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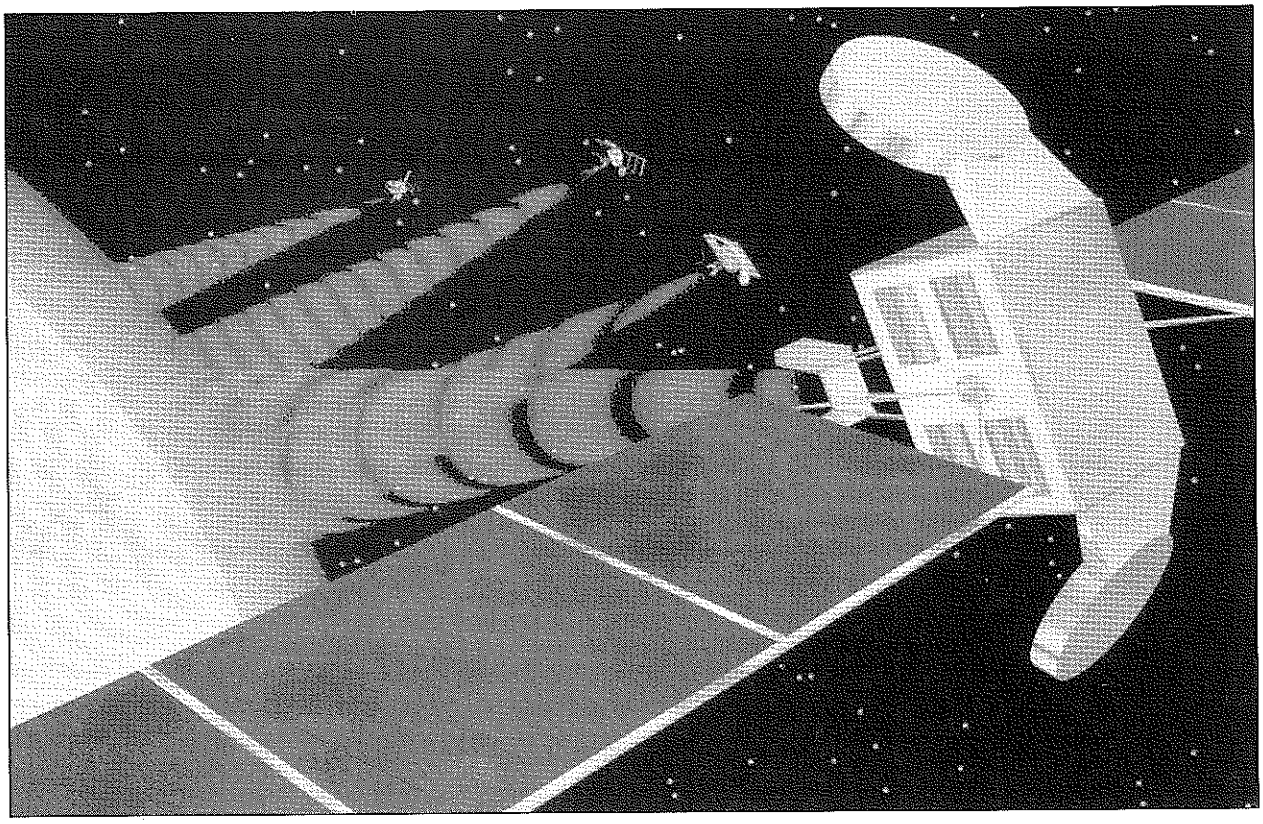

The future of agriculture and education bodes well for the future of Agricultural Education!

Is Agricultural Education positioned to be part of that future of agriculture and education?

THE
AGRICULTURAL EDUCATION
MAGAZINE

April, 1995 Volume 67 Number 10

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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 the article unless one is on file with the Editor. Articles in the magazine may be reproduced without permission.

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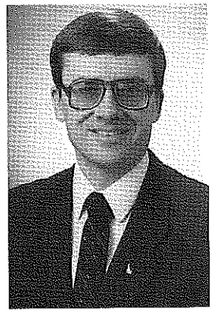
Agricultural Education -- Investing in Our Future



BY DOUGLAS A. PALS

Dr. Pals is a professor of agricultural and extension education at The University of Idaho, Moscow.

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.

In the 1960s and 70s, engineering students at Iowa State University carried complex, sophisticated slide rules on their belts — 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 The slide rule is obsolete.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 just that.

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 Mechanization 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, wasting 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 nicks 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 satellite have been responded to with a good deal of fine-sounding rhetoric, but our secondary and post-secondary programs have only sparsely 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 SAE 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 congresses. The federal and state tone is certainly one of cut and collaboration.

4. Who will we teach? 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

EDITOR'S COMMENTS

The theme of this issue of The Agricultural Education Magazine is 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 forego 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.

most important imperative for the future of agricultural education is to again focus on people.

In this April issue some interesting questions about the future for agricultural education are raised by the authors. In an article by Robert Warmbrod, you'll find reflections on the National Academy Report. To what extent has there been change and reform in agricultural education since the late 1980's? What has been the impact of the Committee on Agricultural Education in Secondary Schools' recommendations in the reform of agricultural education?

Lowell Catlett, who understands agricultural education and the future, gives us a very forwarding look into the future. I think you will enjoy reading some of his futuristic ideas.

What will the system for state leadership in Agricultural Education look like?

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. Who makes the decision whether adult education is part of Agricultural Education's role and mission?

Dennis Scanlon, Eugene Eulinger, Merle Richter, and Marshall Stewart write about the future for agricultural education from the perspective of the current leadership of the AAAE, NASAE, and NVATA organizations.

Will teacher education programs be consolidated into a few multidimensional departments? Will Agricultural Education teacher education continue to be separate small classes, or will consolidation with other classes in teacher education be eminent? How long until the traditional field-based professional development and inservice activities be entirely conducted by distance education programs, or conducted by cost-recovery university continuing education offices?

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.

What will the system for state leadership in Agricultural Education look like? Will those who are not employed by State Departments of Education have a role in providing that leadership? Who might some of those non-state employees be?

Will secondary Agricultural Education programs adapt to serve the varying cultural backgrounds of tomorrow's students? Do new approaches to Agricultural Education mean locking the doors of Agricultural Mechanics laboratories, ignoring the Supervised Agricultural Experience programs, and leaving the development of personal and leadership skills to other programs in the school? Is the continued emphasis on science principles and applications in Agricultural Education's future? Does agricultural literacy have a role in secondary Agricultural Education? Are the tech prep and school-to-work movements transient fads or are they the basis for the future of Agricultural Education in the public schools?

Tom Morain, and J.L. Anderson from Living History Farms in Iowa, describe the future role of museums, living history museums, and other cultural institutions in Agricultural Education.

H.O. Kunkel asks whether the electronic campus will be "on line" for the faculties and students by the end of this decade? What are the keys to the articulation among the secondary and postsecondary education institutions and industry for the future? What will departments of Agricultural Education look like in tomorrow's four-year institutions?

