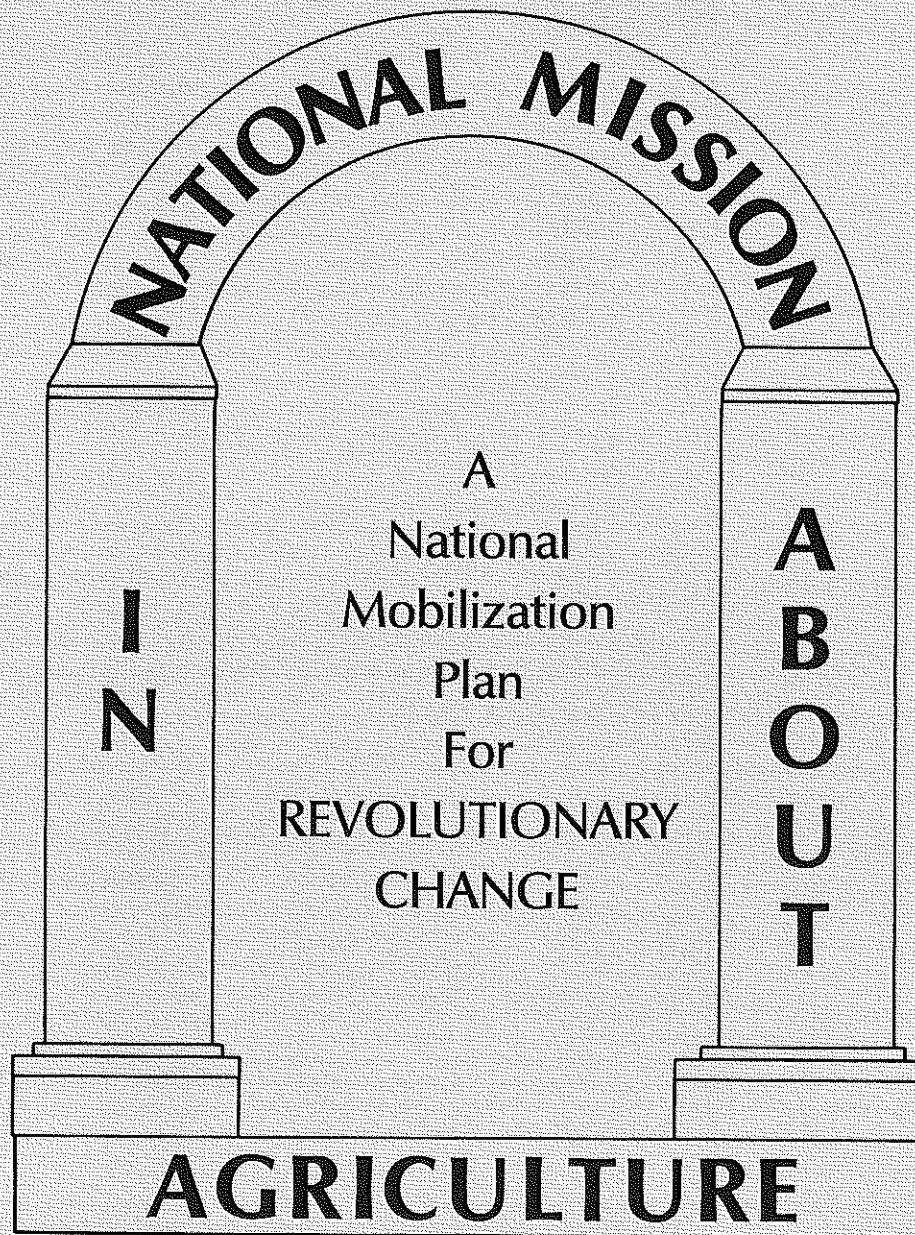


*The*

# Agricultural Education

January, 1990  
Volume 62  
Number 7

Magazine



THEME: A Mission Statement

# THE AGRICULTURAL EDUCATION MAGAZINE



January, 1990

Volume 62

Number 7

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## ARTICLE SUBMISSION

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

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# An Over-Arching Mission

Symbolism is a significant part of our daily lives, yet often times the messages fail to come across. This issue of *The Agricultural Education Magazine* is full of symbolism and visions that are potentially far-reaching and crucial to the future of agricultural education. This is the first month and the first issue of a new decade — the 1990's. As we conclude one decade and start a new one, it seems particularly appropriate to do so with a new national mission statement for agricultural education. On page 5, printed in colored ink, is the National Mission Statement for Agricultural Education. The Mission Statement is short, concise and on first reading, may not seem too far-reaching. It does not spell out in detail how agricultural education will be structured, organized and delivered. It does provide a strategic plan for revolutionary change in agricultural education. It specifically broadens the mission of agricultural education from vocational/technical education (In Agriculture) to encompass programs "about agriculture." Thus, the new national mission statement is in tune with the recommendation of the National Research Council in the 1988 publication *Understanding Agriculture - New Directions for Education*.

The cover of this issue attempts to symbolize the over-arching nature of the new mission statement pulling together programs in and about agriculture in what we now call agricultural education. Further, the over-arching suggests that the mission statement is appropriate for all aspects of agricultural education and for all programs from those serving pre-kindergarten students to senior citizens. Yes, there is a significantly expanded role for agricultural education in the 1990's and beyond. That expanded role is going to require mobilization of resources and personnel on a scale never envisioned by our forefathers.

The writing team assembled to finalize The Strategic Plan for Agricultural Education based upon the deliberations of The National Summit on Agricultural Education became so excited about the vision of what might be, they began to talk in terms of revolutionary change. Initially, some felt this was too strong a statement. But, the longer we worked and the clearer the vision became, the more the excitement grew! We all agreed that in this era, it is no longer possible to change in evolutionary increments. Survival demands bold revolutionary thinking and action!

The future belongs to those who are willing to think bold and take the risks associated with expansion and development of new products and programs. Lest you doubt such a statement, look at what happened to the Swiss watchmaking industry when it failed to accept the quartz movement. The world leadership in watchmaking shifted in a very short period of time from Switzerland to those companies who were willing to try a new movement and take a chance on its acceptance by the consumer. As they say, the rest is history! The Swiss may never regain what they have lost through their conservation action even though the quartz



By PHILLIP R. ZURBRICK, EDITOR  
*(Dr. Zurbrick is Professor and Acting Head, Department of Agricultural Education, The University of Arizona.)*

movement was developed in Switzerland! Will agricultural education be conservation like the Swiss watchmakers?

## The Vision

What is the vision spawned by the new national mission statement? No doubt it is not one vision, but many visions. Further, the visions are as diverse as the profession itself. The authors of the theme articles included in this issue share their vision and challenge each and every member of the profession to mobilize their creative energy to develop the details of the vision.

Certainly, the vision spawned by the mission statement encompasses a vast expansion in programs offered through and supported by agricultural education. New clientele groups served by the profession will swell enrollment in quantum proportions. The number of agricultural educators involved must also increase. We cannot expect to do more and more with the same number of educators!

A broadened philosophy sustaining the new mission for agricultural education is needed. Such a philosophy, once in place, will allow for development and acceptance of new programs creating a sense of oneness but not sameness. Programs in agricultural education will be characterized by diversity of purpose, content, and delivery, while the profession accepts a sense of oneness encompassing all such efforts. The profession must accept as part of the oneness distinctly different programs with a sense of equal importance and worth. We must put behind us the scoffing and scorning often directed toward agricultural education programs that were not occupational in nature or not identical to all other programs.

