living history museums offer a variety of opportunities for audiences unfamiliar with agriculture and rural life to explore farming up close. Each site reflects differences of region, social and economic conditions, and historic time period. Old World Wisconsin, located in the southern part of the state, emphasizes the role of ethnicity in agriculture. At Old World, visitors see on ten nineteenth century farms: the diverse farming techniques and crop systems immigrants brought to this country. Living History Farms near Des Moines, Iowa, demonstrates agricultural techniques over a 300-year period. Visitors witness traditional farming practices at a recreated 17000 Iowa Indian site, walks to a hand and ox powered farm representing frontier farming in 1850, and conclude with a visit to a thirty-five arbor turn of the century horse powered farm. Without ever having to hear the words "industrial revolution," visitors comprehend with their own senses the immense changes in transportation, industrial science, and mechanization had on agriculture and rural life.

Informal Learning at Museums: The Parallel School

Lynn Chetney, former director of the National Endowment for the Humanities, called museums part of the "parallel school." Chetney's observation stressed the significant role that cultural institutions play in educating young people. Living history sites and programs are important complementary components for schools because they offer what textbooks and classrooms cannot. These museums excel at helping students and teachers from a predominantly urban society understand agricultural history. Recreated farms provide a multi-sensory setting for children and adults to actually engage in the tasks people in the past performed on a daily or seasonal basis.

At Living History Farms, the "parallel school" is a thriving institution. Of the 150,000 people who visited the museum in 1994, approximately 26,315 toured in part of school groups. More than one in five participated in the enrichment programs at the working farm sites. In the latter, students spend either three or six hours on one of the farms, doing livestock chores, working with tools, cooking stew and baking biscuits, washing clothes with a washboard, and learning to weave on a back- loom. Children offer some of the best testimony to the efficiency of these programs. "Thank you for showing me how to make biscuits and butter," one student related. "I liked feeding the pigs and cows. I told my mom about how we raised—now it's something I have to do."
disasters, are less predictable but equally men- ing. Nevertheless, aside from low attendance in 1923 following the disastrous floods that plagued Des Moines and the midwest, Living History Farms continues to attract more visitors every year. State Supervisor, Director of Interpretation at Lincoln Log Cabin State Historic Site near Lerna, Illinois, confirms this trend. "Our educa- tional programs are gaining popularity each year," reports Normier. The number of school children who participated in special programs at the 1840s Farm site more than doubled from 1992 to 1994. There is good reason for optimism because the appeal for hands-on activity is so great, especially for people who have little first hand knowledge of farming. Even "veteran" farmers have lost the feel of it. Retirement farmers bring their sons to working farms to show the new gen- eration what open-pollinated corn looks like. "I live in Clarion County," one youngster wrote a museum interpreter after touring Living History Farms, "and we have hogs but they are much different from yours." For elementary education, the prospect of leading a class unit on the application of science to livestock breeding can be daunting and even unenjoyable task. The potet is clear with a dramatic illustration provided by a living turn-of-the-century style Poland China scarecrow.

Those of us who work at agricultural living history museums are lucky. We tell the stories of historic farming in the most compelling settings of our region. Every visitor, every jaded visitor who walks briskly through the museum, there are ten who are hungry to learn more about where food comes from and the people who have grown the crops and animals that fed the nation. In the span of more than two percent of Americans agriculture; yet interest in agricul- ture and farm related topics is growing. Americans, more than ever, are longing for a return to "simple," will do anything to seek out opportunities to understand agriculture first-hand and we are excited to offer them enjoyable places to learn.

A Supervisor Looks . . . (Continued from page 15)

Agriculture programs in the future will need to have a strong program meeting the needs of students K-14 and adult. Programs will need to be imaginative in order to meet these needs. If additional staff is not an option, help from teachers from other disciplines, from the agri- culture industry, from farm organizations (e.g., Farm Bureau, Pork Producers, FFA alumni, Young Farmers/Young Farm Wives, etc.) will be necessary. Agricultural teachers in some of the levels of instruction, such as K-6 or adult, may need to serve more as facilitators or resource people rather than as the primary provider of both instruction and information.

THE FUTURE OF AGRICULTURAL EDUCATION IN 4-YEAR POSTSECONDARY INSTITUTIONS

Higher education in agriculture has been a vital resource of the country for over a century. It is no less an indispensable resource today. But, as a community, agricultural education in four-year postsecondary institutions is leaner that it has been in a long time. Its content, values, and pur- pose are being re-thought. Its features are changing. And, the momentum of change is gathering strength.

Externally, the economic and political pow- ers of the food and natural resource systems are being reconfigured, environmental impacts of agriculture are creating new social tensions, and there is a pluralism of views about food and agriculture. Society will increasingly measure the ability of the four-year institution to meet public needs by the quality and productivity of the undergraduate and extension programs.