In addition to those articles, Jasper Lee, Vernie Thomas and Robert Martin give some of their thoughts on what the future will bring for Agricultural Education.

A recent Ann Landers Gem of the Day stated, "If you want to make your dreams come true, the first thing you have to do is wake-up." 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.

Swanson, (1991) warned us that "unless agricultural education designs a future for itself which includes introspection, a holistic view, and the ideas of friendly internal critics, any criticism directed at the field in the future is likely to be an understatement."

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Reflections on the National Academy Report - What It Means for the Future

BY J. ROBERT WARMBROD

Dr. Warmbrod is a professor of agricultural education and presidential professor at The Ohio State University, Columbus.

On December 18, 1984 U.S. Secretary of Agriculture John R. Block, U.S. Secretary of Education Terrel H. Bell, and Frank Press, Chairman of the National Research Council of the National Academy of Sciences, announced that a Committee on Agricultural Education in Secondary Schools 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 skills that should be stressed," and "policy changes needed at the local, state, and national levels to implement new and revised agricultural education programs in secondary schools." In May 1985, the Chairman of the Board on 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.

Now, ten years after the announcement that a Committee on Agricultural Education in Secondary Schools would to 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 process used to examine critically vocational and technical education in agriculture and the substance of the recommendations for new and revised agricultural education programs?

The Process

Reflections on the process implemented be the National Academy of Sciences makes 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-Irvine, included persons whose professional interest and expertise were primarily vocational agriculture and vocational education (teacher, national FFA officer, state direction, and teacher educator) as well as persons from outside agricultural education, including professors of biology and journalism; a former state commissioner of education; a policy analyst; a dean of a college of agriculture; executives of national agricultural organizations, a private foundation, and governmental agencies; a school superintendent; and the principal of the then recently established Chicago High School for Agricultural Sciences. The propensities of committee members regarding vocational and technical education in agriculture ranged from supporting current programs to knowing little if anything about vocational agriculture which resulted in the posing of candid and often piercing questions about why agriculture should be taught. Future efforts designed to examine critically and candidly current policies and programs would be wise to emulate this 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 are implications resulting form the Committee's 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 defenders of the status quo (if it isn't broken, 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 vocational and technical education in agriculture was initiated by the then recently organized National Council on Vocational and Technical Education in Agriculture. This demonstrates that a profes-

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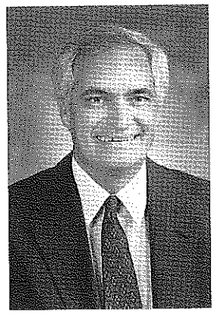
The Third Millennium - It's a Knowledge Knowledge World



BY LOWELL B. CATLETT

Dr. Catlett is a professor of agricultural economics and agricultural business at New Mexico State University, Las Cruces.

The class of the year 2000—the last graduating class of this decade, century, and millennium—will see as much new knowledge and information the year they graduate as their grandparents saw in their entire lifetimes. Each week, approximately 40,000 refereed journal articles are published. In the United States, every 17 seconds a new high tech product is brought to the market place and every day at least 50 new food products are introduced. Since 1984, more information has been encoded and stored than was 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 blistering 11 months. It boggles the mind to try and understand how all of that information can be stored and retrieved —yet alone utilized. Peter Drucker calls this new accelerated information society the "knowledge upon knowledge world."

In the third millennium, the norm will be that information will not only be creatively utilized, but creatively produced and stored. Consider, for example, the laser scanner at supermarket checkouts. 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 then started using the information to manage inventories, order products, and schedule labor and repairs. Other creative businesses were formed to provide supermarkets with new information on promotion effectiveness, display effectiveness, and coupon use. Now the information is used by consumer groups to make sure businesses operate honestly. New creative uses were heaped upon new creative uses . . . "knowledge upon knowledge." The laser scanner is a simple but well-known example, yet it is the bellwether for the third millennium.

School's Out and So Is Work

Lewis Perelman points out in his astute book School's Out how schools as we know them today will no longer exist because of new technologies. Likewise, work and businesses will no longer be the same as they once were. Accelerated information (or "Hypermation" 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 encased themselves into our lives so completely that without them society as we know it would cease to exist. Yet the next generation of new technologies in each of the areas will so completely change us it is difficult to envision the outcome. But envision we must.

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 as watches and jewelry. No one, unless they want to, need ever be without instant communication with anyone, anytime and anyplace. Geosynchronous satellites place 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 now 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 center at a major university could do only a short decade ago. On the horizon before the decade is up are chips that make the 486 look like a dinosaur (already here, actually), laser (optical) computers, carbon hair wires, serpentine wires, and biochips. Laser computers and biochips are at least 1-2 million times faster than conventional electric computers. Carbon hair and serpentine wires are so small that 10 million will 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. Thus you will not have to use a computer keyboard to communicate with your computer; you can simply talk, write or touch. The computer will interface with you —not you with the computer. Computers 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. Lets 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 choice variables they will be where you want, when you want and how 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 13% per year. Work is now a choice on when, where, and how for a significant number of U.S. citizens. If they choose isolation in rural America, or near a fringe city, or indeed 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 time, place, and form that the student needs and wants. White Sands Missile Range Test Facility in southern New Mexico has 12 universities that 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 - when, where, and how the individual wants. Education in this new world has to be a continuous process and timely - thus it 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 envision for a moment, the implications of both work and school being choice variables for individuals. First, what matters the most is what the person can do or what they know - not what formal degree or certificate they have. The third millennium will be a world of knowing, not a world of academic degrees. Second, the individual matters a great deal. If the individual has a choice, then that individual has power. Great companies and organizations have always known this, but now it is absolutely critical. Day 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 knowledge world is also seamless. The demarcation 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 - 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 helmet with computer screens, gloves and boots with sensors and the computer will take them into any world they can imagine. Raft down the Nile? Go inside a nuclear reactor? Visit with Thomas Jefferson at Monticello? Walk inside a molecule of a chemical? Look inside an engine block while it's being cast? Virtual reality lets you see, hear, and do all with a computer before you actually do it. The implications for education are limitless. The best teachers can be used by everyone—anywhere and anytime. The lab now is first a computer. A molecule is designed in the computer first; the scientist can walk inside it—see it, hear it, and do something with it—all in the computer. The potential for biological and material sciences is immense. And finally, consider medicine. The doctor can use virtual reality to walk inside your body and perform surgery—on the inside. No need for long periods of recovery in a hospital because surgery from the inside can be done on an out-patient basis. Medical care will radically change. Put inside surgery via virtual reality together with a smart computer at home that monitors your body functions (already in existence) and health care becomes seamless.

Agriculture?