The visions generated by the new mission statement for agricultural education will not become reality without ac-

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## About The Cover

The new national mission statement (see page 5) as described as an over-arching mission encompassing programs "in" and "about" agriculture. The cover drawing was prepared by Dr. David Cox and Betty Clark, The University of Arizona.

# A Vision and A Mission For Agricultural Education

Your taxes are going up and America's most cherished write-off — the home mortgage interest deduction — is doomed. Our climate is on the rampage. Coming: the worst weather since the days of Noah. Urban real estate values will fall as violence and crime rise to unprecedented levels. Terrorism is coming to America. The Japanese stock market is a balloon in search of a pin.

The preceding statements, taken from an advertisement touting a popular magazine (*Predictions*), may seem illogical, ridiculous, and remote. Yet, no one would deny that they represent possibilities which may come true in the 1990's.

What are the possibilities for agricultural education? What will our headlines proclaim in the nineties? What is our vision of what agricultural education will become in the future?

Let us consider these possible headlines: Twenty million Americans are enrolled in agricultural education programs. All agriculture students are under one organizational umbrella. Every school in the country has an agricultural education program. A national magazine on agricultural education is being published for students in grades K-6. A national foundation contributes \$25 million to support agricultural education. Agricultural and environmental education are top issues on the President's agenda. A national network of in-service education for agricultural education professionals is established. Every agricultural educator completes a comprehensive personal development program. Minorities in agricultural education represent the population as a whole. A renewed commitment to solving environmental issues is stimulated by agricultural education. Agricultural educators help practitioners apply the latest technology. Agricultural educators provide solutions to global economic and social concerns. Agricultural education helps double productivity in Third World countries. The vision and mission of agricultural education is refocused annually.

The above agricultural education possibilities were abstracted from a list of brainstormed "ideas to trigger programs" developed at the National Summit on Agricultural Education held in February and May, 1989. The activity was conducted to expand our horizons and to stretch our thinking regarding the mission of agricultural education for the 1990's and beyond.

Whether or not these possibilities become reality in the 1990's depends solely on us. If we as a profession can envision what we want, then we can actively shape the future of agricultural education. And, who knows, agricultural education may also be able to influence (or avert) some of the predicted global catastrophes enumerated at the beginning of this article.



BY ALFRED J. MANNEBACH,  
THEME EDITOR

(Dr. Mannebach is Professor, Department of Educational Leadership, The University of Connecticut, Storrs.)

Just what do I mean by "vision" and how important is positive imaging in determining our future?

Norman Vincent Peale (*How To Make Positive Imaging Work For You*) stresses that positive imaging "consists of vividly picturing, in your conscious mind, a desired goal or objective, and holding that image until it sinks into your unconscious mind, where it releases great, untapped energies." According to Bob Moawad, leader of the National Summit, visualization is "the act of intentionally using constructive imagination to vividly picture myself, in the 'first person,' experiencing a predetermined, worthwhile attitude or goal, as if it has already been accomplished."

That is what we must do — envision a new agricultural education as if it already existed. To accomplish this, we must identify broad goals and positive outcomes subscribed to by all in the profession and empower all in the profession to work toward the attainment of the agreed upon goals proposed in the strategic plan for the profession.

Some might ask, why a new mission statement for agricultural education? Why focus on developing a mission statement for an established educational program that has been meeting the needs of individuals and the agricultural labor market in an organized manner for over seventy years?

The answer is contained in one word — CHANGE. Change is occurring today at an unprecedented rate — within the profession, within the agricultural industry, within the educational system, and within society. Changes in all of these areas are having a tremendous impact on the clients agricultural education serves and its programs, services and activities. A few examples will suffice.

We, the agricultural education profession, have changed. Over the years, we have grown and multiplied so that we now comprise no fewer than nine specific groups: The American Association of Teacher Educators in Agriculture (teacher educators); The National Association of Supervisors of Agricultural Education (state supervisors); The National Vocational Agriculture Teachers Association (agriculture teachers); The National FFA Organization (secondary student organization and its staff); The FFA Alumni (support

(Continued on page 5)



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# NATIONAL MISSION STATEMENT FOR AGRICULTURAL EDUCATION

The mission of agricultural education is to provide a total dynamic educational program. We aspire to excellence as we recruit, prepare and support individuals in agricultural careers. We serve the people and inform them about agriculture, its needs, opportunities and challenges.

We value:

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

\* Draft as of 9/12/89

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## A Vision and a Mission For Agricultural Education

*(Continued from page 4)*

group for the FFA); The National Young Farmers Educational Association (adult student organization-young farmers); The National Post-Secondary Agriculture Student Organization (postsecondary student organization); The National FFA Foundation (financial support arm for the profession); and the National Council for Vocational and Technical Education in Agriculture (the coordination unit for the profession).

While each group has its own goals and agenda, and a need to develop its own vision and mission statement, each group is a part of the larger agricultural education profession. Consequently, as a member of a larger whole, each group must operate within the context of the profession and support the broader professional goals as well as focus on its own unique needs and interests.

In many ways, the agricultural education profession is analogous to the United States Armed Forces which has the mission to "protect and defend," while the individual professional groups are analogous to the various branches of

the military — the Air Force, Army, Coast Guard, Marines and Navy. Each branch of the military has its own specific purpose, function and expertise; yet each operates under the broader Armed Forces mission. So, too, will agricultural education. Each group within the profession contributes to the National Mission in its own unique way; oneness, not sameness, is the goal.

The National Research Council in its latest report entitled *Understanding Agriculture, New Directions for Education* challenges us to change. Specifically, the Council is asking us to expand our emphasis from "education in" agriculture to include "education about" agriculture. Educational personnel in many states are already focusing on this major change as well as other changes recommended by the Council. In response to the Council's report, many exemplary programs are being identified and will be showcased so that they may be shared with others in the profession.

Articles in this issue focus on the need to develop a new mission and to adjust to change. Several authors address specific areas of change needed in agricultural education as well as broader societal issues. Let us all strive to bring about the changes called for in these articles and work together so that today's visions will become tomorrow's realities.

# Destiny Is In Our Hands

"We choose to go to the moon . . . because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one we are willing to accept, one that we are unwilling to postpone, and one we intend to win."

In 1962, President John Kennedy challenged America with that simple mission statement. Around that mission, thousands of dedicated specialists focused their energies on a common purpose. Only seven years later, what was once thought to be impossible was achieved with the lunar landing of Apollo 11. "One small step for man, one giant leap for mankind" — Astronaut Neil Armstrong.

That is the power of a mission.

Today, agricultural education is in the process of launching its new mission and a plan to accomplish it. It is intended to set in motion a movement that will involve and effect all entities of agricultural education. Its purpose, like Kennedy's, is to focus on a common goal.

The new mission will also bring to light the gradual changes that have happened at the federal level. These changes have driven a new philosophy of leadership that is best described as a "national presence."

## The Past

Beginning with the Smith-Hughes Act that established vocational agriculture education in 1917, the people who held my position at the federal level held authoritative power of approving or disapproving funds for programs. In those days the mission was clear — prepare prospective and present farmers to increase agricultural productivity. A delivery system was developed and institutionalized in federal and state governments, linked to the local schools and fueled by federal money.

As we all know, money talks. When program change was deemed necessary in agricultural education at the federal level, the federal supervisor would make sure the state plans were in line with federal priorities. The process was top-down, centralized and, for the most part, effective.

Over the years, organizations were formed to represent various groups in agricultural education. They were designed to provide representation and furnish services to their membership who had a common interest. These organizations added strength to the total effort of accomplishing the focused mission.