Internally, the resources available to units of agricultural education are largely fixed. But with the new faculty and new students lack background in traditional agriculture. The shifting demo- graphic makeup of the U.S. are dictating a more diverse student body. Tenured faculty members are facing the need to engage different tech- nologies and a wider knowledge base both in agriculture and in the educational process. And, different institutions are seeing different needs for educating their students.

Change is being driven by the growing national recognition that higher education in agriculture must undergo change. That drive has been stymied, in part, by the initiatives of the Office of Higher Education Programs of the U.S. Department of Agriculture and the Agricultural Programs Committee on Organization and Policy (ACOP), National Association of State Universities and Land Grant Colleges (NASULGC). These initiatives included the integrated project on higher edu- cation in agriculture (Project Interact), the 1991 USDA National Conference on Undergradu- ate professional education in agriculture, the establishment of the annual regional teaching workshops, and the current work group on sys- temic change in undergraduate education in agriculture. Some institutions, e.g., the University of Illinois, are making major changes in their structure, mission, and curricu- lum, utilizing their own faculty resources. The W.K. Kellogg Foundation is supporting an extensive Food Systems Education Project

By H. O. KUNKEL

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THEME ARTICLE

In 26 land-grant colleges and other 4- and 2-year and 3-year institutions to develop a collabor- ative vision for the future of their colleges and their constituencies, to be followed by imple- mentation of strategic plans to create models for food and agriculture in the 21st century. The Board of Agriculture, NASULGC, proposes to conduct a series of listening and synthesis conferences to complement the Kellogg initiative and to include Experiment Station, Extension and International as well as the four-year institutions.

In a sense, future agricultural education must reflect what agriculture has become and will be. Agriculture today is a system. That system includes the land, air, and water resources, pro- duction processes, marketing and trade, trans- formation and use of food, human consumption and health, recycling and waste disposal, and now the biotechnologies. All these call for development of postsecondary systems engaged in agricultural education and research. The momentum for change can be seen in the continuing movement to change the names of colleges offering the degree of Bachelor of Agriculture or Agricultural Science and "something else." The variable of "something else" include Life Sciences, Natural Resources, Environmental Sciences, Food and/or Consumer Sciences, each reflecting a different scope for the college. The colleges, for the most part, maintain their roots in agriculture, but that agriculture is seen not only as an employer and a producer of food and fiber, but also as a system based on stewardship of resources and the environment and on the places where things that are certain is the limitation of the scope of agricultural education in the 4-year institutions to production and marketing agriculture.
The Mission and the Future

The four-year institution of tomorrow will likely seek to provide opportunities for students to generalize, and yet be able to develop subsequent specialties. This may require a greater use of professional master's degree programs, in contrast to research degree programs, particularly if the parent four-year institution continues to add general education requirements (core curriculum) for the baccalaureate degree.

The educators are one who has both theory and skills. The four-year institution provides on education that is a blend of knowledge and skills. But, the needed skills will likely be different from those of the past. It will not only the ability to manage living organisms, but also to use computers, make appropriate use of syntax in writing a situation critically, work in teams, and the like.

The future will require a restructurine the content and purposes of our courses. The courses taught in agriculture in the four-year institutions have been of two kinds. Some courses are based on areas of knowledge like genetics that are moving and others are based on disciplines where the knowledge is mature. It is easier to teach the mature knowledge because there is little change in the information year to year. Animal and plant breeding, soils and animal nutrition courses are generally taught now as mature courses. But, the courses that remain in the future. Subtle changes are making mature knowledge dynamic once more.

Molecular techniques are the programs that are developing the subject of animal breeding. Human nutrition is shifting the emphasis in animal nutrition courses. Environmental values and needs are being handled in one of the most obvious, yet often neglected elements of organizational success—a true sense of purpose. Pacesetta and Frohman pose some serious questions that fit our own profession. What is our unique purpose, vision, statement, or our expression of hope? Have we communicated our purpose in everything we say, do, publish, etc.? Have we developed a structure to carry out our purpose? Do we yet have purpose drive performance? Have we developed a personal commitment to the purpose of our profession? Have we developed the "passion for excellence" focused on a well-documented revitalized purpose?

It seems safe to say that until we define our mission we will never be in control of our future. To help us get some focus on the future, it might be useful to construct a list of potential threats that could shape the future. There are a number of key factors shaping the present and future agricultural education system. These factors could be called predications or a wish list, but they should cause us to think.

Agricultural education programs will be in each urban center in the USA.

Half or more of the students in agricultural education will be female; one-third or more will be students of minority groups.

Agricultural Education will interact students with all capabilities—the full spectrum of academic achievement.

Experiential education will be at the heart of the programs once again, to put into practice what students are learning in other subjects and the agricultural education classes.

Setting up and operating agricultural businesses, instead of production projects, will be the norm.

Instructors will work more closely in "teams" to assist student learning; science and humanities teachers and technology teachers will link into teams to articulate student learning.