We have the ability to give a scientific name to less than ten percent of all of the life that currently exists on planet Earth. Biology is where physics was in 1905 when 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 balances. 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 understood better. We separated the business world into accounting, finance, management, and marketing, just to name a few. We broke life into botany and zoology. 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 reassemble. We now can 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 will go to college; others find the vocational route better; yet the two intermix and become seamless in a knowledge knowledge world.

During the last two years, computers have helped understand a coded language among Douglas fir trees. It seems the trees communicate via allochemicals (similar to odors) with other trees to warn them of the presence of a pest. The other trees produce 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 allochemicals? In a knowledge knowledge world, the strange 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... ."

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Reflections on the National ...

(Continued from page 5)

sion 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? Who should be taught agriculture or about agriculture? What subject matter and skills should be taught? Recommendations for new and revised programs that the Committee proposed are grounded in the philosophical underpinnings of the Why? Who? 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 agricultural education programs were to materialize, the traditional model for change in vocational and technical education in agriculture would not only have to be challenged but circumvented. Since the early 1900s major policy and program 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--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 also 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 vocational agriculture 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 agricultural education in public secondary schools? Are recent changes in agricultural education programs more substantive than cosmetic? Answers to these and other relevant questions provide the basis for reflection about 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. ■

Choose Your Vision

BY EDGAR A. PERSONS

Dr. Edgar Persons is professor and head of agricultural education and extension at The University of Minnesota, St. Paul.

Adult education in agriculture is considered a priority educational activity in less than one-half of the states and worthy of extensive public financial support in less than one-quarter of the states.

This statement, taken from The Status of Adult Education in Agriculture, 1991 (The Council, 1992) suggests that adult education in agriculture is not a high priority item in the total agriculture education continuum. With only a small minority of the states making any significant investment to support the teaching of agriculture to adults, the prospect for strong adult education programs in the future, especially of the kind of programs that were prevalent in the past, is very dim. For there to be a future for adult education in agriculture there will have to be a new vision of what the programs should look like, how they are delivered, and how they are financed.

It would be easier to think about the future of adult education in agriculture if there were a clear record of the past. Without major incidents to change trajectory, the past is the best predictor of the future. Unfortunately, there have been no national records kept of adult education in agriculture for about the past 20 years. With the rapid changes in both education and agriculture, those ancient benchmarks, last compiled over two decades ago, are of little value. Neither of the current reports of the condition of education are of any help. The Condition of Education, 1993 (U.S. Department of Education, 1993) in all of its 450+ pages makes no mention of adult education efforts by field of study, although there are some general aggregated characteristics of those who participated in adult education. Likewise, the Interim Report to Congress of the national assessment of Vocational Education (U.S. Department of Education, 1994) fails to recognize individual fields of study in the very brief report on adult education associated with postsecondary instruction.

There are, however, three studies that attempted to quantify the extent to which adult education in agriculture exists in the 1990s. The studies were conducted by The Council (1992), The National Farm and Ranch Business Management Education Association (Francis, 1990), and Robert Birkenholz and Gary Maricle (1990). To illustrate the extent of adult education, Table 1 shows the number of teachers who are reported to have adult education responsibilities. Since all three of the adult studies had a slightly different response rate, the results of all three are reported here.

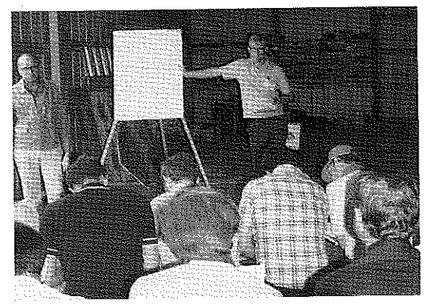
The close similarity of the data between and among the studies reinforces the opening comment about the extent to which states consider adult education a high priority. The difference between the half of the states reporting in the Council study and almost all of the states reported by Birkenholz and Maricle is slight, suggesting that only those states with significant adult education activity reported in the Council study.

Table 1: Three studies of adult education in agriculture: instructor comparisons

	# of full-time adult instructors	# of part-time adult instructors	# of states reporting
Council	405	1,002	28
NFRBMEA	408	1,002	30
Birkenholz/ Maricle	411	1,201	48

From: The status of adult education in agriculture, 1991.

Other data from the studies estimates the actual enrollments in adult education programs in agriculture at somewhere between 60 and 100 thousand, divided basically into three categories: farm management instruction, short-term technology transfer/knowledge/skill instruction, and young farmers. Enrollments in the short-term instruction were often based on "best estimates" rather than on hard data.



On-Farm group problem solving instruction; a part of the management education process. (Photo courtesy of Edgar A. Persons)

The number of instructors teaching adults is about 1600, three-fourths of which are part-time. The number of farms still hovers at about 2 million. It is unlikely that the educational needs of farmers can be adequately met by the present cadre of adult instructors, even if only 10 percent of the farmers participate in organized adult education.

So that is what adult education in agriculture is like. Will a "New Vision" by agricultural professionals change the downward trajectory of adult education in agriculture? Is it possible to make adult education in agriculture a significant priority item in the continuum of education programs in agriculture?

The answers to those questions is a qualified "maybe." It is fairly clear that if agricultural educators continue to promote the adult education programs of several decades ago that are focused primarily on the transfer of technology and the dissemination of new knowledge, programs will continue to diminish. Our history tells us that is true. Declining farm numbers and the changes in the structure of the farms that remain also suggest that adult education in agriculture built on the local program information dissemination model will be less valuable to the agricultural sector.

But new technology may offer an opportunity for local programs to play a different, but significant role in technology transfer. By cooperating with business and industry and with university specialists in the distance delivery of technical information and knowledge, local programs may have the opportunity to assist agriculturists in determining if, when and how the technology can be implemented. Local program instructors in the future may play a much more significant role in technology implementation than they do in information dissemination. Their role may evolve to focus on facilitation rather than instruction.

Programs that focus on management problem-solving have a better chance of lasting into the next decades, but those programs too must wrestle with technology and change. There is likely to be a change in venue for the delivery of such instruction, away from the traditional high school base. A strong movement already exists for this form of instruction to be incorporated into the curricula of community and technical colleges throughout the country. The coupling of the instruction with colleges has changed the rules for curriculum, accountability, fees, student aid, and in some cases, teacher qualifications. It has also, in some cases, moved the responsibility for monitoring and supervision out of the traditional realm of vocational education. Supervision, as the profession has come to recognize it, is no longer provided by a higher state authority. Articulation of high school and post high school instruction for adults becomes more difficult as the instruction for adults moves into college-based systems.

Program content will, of necessity, need to become more sophisticated and better organized. Farmers and ranchers, for example, will demand a curriculum that addresses the problem-solving associated with management of the business. They will require a sophisticated process for planning in order to meet the demands of the creditors with whom they work, and in order to adjust the business to meet the conditions of the markets. This planning will have to address the "what if's" of their future, and must be able to detail a variety of scenarios from which they can choose to chart their course of action.