One of these organizations was the FFA. The FFA provided public visibility to student achievement while the professional organizations such as the National Vocational Agriculture Teachers Association, the American Association of Teacher Educators of Agriculture, and the National Association of Supervisors of Agricultural Education helped persuade the policymakers to keep the system funded.

With one-third of the population living on farms in 1917, many congressmen represented rural constituencies that



BY LARRY D. CASE

*(Dr. Case is Education Program Specialist, Agriculture, Agribusiness and Renewable Resources, Division of Vocational-Technical Education, Office of Vocational and Adult Education, U.S. Department of Education.)*

would reap direct benefits from the program. Although the rural population continued to decline, a critical part of the congressional constituency was rural through the 1950's.

Then came 1963. Until then, funding of vocational programs such as agriculture, home economics, trade and industrial education were named in the federal legislation and funded accordingly. There was a drastic change in the way federal vocational education money was distributed. In effect, federal money was dispensed based on special populations such as disadvantaged, minorities and women instead of programmatic areas like agriculture, home economics and the others. This new approach to funding vocational education started the trend of occupational programs competing for funds on the basis of labor market demands.

At the same time, rural influence was diluted and agricultural productivity was not a concern. Ironically, the agricultural concern was overproduction.

## The Federal Presence

By then, there was indeed a strong "federal presence" for vocational agricultural education. The established structure, resulting from the early legislation, included a system of up to 10 regional and national program agricultural education specialists.

This provided a strong bureaucratic structure and was a central feature of the management system of the program-specific legislation. Program policy yielded to the regulations of a single piece of legislation. This is the essence of a "federal presence." The management structure is institutionalized in the federal and state government and the operations tend to be managed from the top down.

## A Change is Needed

Today the situation is different.

First, legislation is no longer program-specific and the regulations do not direct the occupational program policy. Changes in federal legislation since 1963 "have placed further emphasis on the special needs of women, members of minority groups, and handicapped and disadvantaged students." The Carl D. Perkins Act, approved by Congress in 1984, mitigates some of the effects of the 1963 law by

expanding the measures of success to include "basic employment competencies" instead of employment alone (P.L. #98-524)," (National Academy of Sciences Study). This federal funding structure is not likely to change back to categorical funding of occupational programs.

Secondly, there are now only two agriculture specialists in the U.S. Department of Education (USDE). Their presence is being influenced by Public Law 740, the legislation that issued a federal charter to the FFA and defined a relationship for two staff members from USDE with the FFA. Over time this law had a major influence in keeping the two staff members identified in the USDE.

#### Agriculture has also changed.

The simple days when agriculture was synonymous with farming has given way to a complex, interrelated, interdependent food and fiber system. The interplay of technology and economics has brought about a decrease of the number of people involved in the production of food and fiber (about 2 percent of the total population). It has also increased the need for people working in businesses that supply goods and services for the input and output sides of production agriculture. This area involves about 20 percent of the jobs in the total U.S. workforce. Today, all people involved in agriculture must be scientifically and technologically literate while using sound business practices to compete in international markets.

Along with the changes in the federal government and agriculture, there have been changes in our nation's education system, drastic changes affecting youth today and constant change in society. In response to all of this change, I propose a change.

#### National Presence

There seems to be a deep-rooted desire of some agricultural educators that all we need to make agricultural education strong today is to return to a structured federal presence. That is not enough!

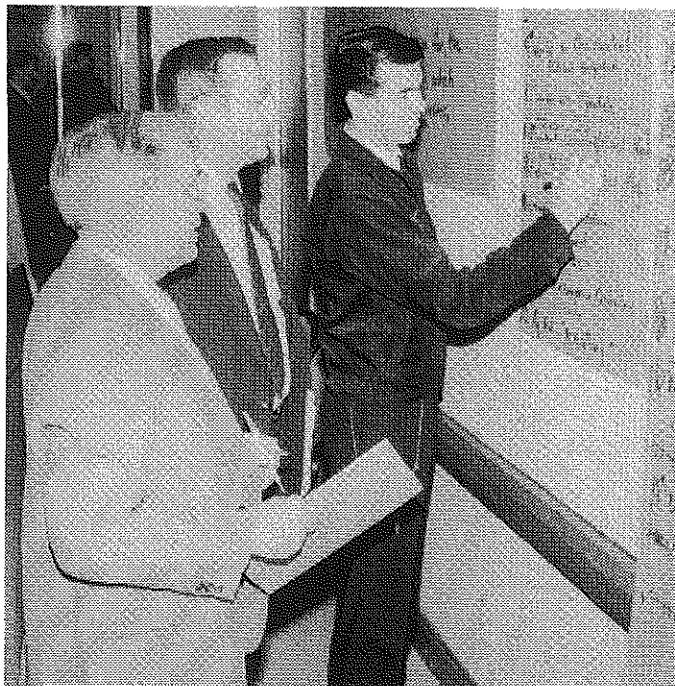
The mode of operation must change if programs in agriculture, agribusiness and natural resources are going to maintain a national scope. Many view this realization as a threat.

My hope is, however, that it be viewed as an opportunity to become more than the traditional federal approach of dictating from the top down. Yes, the situation is different today — and that difference is okay. In fact, a decentralized system of leadership in agricultural education, which forms the national presence, opens the door for more creativity and leadership opportunities for more people. It is an opportunity we should embrace.

In order to achieve a national presence the profession must address two questions: What is a national presence and what should it do?

My definition of a national presence is the combined strength of all forces that impact agricultural education. The synergistic effect of unifying these forces will enable agricultural education to reach greater achievement than if these groups had acted independently.

I am talking primarily about the National Vocational Agriculture Teachers Association, the National Association of Supervisors of Agricultural Education, The American



Dr. Case (center) discusses national goals with Jay Eudy (President NASAE) and Dana Soukop (President, FFA) during National Summit. (Photo by Jeri Mattics, courtesy of National FFA Organization.)

Association of Teacher Educators in Agriculture, The National Council for Vocational Technical Education in Agriculture, The National FFA Alumni, the National FFA Organization, the National FFA Foundation, the National Postsecondary Agriculture Student Association and the National Young Farmer Educational Association. I am also talking about Congress, federal agencies and the industry of agriculture.

I believe the individual organizations will grow stronger as a result because the constituencies will view their contributions as relevant and effective.

#### What should a national presence do?

A national presence is broader than a federal presence. A national presence should include the federal presence. The interplay of the national and federal presence will help agricultural education programs to address a broader range of concerns than a strict federal presence would allow.

Remembering that agricultural education programs must meet the needs of students and the agricultural industry while functioning as a part of public education and contributing to the needs of society, a national presence should:

- Serve as a *catalyst* for state and local programs to address national concerns and issues. Local, state and national levels have uniqueness. All levels are important in addressing needs. Not all needs can be addressed from the national level. Issues at the national level might be derived from common problems of state and locals. Others might come from the international arena. An important function of the national presence is to focus attention on national concerns and issues that impact state and local programs.