Students and teachers will be linked in learning situations via satellite with teachers and students in other schools, states, and countries.

Computer technology will be a cornerstone of the learning situation but will not replace the teacher.

Leadership education will be a critical deliberate school function and will be integrated into the curriculum; there will be an integrated add-on (example—FFA in Agriculture).

There will be "open entry-exit" for students to take courses when they wish.

There will be a major focus on clear objectives and competencies for accountability.

There will be provisions for evidence of achievement, and courses may be split into some form of "skill" component, which would take many forms, not just test scores.

Evaluation based on "real" impact will drive all educational planning.

There will be use of a great variety of community resources—resources that go far beyond the local community, to include regional, national, international communities.

In a few short years, FFA will replace its "farmer image"; the name will drastically change and that is in part because the educational purposes will be redefined and take on new meaning.

There will develop, in the years ahead, a need for a worldwide youth organization in agriculture. The principle elements for this organization are already in place.
• Teacher exchanges with teachers of agriculture in other countries will become commonplace.
• School boards will appoint and hold accountable advisory groups for agricultural education; school patrons will be more actively involved in the decision-making process.
• Support for agricultural education will be placed on technology, science, and humanities in practical agricultural settings.
• Science credit for some courses or combinations of courses in agriculture will be commonplace, enhancing both the science and agriculture programs.
• There will be increased rigor in agricultural education course expectations.
• Flexible student learning activities will be developed to accommodate "at risk" students and challenge high achievers. Students will have more choices.
• There will be higher professional teacher standards, and teachers will rise to and exceed those standards.
• More people will be attracted to the agricultural teaching profession.
• Teachers will be paid the higher salaries they deserve.
• Teacher education will become more experientially-based and focus on real situations.
• The agricultural education research agenda will focus on the real problems of teaching and learning, the grassroots level and research results will be used by practitioners in the field; teachers at the local level and state supervisors will become research collaborators.
• Instructional materials will be developed by teams of experts from business, industry, and education with heavy input from teachers.
• Colleges and universities will see the need for the expertise of agricultural educators to enhance teaching and learning in their institutions.
• All members of the agricultural education family will see the need for and take steps to work together. Agricultural education profession and its related organizations will cease to live strictly on successes of the past; a visioning process will be maintained. The agricultural education family of organizational groups will have sufficient funding and support for all efforts.
• Adult education in agriculture will become one of the most important growth areas for agricultural education because of the need for lifelong learning and distance delivery systems.
• Agricultural educators will become the key agricultural leaders in their communities.
• Agricultural education programs will become the cornerstone for agricultural development around the world. Agricultural educators will be critical components and consultants for education in developing countries.
• The "heart and soul" of agricultural education will be focused on technical agriculture, experiential learning, and personal/human development.
• Communication technology will continue to expand opportunities for agricultural education programs. Nationally and regionally sponsored leadership and organizational training will become more locally focused because of the increased use of communication technologies.
• Agriculture business and industry will identify the need for and use agricultural education in all aspects of sales and service to the public.
• All professionals in agricultural education will be focused on the vision that will guide us to our leadership at critical points in the future.
• A clear purpose will be established for agricultural education at each service level from which an overall mission will be established.

The following purpose or mission statement provides a basis for all of agricultural education to look to the future and plan accordingly. A close examination of the trends, future developments, etc. seems to indicate that they will fit this overall statement of purpose: "Agricultural education seeks to serve its clientele by being the premier facilitator of the learning processes in the search for and development of knowledge and skills, appropriate experiential learning situations, and personal and human development programs and activities in agriculture."

There is no doubt that the future is bright and the opportunities are great in the area of agricultural education. We have the new dawning of agriculture meaning something positive and build on the strengths that are currently manifesting themselves, it will require all of us to refine our thinking and prepare ourselves for change. That cannot happen effectively without all segments of the agricultural education family working together. Agricultural education is moving ahead and it will not do so well but it will gain momentum and prosper in the next 25 years. But it can't be done with:
• Unfocused thinking.
Agricultural Education

Past...

Technology transfer in the 50's. A good idea for its time! (Photo courtesy of Edgar A. Persons)

Percheron draft horses and historic farm implements are major attractions at Living History Farms' 35 acre 1900 farm. (Photo courtesy of Living History Farm)

Present...

Computer applications can serve as both learning and motivational tools in the agricultural education classroom. (Photo courtesy of Hubert Shuler)

Hands-on instruction will continue to be important, but the nature of that instruction will change. (Photo courtesy of Jasper S. Lee)

Future...

The emphasis on science principles and applications will continue to be so in the future. (Photo courtesy of Jasper S. Lee)

The differences between modern production hogs and historic land-type hogs is staggering. This sow at the 1850 Farm is a dramatic demonstration of the changes in livestock breeding over the last 150 years. (Photo courtesy of Living History Farm)