Sophisticated planning, as well as keeping and analyzing records will require the use of up-to-date computer hardware and software. For teachers to be helpful to farm and ranch clients, they will have to be at least semi-expert in the use of computers as a management tool. Teaching their farm and ranch students how to use these tools in management will be a big part of their responsibility. Much of the teacher support will have to come in the form of hardware and software.

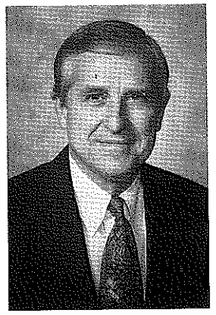
Teachers must know how to analyze and interpret the records of an agricultural business. Knowing the comparative costs and returns of the farm and ranch enterprises, making the connections between the practices employed and the enterprise bottom line, and having the ability to use this knowledge in the management of the business will be essential.

Agricultural business operators, both on and off the farm, will be increasingly drawn to processes that allow them to monitor their business on a daily basis. Monitoring and controlling the business enterprise will be second only to planning as important functions of the manager. Programs of instruction for adults will have to focus on these management attributes. As in planning, the use of sophisticated computer hardware and software will be essential.

Distance education may be an essential piece of the new vision for adult education in agriculture. Bringing education to farmers and ranchers and to agribusiness persons, instead of bringing them to the education, will be a challenge. Currently, distance education has been viewed primarily as an institution-to-institution connection. Instruction from one institution has been transmitted to another distance institution where students have been gathered to participate. It is likely this form of distance delivery will continue, so that experts in agriculture can reach large and diverse audiences across large geographic distances. It still requires that learners congregate in some institution at a predetermined time to take advantage of the instruction. Educators have not given much thought to bringing agricultural education into the family living room through the medium of television or video tape. The next wave of distance delivery adult educa-

(Continued on page 14)

New Curricula and Approaches Dominate the Future for Agricultural Education



BY JASPER S. LEE AND VERNIE L. THOMAS

Dr. Lee is an agricultural educator with Lee and Associates, Mississippi State, MS and Mr. Thomas is president, CEO and chair of the board of Interstate Publishers, Inc., Danville, IL.

Agricultural education began in the public schools to meet the needs of the times. In the early 1900s, the United States was changing and agricultural education was needed to help these changes occur. Agricultural education also changed through the years and will continue to do so in the future. 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 to the future is a challenge; nevertheless, here 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 mainstream of education and away from a job-skill focus. This is evident 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 renewed 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 agriscience.

4. A large number of traditional programs remain in the United States. These programs focus on production agriculture, with many serving important needs in areas where crops and livestock are important. More production agriculture programs will 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 programs, 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 interfacing the developed and developing nations.

6. National emphasis on raising expectations for students will shift instructional approaches so that students have greater responsibility in the learning process. Instruction focus will be sharper, more in-depth, and with less fragmentation. Students will use instructional materials to internalize the content. Systematically-designed texts, activity manuals, and computer-based materials will expand. Less use will be made of brochures, pamphlets, non-systematic job sheets, and government bulletins.

7. Hands-on instruction will continue to be important but the nature of the instruction will change. More schools will have bench-type agriscience laboratories and fewer, for example, will have agricultural mechanics laboratories that teach welding, pipe fitting, concrete masonry, and similar areas. However, there will be locations where these skills will and should be taught.

8. Agricultural education programs must be stronger and more sophisticated than the politically-based moves in tech prep and school-to-work. Are these transient fads? Yes, and unproven as well. Agricultural education will increasingly develop its own identity independent of vocational education legislation. Another area of similar political orientation is the goals for education. Worthy as they are, they are not achievable in a democratic nation such as the United States.

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 universities 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 teacher education 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 curriculum guides 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 educators must reach out and establish linkages with other agricultural educators and appropriate individuals outside of the agricultural education. All agricultural educators should begin this linkage through active membership in their professional organizations.

Agricultural Educators Must Not Forget Who They Are

Agricultural educators must remember that they are agricultural educators. Educational fads must not pull them away from their mission—agricultural education. Instruction must focus on agriculture and the undergirding science and environmental education.

New approaches will be used. These new approaches, for example, do not mean that agricultural mechanics is completely removed from the curriculum and that production agriculture is not continued. (The authors have observed schools where the agriculture teacher has locked a well-equipped agricultural mechanics laboratory that isn't used anymore.) New approaches must meet the needs of students who bring new situations and different needs to the classroom from the students of the past. More students are from nontraditional families and haven't had the opportunity to grow up interacting in the work environment. Students 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 students set goals and develop personal and leadership skills. The goal-setting, personal development, and leadership skill focus must continue. 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 content 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

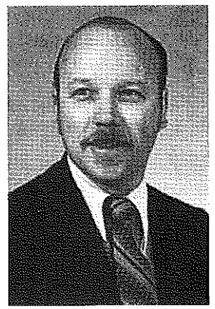
The many wonderful things that are happening in agricultural education must be given a positive image in the mindset of the public. Publics include students, parents, teachers, administrators, agricultural industry personnel, and the general public. Agricultural educators need to be authorities on agriculture in the local economy. Yes, this means that a community orientation must be a part of the programs in the future. The way this will be done is changing as communities and schools change.

The future begins now. What the future is like will be up to agricultural educators. In some cases, image problems must be overcome. This can be done. Agricultural educators need to remember that they "practice a profession" rather than hold a teaching job. Being a professional will impact public image and go a long way in determining the future. More than one future exists for agricultural education. We can make it what we want it to be. ■

About the Cover

3-D image provided by Charles Brotherton, Ag Communications Center, University of Idaho, Moscow, ID.

Can We Afford To Do What We've Always Done?



BY DENNIS C. SCANLON

Dr. Scanlon is an associate professor of agricultural and extension education at The Pennsylvania State University, College Station and president of AAAE.

There is an old marketing adage that states "Those most successful in the past are most likely to fail in the future, because they rely upon old strategies to solve new and different problems." To many in the profession, change simply means rediscovering the right type of students, preferably from farms, and teaching them a modernized form of production agriculture. In an editorial as editor of The Agricultural Education Magazine, Dr. Larry Miller of The Ohio State University labeled the profession as being stoically indifferent to innovation. Miller (1985) commented: "Are we willing to be the recipients of, as we are to be the dispensers of, change? I perceive that we are not. We teach students to accept challenge, to dare and to take calculated risks; but we seldom do ourselves." Teacher preparation is a dynamic process constantly changing because it occurs both within and as a part of a total educational system. A 1992 AAAE monograph entitled Developing Curriculum Options in Agricultural Education contained a section that focused on reorganizational changes occurring in departments of agricultural education at universities across the country. Two consistent themes that emerged from the data presented in the monograph were that departments of agricultural education must: (a) become more cost-efficient in delivering services to both on and off campus students, and (b) modify curriculum to serve a more diverse undergraduate and graduate population.