- Provide *influence* conducive to the development and implementation of policy for helping state and local pro-

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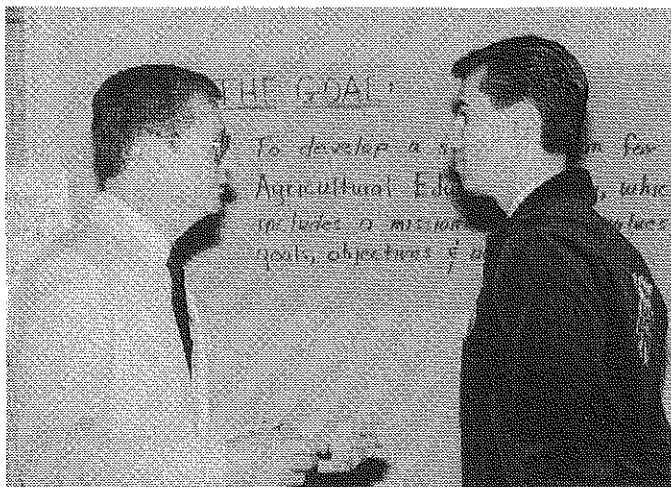
## Destiny Is In Our Hands

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grams. Educators must be unified in their efforts to identify priorities for agricultural education and then develop strategies to influence policy at all levels. A well-informed, unified voice speaks loudly to decision makers.

- Provide *goods and services* to state and local agricultural education programs which would contribute to their success. Examples are student recognition programs, professional achievement recognition programs, conventions, communication services, membership services and information sharing. And as new program thrusts are identified, new services will be required. Through a national presence, we can initiate new services, but it is only through improved communication and coordination that we can realize more benefits from existing programs.

- Contribute to a national *understanding of today's agricultural industry*. Agriculture has changed but public perception of it has not. Through the combined efforts the public communications of all the organizations in agricultural education at the local, state and national levels we will have an impact.



A sense of community is developed by Bernie Staller (Executive Director, National FFA Foundation) and Dana Soukop (National FFA President) as they discuss a national goal for Agricultural Education at the National Summit. (Photo courtesy of Jeri Mattics, courtesy of National FFA Organization.)

- Provide a *sense of community* of those involved at the local, state and national levels in agricultural education through a democratic process. The key to a strong national presence is maintaining an effective communication system to identify critical issues and quickly devise strategies to address those issues. It is an opportunity for total involvement of individuals at all levels to contribute to the improvement of agricultural education.

An effective national presence is a combination of communication, coordination, and cooperation for the purpose of oneness and not sameness.

We have already started working together to create a national presence. We've taken "two giant leaps" for agricultural education. In the 1980s our first step was the formation of The Council for Vocational and Technical Education in Agriculture (The Council).

The goals of The Council are to: (1) stimulate creativity, (2) develop fresh initiatives (3) create a climate for renewal (4) emphasize improvement of successful programs and the development of new programs of vocational and technical education in agriculture.

The objectives of The Council are to: (1) Provide a forum in which the profession can address important issues and generate solutions to problems of common concern; (2) Promote the improvement and further development of technology in vocational and technical education in agriculture at the local, state and national levels; (3) Involve business, industry, government, and education in developing and evaluating high quality agricultural education programs; (4) Provide a structure to search out resources from the public and non-public sources.

The Council has already "lifted off" with a number of positive activities including: the report by the National Academy of Sciences which contained recommendation for program improvement at the secondary level; work on infusing international agriculture, agriscience and emerging technologies, agrimarketing, aquaculture and other information into the agricultural education curriculum.

The second giant leap was taken this past spring when we came together as leaders to develop a strategic plan for agricultural education. The strategic plan for agricultural education will be the centerpiece that will help to address the direction and tone of the national presence. It includes resolutions, the mission, values, goals, objectives, and a collection of ideas for action. It was developed by the elected leaders and other stakeholders in agricultural education.

Like Kennedy's challenge to reach the moon, the mission statement for agricultural education will be the focal point that guides our choices, planning and actions.

It is intended to permeate the organizations and have suggestive influence over their individual and group actions. No authoritative power is given to the plan. The motivation to create a better program through meaningful and needed contribution is the power of the plan.

Kennedy's challenge was able to focus the thinking of a nation. It provided a sense of oneness. It required a diversity of effort to accomplish the mission.

The requirement of those involved in agricultural education today is similar. We must focus our thinking and put our combined energies to work.

History has shown that it can be done.

EDITOR'S NOTE: This article is the opinion of the author, and no official policy of the U.S. Department of Education is intended nor should it be inferred.



# Agricultural Mechanization Clouds Mean The Environment Is Changing

There is one thing that is perfectly clear and that is that the future of agricultural mechanics education is pretty cloudy. The future of agricultural mechanics education is dependent upon our abilities as professionals to adapt to change, incorporate new technologies and to provide effective educational programs. The agricultural mechanics laboratories have been a very successful instructional strategy which exemplify the strengths of agricultural education. Students have been learning by doing. The previous agricultural mechanization column focused upon the application of science in our instructional programs, that is technology education, and the opportunities before us to incorporate new strategies in a changing teaching and learning environment. The overall purpose of this column will be to continue the investigation of some changes in the instructional environment. Our roots reach deep into the history and philosophy of agricultural education. However, the development of agricultural mechanics education will not only be dependent upon the roots of our past but also the management of the present environment and the clarity of our mission for the future.

Recently there has been some interest generated in experiential learning. It is my perception that experiential learning involves students experiencing learning in an effective environment. This concept appears to reflect the similar concepts presented by Dale's Cone of more than twenty years ago. The concept of experiential learning may appear to be new to you but in reality the concepts have been used in agricultural mechanics education for quite some time. If you are providing opportunities for students to experience learning in your mechanics laboratories, then you are incorporating aspects of experiential learning. A good example would be where you are having your students adjust tractor ballast to change the amount of wheel slip. If you are merely using the classroom setting to teach the unit, then I doubt that the students are experiencing the learning process. However, if you are allowing your students to actually adjust the ballast of the tractor in a setting where they can experience the effects of ballast upon wheel slip, then that is a learning environment based upon the concepts of experiential learning. Many of you are thinking that experiential learning is an important component of your teaching and I would agree. In agricultural mechanics education we need to emphasize the learning experiences of our students.

Another idea of teaching and learning which seems to be receiving a lot of attention is critical thinking. Education, in general, is being criticized for not teaching students how to think for themselves. As an example, I am familiar with several agricultural mechanics education programs in which the students build some truly outstanding projects. It is not



BY JOE G. HARPER, SPECIAL EDITOR

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

unusual to see maybe ten identical individual student projects being built by students. The students have selected a project to build from a series of plans and then proceed to build the project according to the prescribed plans. There is no doubt the students are learning some very good skills, however to what extent are they thinking critically? This is one area of teaching strategies that agricultural mechanics education needs to take a close examination. With beginning students there is a definite need to have well-planned, structured, required projects. The emphasis of these required projects is to teach students the fundamental skills, knowledge, and the attitudes related to agricultural mechanics. However, as the students mature as learners, it is necessary that they develop their abilities to think critically. This is a fundamental concept for students completing approved projects. The student identifies a particular need for a project, develops a possible plan or strategy, follows the plan, makes necessary modifications, completes the project, and evaluates the project. This concept is not limited to just construction type projects, but also should be used for other critical thinking activities such as troubleshooting a malfunction in an electrical circuit. All of this should seem very familiar to each of us in agricultural mechanics education since the concepts of critical thinking incorporate many of the same strategies as the problem-solving approach to teaching. The key point for each of us to consider is whether or not we are allowing our students the opportunities to think critically in our instructional programs.

A third area which we need to investigate is the concept of cooperative learning. This area is not to be confused with what we have come to know as cooperative education. There is a very distinct difference. Cooperative education deals with programs which utilize the cooperation of business and industry and are an important aspect of all phases of occupational education. However, recently there has been a great deal of emphasis being placed upon cooperative learning. Cooperative learning activities involve students learning together. Students learn as a team. Business and industry tells us that our educational system places too

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# Teacher Education: At The Heart Of The Mission Reaffirm - Reform or Both?