If these data are accepted as valid, a logical conclusion might be that teacher preparation programs in the future will occur in multidimensional departments with major emphasis on establishing collaborative relationships with other professionals, so that a broader clientele can be served. If this is the context in which future teacher preparation programs will operate, then both programmatic and structural changes will be necessary.

Programmatic Changes

Programmatic changes, which deal with what we deliver, will be geared primarily at meeting the needs of a diverse undergraduate population, and the new programs of agricultural education emerging in the public school system. As we pursue agricultural literacy programs, semester classes on subject areas of interest, integrated math and science programs, and postsecondary partners it does not seem unreasonable to assume that curriculum guidelines for teacher preparation programs of the future could include coursework in elementary, distance, science, international, and adult education. Students will be taught how to develop and foster collaborative relationships with other educators and to emphasize the application of knowledge rather than the mere acquisition of knowledge. Evaluation will be based on performance outcomes, and future teachers will go to job interviews with portfolios of their best lesson plans and video tapes of their best teaching episodes. Teacher educators will be forced to take responsibility for the teachers they produce. A degree and a certificate will not signal an end to the learning process but the beginning of a long-term relationship that will require commitment to provide continuing professional development activities on a regular, cost-effective basis.

Structural Changes

Structural changes, which deal with how we deliver the teacher preparation program, will be driven by the need to become more cost-efficient. Few programs of the future will have teacher preparation as their only mission. The survival of a department will not depend on how well it prepares teachers, but rather on whether or not the program is cost-effective. To accomplish this, changes will occur in two areas.

First, small classes that have traditionally been for "agricultural education" majors, but which represent specific forms of more generic educational classes such as educational methods and instructional systems, will quickly be considered for consolidation with other classes in the general education curriculum. In addition, field based classes such as early field experiences, pre-student teaching observation, and student teaching will be reviewed to determine if the value of the programs outweigh the costs.

Second, service to the profession that does not provide direct benefit to the primary clientele group, i.e., teachers, will come under review. Professional development and inservice activities, which have traditionally been field-based, will be considered for distance education programs such as AG*SAT (being renamed A*DEC) or on a cost-recovery basis through university continuing education offices or as outside contracts with private consulting

groups.

Emphasis will be placed on providing expert advice or instruction unique to agricultural education. Individual evaluation will be based on how well faculty collaborate with other professionals to facilitate a complete and cost-effective program of agricultural education.

In the future, undergraduate teacher preparation will become a joint venture between the university and the profession. Practicing teachers will be asked to assume some responsibility for providing field based supervision, internships, skill development activities, and professional development for preservice and beginning teachers entering the profession.

Vision 2000 Conference

In July 1994 a conference known as Vision 2000 was held in Washington, D.C., to discuss the future of agricultural education. The goal of Vision 2000 was to identify and prioritize issues of greatest concern to the profession and to search for specific strategies and solutions to deal with each priority issue. The conference was attended by representatives from each of the eleven groups that collectively make up the "Ag Ed" family. Although each issue was presented clearly, and the solution and strategies for dealing with each issue were discussed extensively, not one participant left with the illusion that we had developed a perfect blueprint for the future. However, what we did come away with was a feeling that we had started a process to deal with changes in the profession, that we had adequate leadership in the profession to deal with those changes, and a commitment to try to implement some of the key outcomes of the Vision 2000 Conference.

As agricultural education moves into the 21st century, change is inevitable as our programs continue to evolve. How we deal with that change at the university, postsecondary, and secondary levels will determine our collective future. Although the future is hard to predict, we do know one thing for certain: "If we do what we've always done, we'll get what we've always gotten." Can we really afford to do what we've always done?

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Choose Your Vision

(Continued from page 10)

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

Paying for adult instruction will continue to be a major problem. In The Council study (The Council, 1992), only 15 of the states reported expenditures for adult education in agriculture. Three states spent 84% of the total reported. Using significant amounts of public money to support adult education programs in agriculture does not appear to be a reasonable option. With the cry to diminish the demand for new tax money, it is unlikely that major policy shifts to increase adult education spending will occur. Adult educators will have to have a new vision: a vision where education is a commodity sold to those who use it to the extent that the public recognizes the private benefit of the educational 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 well-designed curriculum that can prepare teachers to be facilitators and prepare teachers to be management experts will look different than the curriculums now found in most teacher education institutions. It may be necessary to develop specialized, regionalized programs for adult education in agriculture if teachers are to be adequately prepared. A regionalized program of inservice professional development to help 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.

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A Supervisor Looks at the Future for Agricultural Education

BY K. EUGENE EULINGER

Dr. Eulinger is district supervisor of agricultural education for Missouri Department of Elementary and Secondary Education, Jefferson City and president of NASAE.

Perhaps one of the hardest things for those of us active in the field of agricultural education to see is where 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 or will the program be relegated to someone else? 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 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 in 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 grave in a wide area of interests and specialties. Many of us had no undergraduate college preparation in the areas of computers, horticulture, aquaculture, biotechnology, or bottle biology. Until recent years we did not even know what some of those words meant. What does the future hold? 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 make must continue to include the three components of an agricultural education program–classroom instruction, supervised agricultural experience and leadership development. These components will change as to their composition but they must continue to be an essential part of our program. Much research has been done on the classroom or laboratory 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: "Resolving to be an excellent teacher will require unusual 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) will continue to change from the traditional "farming program" to more school-based and business/industry-based experiences. The Litton Agri-Science Learning Center located at Chillicothe, Missouri, is an example of the type 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, a 2½ acre outdoor classroom, crop identification plots, and walking trails. The Litton 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 leadership development component which has always been one of our program strengths will continue to develop leaders for an ever-changing industry. We will also be serving a changing clientele. The students we serve will become even more diverse than they are today. They will come from a variety of social and economic backgrounds and we will have to change our teaching methods for them to learn and to be successful.

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

Local programs in the future will need to continue to maintain a broad base of support in the local communities. Even though a program 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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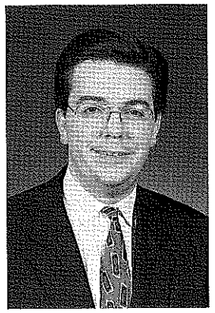
NVATA: Working for OUR Future



BY MERLE RICHTER AND MARSHALL STEWART

Mr. Richter is an agriculture instructor at Bloomer, WI and president of NVATA and Mr. Stewart is the executive director of NVATA, Alexandria, VA.

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 agriculture 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, nourishing a spirit of unity among classroom teachers, developing professional pride and recognizing excellence in its membership.

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 into 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 further 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 SAE'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 commonalty 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

Mr. Morain is director of history and Mr. Anderson is director of interpretation at the Living History Farms, Urbandale, IA.