*"We trained hard but it seemed every time we were beginning to firm up into teams we were recognized. I was to learn later in life that we tend to meet any situation by reorganizing, and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralization."*

Faius Petronius  
A Roman Author (66 AD)

Agricultural education at all levels and in all places is being challenged to re-examine its mission. Just as all other components of public education, it has received heavy stimulation from such reports as "A Nation at Risk" (1983), "The Forgotten Half" (1988) and several hallmark studies that address the matter of failing schools. The Carnegie Forum Report "A Nation Prepared: Teachers for the 21st Century" (1986) and "Tomorrow's Teachers: A Report of the Holmes Group" (1986) and other assessments have recommended sweeping changes in the preparation of teachers. Their recommendations range from merit pay based on student test scores to dramatically increased teacher salaries (\$72,000 per year as a maximum). Orlich (1989) in his assessment of education reforms, concludes that "too frequently the suggested reforms have been contradictory in nature, poorly implemented, and eventually abandoned." There are numerous reasons for these expensive failures of very noble efforts to improve teacher education and schools in general. Many suggested changes have been superficial and cosmetic without any real impact on learning outcomes. Many suggested changes were not improvements. They were reaffirmations of the present system and in some cases inferior approaches with simplistic solutions to complex problems. We have all observed the conditions of *dynamic homostatus* where there is a lot of action *dynamic* but things end up pretty much the same. Most educators claim to support change and yet we often recognize that the more things change, the more they stay the same. Our efforts for even minor change and reform often assure the reaffirmation of the present condition. Many reform efforts have failed because they did not base their suggested changes on an agreed-upon mission or strategic plan.

Because agricultural education is an integral part of the public school system, it is influenced by many of these change failures. However, agricultural education now has its own specific stimuli and direction for change. The recent National study "Understanding Agriculture: New Directions for Education" (1988) has caused us to re-examine agricultural education as it now exists in public schools. The study has challenged us to change but has also pointed direction for that change.



BY WILLIAM E. DRAKE

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We now have a National Council established to examine issues; identify our priority problems and develop recommendations for the resolution of these problems. The recent Summit Meeting, sponsored by The Council and the National FFA Organization, brought together 50 leaders in agricultural education to take the first steps toward developing a renewed mission and designing a strategic plan. The climate for change has been established. The renewed mission will call for reformation such as a focus on agricultural literacy, education both about and in agriculture, and an urgent effort to stay abreast of rapidly changing technology. But the renewed mission will also reaffirm aspects of agricultural education that have contributed to our past successes, such as experiential education, entrepreneurship and leadership development.

## The Unique and Vital Nature of Teacher Education in Agriculture

*"No limit can be set to the power of a teacher. But this is equally true in the other direction. No career can so nearly approach zero in its effect."*

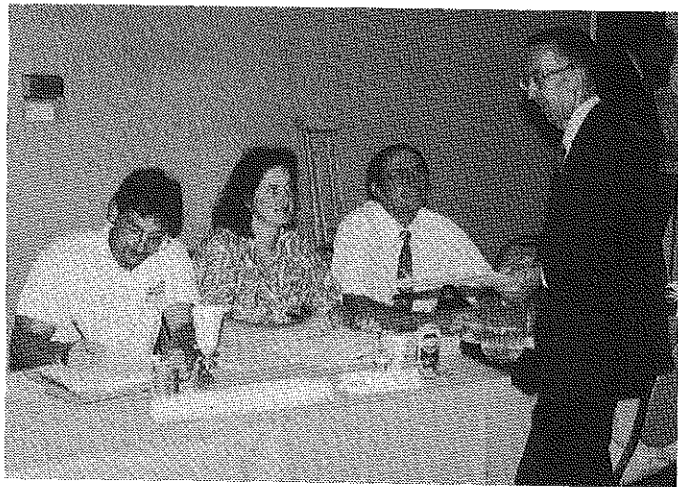
Jacques Berzun

Studies of agricultural education ranging from factors of excellence in individual secondary school programs to perceptions held by administrators and parents often reveal one key overarching variable. That variable is the teacher. The initial mission statement developed at the Summit, in its first draft form, carried the following values or postulates by which education in agriculture is driven. These values represent affirmations of previous success and they establish a framework for change.

- includes instruction in and about agriculture
- serves all populations
- develops the whole person
- is driven by the needs of the marketplace
- provides free enterprise and entrepreneurship education
- functions as part of the total educational system

- g. utilizes a proven educational process which includes formal instruction, "learning by doing," leadership and personal development

The application of these fundamentals in designing and delivering education in and about agriculture requires a planned network of resources ranging from Federal Acts to local facilities. However, when they are applied at the point of achieving intended learning outcomes each is achievable, or not achievable, and each will stand or fall because of a teacher.



A committee made up of a Teacher of Agriculture, Instructional Materials Specialist and Post-Secondary Instructor advise State Education Department Association on mission statement. (Photo courtesy of William Drake.)

Probably no field of teacher preparation is as unique in its curricular design as that of agriculture. There is a unique and interesting parallel between the principles and strategies for preparing teachers and those for educating young people through secondary school programs. Agricultural education is a historic leader in taking prospective teachers out of the laboratory school and placing them in local schools for residence student teaching experience. In a parallel way we have (with great success) carried out the strategy of agricultural work experience for students of agriculture. Both have become successful, time-tested, applications of experiential learning.

In teacher education programs we have determined our intended learning outcomes by using analytical procedures that examine the specific competencies of teachers. In some states these analytical procedures have been carried to the point of competency-based teacher preparation programs. Again, we have a parallel in the curriculum development procedures that are applied to secondary school programs. We attempt to realistically prepare students for employment and thereby respond to the needs of the marketplace.

Additional parallels could be cited and the inventory would add evidence to the uniqueness of teacher preparation in agriculture. These parallels in curriculum development and instruction have been a positive and reciprocal influence on both the preparation of teachers and the programs for which they are prepared to manage. If the values expressed in the mission statement are applied to teacher preparation, then it follows that their importance at the secondary level will be enhanced. In a reciprocal way, their implementation with school programs will provide direc-

tion to teacher preparation. However, the mission can be accomplished only if the teacher resource is adequate to carry it out. The fundamental values and postulates that form the Mission Statement will in a large part determine the intended outcomes of teacher preparation.

#### Preparing Teachers with Change as a Constant

*"We live in a world of change, yet we act on the basis of continuity. Change is unfamiliar; it disturbs us. We ignore it, we avoid it, often we try to resist it. Continuity, on the other hand, is familiar; it provides safety and security. Thus, when we plan for the future we prefer to assume present conditions will continue. But they rarely do. As a result, we experience unnecessary losses and miss unseen opportunities. If we could learn to anticipate change and prepare for it we could make it work for us, not against us."*

Leon Martel

Teacher preparation in the foreseeable future must deal with change as a *constant*. If we had been told in 1980 about the events destined to take place in the next decade, few would have believed - a computer revolution, the VCR, microwave ovens, fax machines, biotechnology, gene manipulation, bovine somatotropin and the list goes on and on.

If we consider the next ten years, it is our attitude about change that convinces us as to whether the best or worst is yet to come. The uncertainty of our times is not always comforting. The world is a highly unreliable place and we have created numerous uncertainties for ourselves. From the very beginning of history humans have been ambivalent regarding the unknown, dreading it on one hand and seeking it on the other. If humans had wanted a maximum of certainty in life, they might never have emerged from their caves.