"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 farmer, dressed in reproduced 1830's clothing, complete with mud and barnyard on his boots, looked up from husking corn and affirmed 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 Pliny 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 an introduction to agriculture, her own private section of Farming 101, living history style. The questions and issues raised during her search for 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 actions 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 farmsteads the diverse farming techniques and crop systems immigrant groups brought to this country. Living History Farms near Des Moines, Iowa, demonstrates agricultural techniques over a 300-year period. Visitors witness farming practices at a recreated 1700 Ioway Indian site, walk to a hand and ox powered farm representing frontier farming in 1850, and conclude with a visit to a thirty-five acre turn of the century horse powered farm. Without ever having to hear the words "industrial revolution," visitors comprehend with their own senses the impact changes in transportation, industrial science, and mechanization had on agriculture and rural life.

Informal Learning at Museums: The Parallel School

Lynn Cheney, former administrator of the National Endowment for the Humanities, called museums part of the "parallel school." Cheney'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 26,313 toured as part of school groups. Another 3,645 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 barn-frame loom. Children offer some of the best testimony to the efficiency of these programs. "Thank you for showing us how to make biscuits and butter," one student related. "I liked feeding the pigs and cows. I told my mom about how we ironed—now it's something I have to do."

New Directions

Even as new challenges arise, the future of informal agricultural education in museum settings is bright. Non-profit and government museums face increasing competition from other recreational opportunities such as the boom in attendance at minor league baseball. Meanwhile, funding for some federal and state funded sites will likely diminish in the face of government retrenchment and downsizing in the 1990s. Other challenges, including natural

disasters, are less predictable but equally menacing. Nevertheless, aside from low attendance in 1993 due to the disastrous floods that plagued Des Moines and the midwest, Living History Farms continues to attract more visitors every year. Susan Nordmyer, Director of Interpretation at Lincoln Log Cabin State Historic Site near Lerna, Illinois, confirms this trend. "Our educational programs are gaining popularity each year," reports Normyer. The number of school children who participated in special programs at the 1845 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 a lot to learn. Retired farmers bring their sons to working farm sites to show the new generation what open-pollinated corn looks like. "I live on a farm," one youngster wrote a museum interpreter after touring Living History Farms, "and we have hogs but they are much different from yours." For elementary educators, the prospect of leading a class unit on the application of science to livestock breeding can be daunting and even unenviable task. The point is clear with a dramatic illustration provided by a living turn-of-the-century style Poland China sow.

Those of us who work at agricultural living history museums are lucky. We tell the stories of historic farming in the most compelling settings: actual working farms. For 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 1990s, less than two percent of Americans are farmers; yet interest in agriculture and farm related topics is growing. Americans, more distant from farming than ever, will continue 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 agriculture industry, from farm organizations (i.e., Farm Bureau, Pork Producers, FFA alumni, Young Farmers/Young Farm Wives, etc.) will be necessary. Agriculture 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 problem of providing state level leadership is going to continue to be a problem. The number of state supervisors employed in the various states is on the decline leaving a number of states with reduced or no state leadership. The AVA Agricultural Education Policy Committee at the March 1994 meeting identified seven priority positions for 1994-95. One of these priorities is to "Provide comprehensive visionary state leadership for agricultural education to include such areas as subject matter technical assistance, coordination of vocational student organizations, supervision of programs and teachers, establishing performance standards, and providing for program and student assessment." A second priority was "Secure legislative management for agricultural education.

A canvassing of agricultural education leaders throughout the United States conducted in preparation for Vision 2000 identified "how should we administer agricultural education programs at the state level?" as one of the top six concerns. The workgroup that addressed those issue at Vision 2000 identified four specific items in the plan of action. These include 1) identify and communicate the need for state leadership, 2) identify the level (amount) of state leadership being provided at this time, 3) develop prototype structures for providing basic state leadership, and 4) pursue methods of funding for state leadership. These items have been discussed at the state supervisor workshops held during the annual, meeting in November, 1994 and will be addressed more by the supervisors during March, 1995. The Vision 2000 Task Force will also continue to address the issue of state leadership. I do not know what the end result of this work will be but I expect to have possible alternative delivery systems outlined. These systems will show how people who are not employed by the state's department of education can serve a role in providing the needed state leadership.

In conclusion, it has been said that the only thing that is certain is change and this is definitely true for agricultural education. As we continue into the future, we will all have to be as flexible as possible while maintaining the qualities and characteristics in our agricultural education programs that have helped us achieve past high levels of success.

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The Future of Agricultural Education in 4-Year Postsecondary Institutions

BY H. O. KUNKEL

Dr. Kunkel is a professor of animal science and nutrition and dean emeritus of the college of agriculture and life sciences at Texas A & M University, College Station.

Higher education in agriculture has been a vital resource of the country for over a century. It remains an indispensable resource today. But, as a community, agricultural education in four-year postsecondary institutions is leaner than it used to be. Its content, values, and purpose are being re-thought. Its features are changing. And, the momentum of change is gaining speed.

Externally, the economic and political powers of the food and natural resource systems are being reconfigured, environmental impacts of agriculture are creating new problems for the food system, health and food safety are becoming the significant concerns of the public, and there is a plurality 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. Both new faculty and new students lack background in traditional agriculture. The shifting demographics of the U.S. are dictating a more diverse student body. Tenured faculty members are facing the need to engage different technologies 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 stimulated, in part, by the initiatives of the Office of Higher Education Programs of the U.S. Department of Agriculture and the Academic 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 education in agriculture (Project Interact), the 1991 USDA/NRC national conference on undergraduate professional education in agriculture, the establishment of the annual regional teaching workshops, and the current work group on systemic change in undergraduate education in agriculture. Some institutions, e.g., the University of Illinois, are making major changes in their structure, mission, and curriculum, utilizing their own faculty resources. The W.K. Kellogg Foundation is supporting an extensive Food Systems Professions Education Initiative in 26 land-grant colleges and other 4-year and 2-year institutions to develop a collaborative visioning process by the colleges and their constituencies, to be followed by implementation of strategic plans to create models for food systems education programs in the 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 Academic Programs.

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, production processes, marketing and trade, transformation and use of food, human consumption and health, recycling and waste disposal, and now the biotechnologies. All these call for attention in 4-year postsecondary institutions engaged in agricultural education and research.

The momentum for change can be seen in the continuing movement to change the names of colleges of agriculture to the College of Agriculture or Agricultural Science and "something else." The varieties 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 maintenance of the public health. Gone is the limitation of the scope of agricultural education in the 4-year institutions to production and marketing processes.

What is emerging in the four-year institutions is a healthy re-thinking of the broader aspects of agricultural education. Many institutions have already gone beyond their original missions. Some have developed new dimensions. Most have successfully fended off attempts to restrict their programs to the traditional components of colleges of agriculture: animal sciences, plant and soil sciences, agricultural economies, and teacher education.