Teachers of agriculture may face the matter of change and uncertainty in very special ways. They work with youth who are changing physically and mentally almost daily. They work with facets of agricultural business and industry that are undergoing rapid organizational, economic and technological changes. And they do this work in the environment of the public education system which in itself is characterized with problems of finance, organization, standards, and diverse goals. Is it any wonder then that teachers, perhaps especially teachers of agriculture, are anxious regarding the uncertainties of constant change? It is not uncommon to witness among teachers of agriculture serious doubts regarding the future of their profession. Because this matter of change and uncertainty is so important to teachers, it deserves priority attention in teacher education.

In the midst of increasingly rapid change teacher education is charged to prepare teachers capable of managing an educational enterprise designed to prepare learners able to cope with change. If such change is to be a *constant*, then the new approach must be to recognize it as natural and to be expected and that *continuity* is unnatural and to be suspected. This approach enables us to identify those changes that will affect us; determine their kind; see their dimensions and use them to our advantage. If teachers are prepared to make this approach a conscious on-going activity, change will become accepted as a *constant* and welcomed by those who deal with it. Change will not be

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# Start With The Vision — Succeed With The Plan

*Where there is no vision, the people perish. — Proverbs 29:23.*

It has been my good fortune over the past year and a half to have witnessed the conception and birth of a new nation for Agricultural Education.

The birthing process was protracted and difficult, even painful at times. It required several months of planning and logistics, two lengthy Summit meetings, and the combined patience, cooperation, energy and zeal of 46 different agricultural leaders and their support staff. To do what? To coax spanking-new vision of a more vital, more powerful, more cohesive agricultural education into the world.

History provides ample proof that the process of "catching and articulating a vision" is an essential act of leadership. And yet most leaders, especially the pragmatic, straightforward breed of leader characteristic of agricultural education, still feel a tad uncomfortable with the word vision itself.

Vision? "We are elected by our constituencies to be doers, not dreamers," declared a member of the Summit leadership team, echoing a familiar statement heard in American leadership forums for the past two hundred years. And yet a few hours later that man was among the first to paint an exciting picture of "what could be" for Agricultural Education.

And so we all try to strike a healthy balance. Sure, a quick glance at the calendar is enough to remind us that there is already plenty to do in agricultural education. But somewhere deep down under the skin, every agricultural education teacher, leader and administrator is also aware that the best of deeds have forever been fueled and preceded by the best of dreams. That's why the most responsible and successful leaders today, including those in agricultural education, are carving precious time from their daily workloads to focus on this slippery thing called vision.

What exactly do we mean by the word "vision?" In my work as a consultant with dozens of large organizations and corporations over the past twenty years, I have come to realize that a compelling vision of the future — a vision of greatness, of what "could be" — is the prime mover in the success of the most dynamic groups. This holds true for large non-profit organizations such as Agricultural Education, for progressive city governments, or for commercial giants such as IBM, AT&T, Apple Computer Company, Boeing Aerospace, Walt Disney Productions, and a host of others.

At its simplest, a vision describes or articulates a preferred reality. It reminds us that we are not stuck with the present, and that we can choose or invent a better future for ourselves. "A vision foretells what may be ours," writes author Katherine Logan. "It is an invitation to do something. With a great mental picture in mind we go from one accomplishment to another using the materials about



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us only as stepping stones to that which is higher and better and more satisfying."

Grappling with what is higher, better and more satisfying for agricultural education, for our country, for our corporations, or even ourselves can be a long and complicated process. And yet the final result, the vision itself, can often be expressed in the simplest of terms.

"All men are created equal," is a five-word vision articulated by our founding fathers, and yet those five little words rocked the world.

"Put a man on the moon in this decade," is a nine-word vision articulated by John F. Kennedy in the 1960's, and yet those nine little words inspired the American scientific community to achieve what was previously deemed impossible. It's been estimated that 60 million separate discoveries, operations and functions were eventually combined and coordinated into that first successful lunar landing. But the little nine-word vision was required to attract and trigger the stupendous human effort that preceded the eventual achievement.

"Vision grabs," writes Warren Bennis in his best-selling book, *Leaders*. "Initially it grabs the leader. Then it becomes the leader's job to translate the vision in a way that enables others to get on the bandwagon."

In the 1970's, for example, Steven Jobs was grabbed by a very simple but powerful insight. At the time, computers were a brand new development, and most of the world was infatuated with the idea of putting the biggest computer possible in the hands of the smartest person possible. Now let's eavesdrop on a slightly different vision, the one that eventually allowed Steven Jobs to spawn Apple Computer Company and the world-wide personal computer revolution:

"I saw things differently," recalls Jobs. "Let's say that, for the same amount of money it takes to build the most powerful computer in the world, you could make 1,000 computers with one-thousandth the power and put them in the hands of 1,000 ordinary people. You'll get more out of doing that than out of having one person use the most powerful computer in the world. Because people are inherently creative, they will use tools in ways the toolmakers never thought possible. And once a person figures out how to do something

with that tool, he or she can share it with the other 999."

Simple? Yes, but Job's vision was an unusual expression of faith in the potential of the ordinary everyday person. That vision became an extremely powerful paradigm — a magnet that eventually grabbed the imagination of entire cadres of our brightest students and electronics experts. They willingly and enthusiastically "jumped on the bandwagon" and were soon working 12-16 hours a day, six or seven days a week at Apple and at similar companies in the Silicon Valley. Such is the power of a worthwhile vision.

"That's how it works," confirms Jobs today. "Wherever there is a clear vision of something exciting and meaningful, people don't have to be pushed into getting things done. The vision pulls them forward."

Does agricultural education have a vision that will pull its people forward into the 21st Century . . . or, will they have to be pushed?

At this year's National Summit on Agricultural Education, I watched intently as the various leaders discussed a world that is changing so swiftly and incessantly that it actually short-circuits traditional planning and leadership tactics.

I listened as the leaders concluded that the rivers of change converging on agriculture and agricultural education are carrying an unprecedented deluge of problems — and opportunities — with them. Unlike days gone by, no government agency, no loose-knit collection of agricultural organizations, can honestly be expected to either resolve such problems or capitalize on such opportunities.

Finally, I was reminded of Steven Jobs as I watched the leaders relinquish their hold on "what is" and collectively turn their mind's eye toward "what could be."

Like Jobs, the agricultural education leaders expressed their faith in the individual creativity of the hundreds of thousands of everyday students, teachers, counselors, teacher educators and administrators.

Like Jobs, the agricultural education leaders looked into the future and visualized thousands of Aggies at work in fields, classrooms or laboratories combining their creativity with high ideals and high technology: working closer together on the big picture; swapping insights, techniques and discoveries — faster and more efficiently; responding swiftly and enthusiastically together to the changing needs of the marketplace; finding new purpose and meaning by aligning personal and regional priorities with national and international priorities of true consequence for humanity.

"If we can truly find ways to align, tap, channel and unleash that collective spirit and brainpower," reasoned the agricultural education leaders, "no problem will be too big, and no opportunity will go unrealized. Our people will become agents of change instead of victims of change."

Envision a National Agricultural Education united behind a single over-arching mission statement, a single set of publicly stated bedrock values, and a single set of corresponding goals and objectives.

Envision many different agricultural organizations combining their separate agendas and constituencies in a way that allows them to speak with one voice and move with one will on crucial issues and opportunities. Together these organizations could inevitably accomplish what none of them has ever been able to accomplish alone or in loose association with one another.