Recently, the Work Group on Systematic Change in Undergraduate Education in Agriculture, a multi-university group supported by a grant from the USDA, proposed a com-

mon definition for colleges of agriculture for the future, "Colleges of agriculture and their modern derivations are the academic structures that provide the educational, scientific and scholarly framework for the understanding, management and use of biological and ecological systems for the benefit of human and natural societies."

In such an academic definition, a scope of knowledge is engaged that is counterpart to higher education in engineering, business, education, and medicine, but it is one that still retains its ability to embrace agricultural production and the natural resources, elements which higher education in agriculture ought to retain and build on. The college of agriculture is a place then where basic and applied sciences coexist, where educational interests range from agronomy to human nutrition and behavior to international trade and from molecular biology to ecology.

We can expect that new forms of higher education will penetrate agricultural education. The electronic campus will be created, linking four-year institutions to each other and to two-year institutions. Most of the institutions, and their faculties and their students, will go "on line" by the end of this decade. Learning communities of one kind or another may be developed. Courses may become more modularized, making them more flexible. Individualized curricula may be facilitated. The contents of freshman courses may change to provide the broader vision and opportunities for discovery. But, it is evident now that the programs at four-year institutions will diverge, each institution differentiating its educational efforts to its own vision.

Agricultural education programs will be constructed on the basis of cores of study (a foundational core, a functional core, and an integrative core). Foundational core components include the basic comprehensions of the biological, ecological, chemical and physical aspects of animals, plants and soils, and of the social, ethical and economic elements of the human components of agricultural and natural resource systems. In the functional core, students study how basic concepts interrelate and interact in the ecosystem. The integrative core is a multi-educational program combining agriculture principles with mathematics, writing skills, the humanities and other non-agricultural education functions. Themes or perspective courses will be added: global awareness, ethics, systems thinking, sustainability.

As a result of the inexorable industrialization of agriculture in the U.S., the knowledge base for the agricultural aspects of the education will increasingly be industrial knowledge which incorporates empirical (family farm) and scientific knowledge as well as the logic of industrial processes and inputs.

Because of the new industrial nature of agriculture in the U.S., and new developments in forestry, recreation and fisheries, applied knowledge is effective only when it is specialized. Thus, 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 educated person is one who has both theory and skills. The four-year institution should provide an education that is a blend of knowledge and skills. But, the needed skills will likely be different from those of the past. They will include not only the ability to manage living organisms, but also to use computers, make appropriate use of syntax in writing, judge a situation critically, work in teams, and the like.

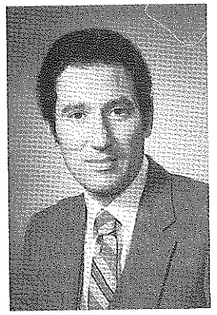
The future will require a restructuring the content and purposes of our courses. The courses taught in agricultural education in four-year institutions have been of two kinds. Some courses are based on areas of knowledge like genetics that are moving and others are based on disciplines where the knowledge is mature. It is easier to teach the mature knowledge because there is little change in the knowledge base from year to year. Animal and plant breeding, soils and animal nutrition courses are generally taught now as mature courses. But, they will not likely remain so in the future. Subtle changes are making mature knowledge dynamic once more. Molecular techniques and DNA markers are revitalizing the subject of animal breeding. Human nutrition is shifting the emphasis in animal nutrition courses. Environmental values and needs for waste handling will drive revision of soils courses. And, consideration of the context will require evaluation of course components to assure they are on socially responsible tracks.

Additionally, we should see an emergence of well-structured interdisciplinary courses to integrate the components of the curriculum. Such courses may be capstone courses, contemporary issues courses, modularized courses, or experiential learning. But, it is a safe bet one and all of these interdisciplinary approaches will be incorporated into collegiate agricultural education in the future.

Traditional units such as departments of agricultural education will likely share in the diversity. For example, the Department of Agricultural Education at Texas A & M manages two divergent programs, one directed toward teacher education and the other to agricultural development and communication. The Department of Agricultural Engineering manages two kinds of programs, one in engineering and the second in agricultural systems management. Such diversification can lead the colleges of agriculture in developing programs flexible to

(Continued on page 23)

The Mission and the Future



BY ROBERT A. MARTIN

Dr. Martin is a professor of agricultural education and studies at Iowa State University, Ames.

In the confusion of the moment, organizational direction is often a victim. In our efforts to get in control of the situation where we want to be eventually becomes more uncertain. These two statements set the stage for our current situation in agricultural education and provide a focus for the consideration of our future.

According to Pascarella and Frohman (1989) in their book entitled The Purpose Driven Organization, there are three major rivers of change converging on business and education forcing them toward significant transformation that will enable them to respond to change and forcing them to establish a change-making process.

• The marketplace is now global. We cannot escape the impact of globalization on agricultural education.

• Technology is advancing at an accelerating pace and quickly flows around the world. New technology can change the type of people and organizations needed as well as the education needed to make effective use of the technology.

• Over the past 20 years there has been an explosion of new values and life-styles.

Pascarella and Frohman explain that many organizations fail in their efforts to stay competitive and strong because they don't take time to develop one of the most obvious, yet often neglected elements of organizational success—a true sense of purpose. Pascarella 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 let purpose drive performance? Have we developed a personal commitment to the purpose of our profession? Have we developed as Tom Peters says, "a 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 thrusts 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 predictions 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 attract students with all capabilities—the full spectrum of academic achievement.

• Experiential education will be at the "heart" of the program 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, not as an extracurricular add-on (example—FFA in Agriculture).

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

• There will be a major focus on clear objectives and competencies for accountability. There will be provisions for evidence of achievement by students; this evidence will take many forms, not just test scores. Evaluation based on "real" impact will drive all educational programs.

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

• In a few short years, FFA will replace its "farmer image"; the name will drastically change and the leadership and educational purposes will be refocused 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.

• Future emphasis will be placed on technology, science, and humanities in practical agricultural settings.

• Courses will focus on the seven areas of agriculture–agricultural products and processing, agricultural sales and service, conservation and natural resources, horticulture, agricultural mechanics, forestry, and production.

• Career education will focus on shadowing professionals in agriculture; professionals will actively seek student interns on a temporary experiential basis.

• Literacy programs about agriculture will be commonplace as a result of the work of specialized programs in and outside of agricultural education efforts.

• 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 agriculture 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 at 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. The 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 in 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 in countries 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 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 principles in all aspects of sales and service to the public.

• All professionals in agricultural education will be focused on the vision and provide visioning 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/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 agriculture and agricultural education. However, if we are to have the new dawning of agriculture mean 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 only survive but it will gain momentum and prosper in the next 25 years. But it can't be done with:

• Outdated thinking.

• Unproductive educational programs.

• Unfocused market strategies.

• Old-fashioned curricula.

• Activities that do not work for a majority of our students at all levels.

• Fuzzy learning outcomes.

• Rules that bog down the system.

• An image that represents the past.

• Symbols that few people relate to.

• Uninteresting teaching procedures.

Reinventing agricultural education is an appropriate title for our efforts. We must be willing to step up and take aim at some "sacred cows." For example, teacher education programs cannot survive on the preparation of teachers only; agricultural education cannot survive based on rural clientele only. We need to focus on:

• Developing quality learning situations and performance in those situations.

• Developing quality teaching situations and performance in those situations.

• Fitting our curriculum to the needs of our clientele and our marketplace.

• Being accountable, based on selected quality standards.

• Emphasizing the seven areas of agriculture as the basis for the principles of agricultural education.

• Developing a variety of delivery system models to meet the needs of our clientele.

• Integrating agricultural education into the study of all subjects, and vice versa.

• Delineating a clear mission and goals statement for agricultural education.

One thing is clear, agricultural education cannot survive if we maintain the status quo. Agricultural education will never be as it was, nor should it be. We are either getting better or we are dying. There is no in-between. What are your predictions for the future of agricultural education? How would you use these predictions to state the mission of agricultural education at the level at which you work? Some questions to ponder on our way to the future. ■

The Future of Agricultural . . .

(Continued from page 20)

educate food systems professionals in the future.

But traditional units may also disappear. Departments of agronomy, for example, may be merged with others or split apart. And, new courses of study may emerge beyond departmental structures. The University of Minnesota model, for example, redefines majors, some of which cut across existing disciplines or departments, and structures the curricula to be flexible, user-friendly, and geared to the needs of potential employers in the agricultural industries. In Rutgers University's revision of agricultural curricula, the traditional general education courses are integrated as a dimension of the individual curriculum itself, not separate from it. The bottom line of such efforts has been to recognize current realities and the need to develop personal flexibility for a changing world.

The food systems professional to be educated will be as diverse as the programs preparing them. More females, Hispanic, Native, Asian, and African-Americans must be welcomed into our colleges of agriculture. Some colleges of agriculture are enrolling nearly equal numbers of females and males. Now, the institutions must recruit and retain ethnic minorities if these institutions hope to retain the public support they enjoyed in the past. A long-time demographic shift has been the growth of urban, and decline of rural, populations. Those individuals who come in increasing numbers from urban and suburban backgrounds bring fewer experience in production agriculture to college. On the other hand, they often have had more experience in agribusiness or industry and greater social sensitivity than did their predecessors.

Agricultural education in four-year institutions in the future will be clearly anything but static. The missions may appear to be similar to the 20th Century missions for colleges of agriculture, that is, to educate professionals for the food systems and natural resources. But, the scope and context of the education will be very different, even more important to human society. Many ideas are being injected into the system and some will be tested. The changes underway should assure that agricultural education has a vital role in higher education in the future.

The constants are change and diversity. Management of change and capitalizing on diversity are key to survival and thriving of agricultural education in the future.

Acknowledgment

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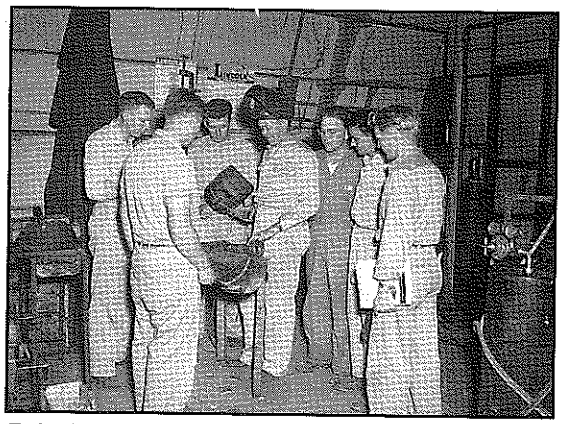
Agricultural Education

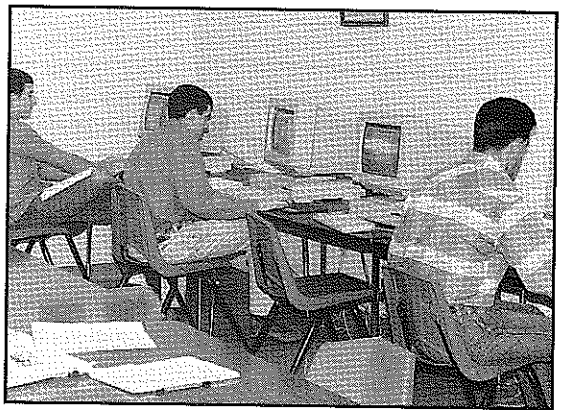
Past . . .



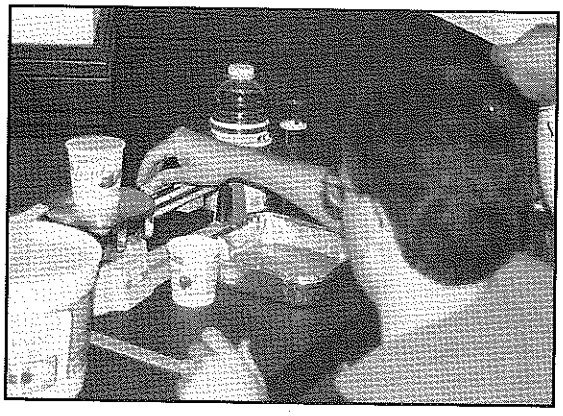
Technology transfer in the 50's. A good idea for its time! (Photo courtesy of Edgar A. Persons)

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 . . .

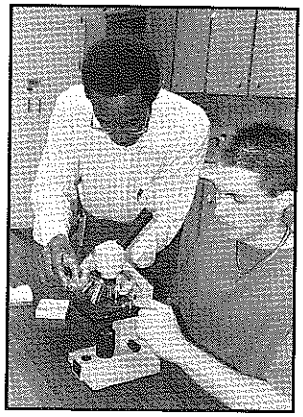


Computer applications can serve as both learning and motivational tools in the agricultural education classroom. (Photo courtesy of Hubert Shuler)

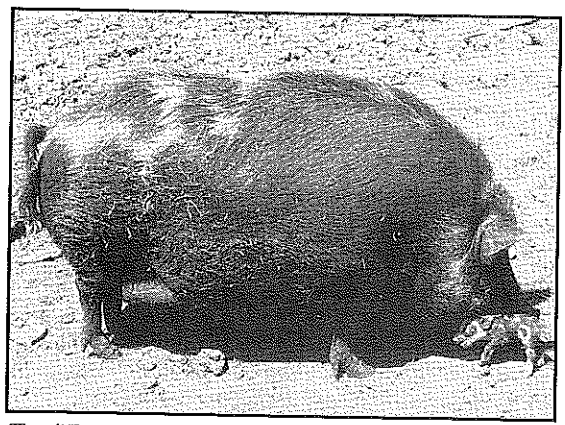


Hands-on instruction will continue to be important, but the nature of that instruction will change. (Photo courtesy of Jasper S. Lee)

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 lard-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)