Envision if you can, if you will, a National Agricultural Education that takes whatever steps are necessary to "get out of its own way" by releasing and combining the pent-up energy of its 500,000 members. An unyielding national commitment to streamlining and accelerating the three C's — communication, cooperation and coordination — can and will do it. The goal would not be to make everyone the same as everyone else. Sameness is the worst thing that could happen to agricultural education. The goal would be oneness, not sameness.

That vision, complete with all that it promises, is certainly achievable, but only if it rings true to all members of the various national organizations. Even the greatest bandwagon goes nowhere at all, unless and until everyone is on it.

Today, as I compose this article, a team of writers selected by The National Council is preparing to put the final touches to a document that will clothe agricultural education's evolving vision in a practical plan. The future of agricultural education starts with a vision — but succeeds with a plan. The plan is the blueprint of your ultimate achievements.

It's my understanding that the plan will be signed by representatives from each of the various national organizations and presented to the profession in a series of meetings during the fall of 1989 and the winter of 1990.

Having been approved by the profession, the next logical step would be to communicate agriculture education's vision and plan to the community at large. From there, I have never yet seen it fail: when unit of purpose around a worthwhile endeavor is clearly and vigorously communicated to the public, the nation inevitably channels its energy and resources to support it.



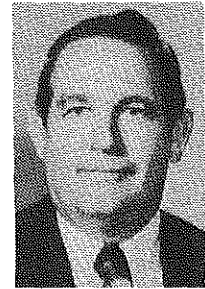
# New Directions in Agricultural Education For High School Programs

There is much concern today about the needed changes in agricultural education. This concern was recently highlighted with the release of a national study in agricultural education sponsored by the National Academy of Sciences with the endorsement of leading agriculturalists and educators. Many of the findings may appear astounding to some persons but only served to reaffirm known or assumed facts to those familiar with the situation in agriculture.

Agricultural education teachers across this country have been responding to the need for change and have instituted many changes, even though further ones are still needed. One school where changes in agricultural education are evident is the Cherokee High School in Rogersville, Tennessee. The agricultural education program at this school was once a one-teacher program; then there was a need to expand to two teachers, but now it is a three and one-half teacher program. The additional teachers became necessary as changes were made to the program. The present program includes production agriculture with good laboratories for teaching agricultural mechanics and ornamental horticulture. There is an agribusiness curriculum with a full-time teacher and 46 students enrolled for cooperative credit. Just recently a new course has been added in wildlife and fisheries and an agricultural science course where credit is earned in agriculture but accepted for graduation as one of the required courses in science.

Throughout the summary of the study conducted by the National Academy of Sciences statements were made about the decline in enrollment among all vocational programs, but high school programs. This is true in many situations and not all of the decrease in enrollment can be contributed to the need to change directions in agricultural education. The Education Reform Movement has had much influence on the decline in enrollment among all vocational programs but the agricultural education program at Cherokee High School has not experienced a decline in enrollment. The enrollment over the past five years has increased from approximately 225 students to the present enrollment of 325. Much of this increase in enrollment can be contributed to changes brought about to the agricultural education program. There is still a felt need to make further changes in the program and effects will be directed in that direction in the future.

Some people have problems with changes. We do not believe anyone with knowledge of the agricultural situation would advocate a complete change of direction in agricultural education. There are many good practices taking place in agricultural education, but there is a need to make changes in keeping with needs and interest of students and career opportunities in the agricultural industry. There is no need to completely cease teaching competencies in production agriculture. Most all agricultural jobs require basic competencies in this area of agriculture, but more effort



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should be expended to teach competencies needed for other types of agricultural careers. This may mean that the teacher will need in-service training in newer technologies of agriculture and use innovative approaches for teaching and conducting supervised agricultural experience programs. Let's consider some of the changes that may be needed for "new directions" in agriculture that have been so universally advocated.

## Suggestions for New Directions

1. Curricula should be revamped. Attempts should be made to integrate or correlate into predominantly production-oriented curricula competencies needed for the many careers in agriculture. Even when teaching competencies in production agriculture, an attempt should be made to show how these can be used in other phases of the agricultural industry. More science and math should be incorporated into the curriculum. Competencies in both science and math are needed in most careers of agriculture. Terms like plant cloning, biotechnology, aquaculture, agri-science, hydroponics, and genetic engineering are being used frequently among agriculturalists. Students preparing for careers in agriculture should be exposed to these terms early in the training.

Teachers should remove outdated content from present curricula and substitute with relevant practices and trends. Methods, practices, and procedures learned in college need to become updated frequently. This is particularly true of chemicals, plant varieties, and technologies in agriculture. The computer is an example of a new technology that should be incorporated in all agricultural curricula.

To make these changes will require that teachers take full advantage of in-service training or any other media in areas where assistance is needed. There are usually resource persons and specialists who can assist if needed and requested.



Biotechnology and information technology is part of the horticulture curriculum. Students are developing techniques to improve the quality of plants in greenhouse production. (Photo courtesy of James Wells.)

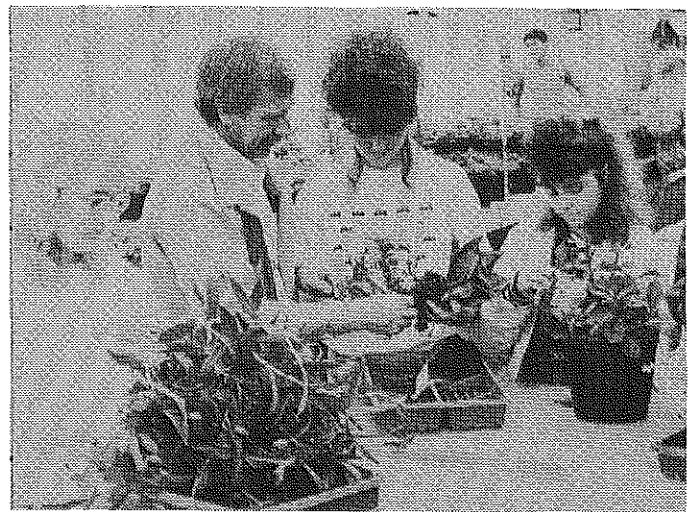
2. Thought must be given to using innovative approaches for supervised agricultural experience programs. Production-oriented programs are in the minority and off-farm agribusinesses are difficult to conduct in many communities. About the only other approach for supervised agricultural experience programs where innovative practices are possible would be the school laboratory program. This may require going beyond the traditional mechanic shops, greenhouses, and land laboratories. It may require well equipped computer laboratories, facilities for developing biotechnology skills, and laboratories for hydroponics and aquaculture. Somewhere out there in the future we may be preparing students who can work with lasers and robots. There must be some way that high school students can receive occupational experience while enrolled in agricultural education that will help them prepare for future jobs in agriculture. One of the problems with innovative school laboratory agricultural experience programs would be the cost. This is the limiting factor with making many of the needed changes in agriculture.

3. The public relations program must be improved in agricultural education. Agriculture is often viewed as a depressed industry with limited opportunities and only for those who cannot succeed in other occupations. The most able students are not encouraged to enroll in agricultural education courses in high school. Vocational agriculture courses are being stereotyped along with other vocational programs as being of inferior quality to other programs in the school. It should be common knowledge that our vast agricultural industry cannot be operated by persons with sub-marginal ability or lacking a background in agriculture.

Probably the best place for a good public relations program is in the high school agricultural education classes. This is certainly not the only place for improving the image of agriculture nor is it the sole responsibility of the teacher, but it is probably the most effective way for giving a positive image to the secondary program. This can be done with good instructional and FFA leadership programs. The instructional content of the program should be geared to the present and future needs of students as influenced by the vast agricultural industry. It should include the latest agri-

cultural technology. It will demand the use of a methodology of teaching that is effective for instructing the persons enrolled in agricultural education programs. Activities in the FFA can be used to motivate the students to learn. They can be used to give that extra incentive that students often require to receive honors and recognition for satisfying the psychological need for self actualization — developing special potentialities.

If these types of programs were being conducted and the general public was well aware of them, who could stand on the outside and stereotype them for the low and under achiever or those with little interest in school? Who could say that our courses are not worthy to be considered for college preparation? This approach would go a long way toward improving the image of agriculture among other educators, the general public, and even parents who desire the best for their children. It will not be an instant panacea, but the "word of deed" will soon spread to others. This will eventually bring about a change to the image of agriculture which will be felt through the mood and interest of the students.



Horticulture students are experimenting with different ways of propagating plants in asexual reproduction. Shown here are first year students who are learning new techniques in plant production. (Photo courtesy of Jim Wells.)

4. Agricultural literacy must be improved. Even though a good public relations program in agricultural education, as previously discussed, is part of the agricultural literacy need, there is a much more complex problem with the American population. The majority of the U.S. population know very little about the role and importance of agriculture. This problem is becoming more compounded as fewer and fewer people have a rural background. A good agricultural literacy program should be placed in operation at the kindergarten level and extended into the continuing education spectrum. This will not require formal courses at all of these levels but the majority of the citizenry should be taught the importance of agriculture, its role in the environment, and each should possess at least "consumer" knowledge of agricultural products.

A program of this nature will go much beyond the traditional vocational agriculture program. It will certainly encompass vocational agriculture and will demand the services

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# A Mission Statement — Our Philosophical Anchor

We have been diluged during the past few months with a flood of changes which affect agricultural education. Some of the changes have been dramatic and abrupt. In some instances we have nearly reversed our philosophical base. We have broadened our horizons to the distant hills and beyond. We have changed our traditional course content, our delivery methods, and our name to reflect a modern look for the modern time in which we live. We have become nearly obsessed with marketing our program . . . but what is agricultural education?

Who are we? What do we do? Why do we do it? To whom is it important? Why is it important? A mission statement for Agricultural Education must address each of these philosophical questions. It must define the parameters of the secondary agricultural curriculum and clarify its role in public education. It must delineate what is important and why it is important. It must go beyond a rationale for doing what we have always done, and it must do more than simply justify the new changes which have been initiated in the profession.

A mission statement should contain the essential elements of the Agricultural Education program . . . broad enough to include all of the participants, but specific enough to be measurable. **The mission statement should define our function . . . our role in society . . . our reason for being.** Anything less than this will be of little value to the profession.

The mission and objectives of agricultural education must be clearly stated. The writers must be willing to use specific language as they write the document which is to anchor the profession in a changing world. Statements in a mission statement which are nonspecific are nearly impossible to measure when it comes time to evaluate program effectiveness.

Why do we need a mission statement and well-defined objectives? Because it is vital that the profession should speak with one voice when we are called upon to defend what we do or to promote agricultural programs. We need to be hitched to the same end of the wagon if we expect to move the program forward.

The profession must identify members who are deep thinkers . . . professional educators to whom the only sacred aspect of agricultural education is the effect the program has on students. They must be vigorous defenders of traditional program components which have proven to be valuable to students, but they must also be willing to adopt changes when program components prove to be weak or irrelevant to students' needs.

Who are we in agricultural education? We must remember that the most important "who" in the agricultural education formula is the student. Yes, we need good teachers, administrators, teacher educators, and program specialists, but



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the educational needs of students must always take first priority over everything else. If we must choose between what is convenient for educators and what is needed by students, we should always take the side of students.

What do we do in agricultural education? We provide educational experiences in and about agricultural careers. Education about agriculture is our mechanism for stimulating agricultural career awareness and career interest in students. Education in agriculture teaches specific skills and competencies which are needed to obtain agricultural employment. Both of the components are appropriate and both are needed. We must serve the needs of two groups of students: 1) those who want to enter the agricultural work force when they leave high school, and 2) those who desire a professional agricultural career which requires postsecondary educational experience through a technical school or university degree program. Agricultural Education has a responsibility to both of these student groups.

Why do we do what we do? To most agricultural educators, an enthusiasm for the agricultural education program exists which is analogous to religious zeal. Many of us are products of Agricultural Education/FFA, and we tend to remember our youthful experience in terms of the positive direction which we experienced in our lives as a result of our participation in the program. We recognize the vital role of agriculture in national and international affairs. We feel the need to perpetuate the professions of agriculture to ensure that our children and future generations will enjoy an abundance of food and other agricultural goods. We believe in agricultural education.

To whom is the agricultural education experience important? Why? Agricultural education is important to students because it ties the total secondary educational experience to practical, real life situations. It provides settings in which students begin to appreciate the need to understand principles of science, mathematics, communications, and economics. "Learning by Doing" provides teaching/learning experiences in a learning mode which is consistent with the learning styles of many students. Some of these students

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## Teaching Tips.

# Getting Your Ag Students Involved in Science Fairs

As we attempt to teach more of the science of agriculture in our secondary classes, we need to continue to look for innovative ways to motivate students and recognize their achievements in their agricultural studies. One excellent program that already has an established reputation in communities throughout the nation is science and engineering fairs. Competitions are held at the local, regional, state, and national levels. The International Science and Engineering Fair is held in May at a selected site in the United States. Students must be in grades 9-12, and projects are evaluated on their overall quality and originality.

The purpose of these fairs is to stimulate student interest in science and engineering, to provide a good educational experience for students, and to provide public recognition to talented students for the work they have done. Science fairs are a perfect complement to an instructional program in agriculture that utilizes a discovery/inquiry method of learning. Science, and applications of science in agriculture, are most effectively taught and learned when students attempt to explain why "things" work as they do. These explanations develop as a result of questioning, experimentation, observation and analysis, reading, hypothesizing, and other inquiry activities. Many believe that the content of science is best learned through the process of science.

The scientific research process is much like the problem-solving teaching process that many agriculture teachers use. The major steps include: problem identification, literature review, hypothesis generation, development of the experiment, data collection, analysis and summary, and reporting. An excellent reference for agriculture teachers to use in getting their students involved in science fairs has been recently published by Texas A & M University. *Science Fairs: A Handbook for High School Teachers*, can be ordered from Vocational Instructional Services, P.O. Box 182, College Station, TX 77843 (\$6.00). This is a very comprehensive and well written publication. The booklet includes sections on the value of science research, how to conduct scientific research, science fair competition, judging criteria, science fair project categories, suggestions for conducting a local science fair, sources of additional information, rules for participation, examples of science fair pro-



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jects in agriculture, and summaries of winning projects from previous years. This publication is produced and marketed through the College of Agriculture, so it is clearly geared toward agriculture teachers.

In order to effectively market agricultural education in public schools, we must continually look for ways to make our courses current, substantive, and fun for students. Agriculture courses can and should be taught with a high level of student activeness. This in no way implies that we should merely keep students busy. Rather, we should keep them actively engaged (mentally and/or physically) in worthwhile learning activities. Science fair projects and class experiments allow students to develop thinking skills while they acquire agricultural knowledge and skills. Teachers may even want to consider initiating an agricultural science fair, in addition to having students participate in other local science fairs. This would allow greater participation by and recognition of agriculture students.

Having agriculture students participate in science fairs builds better relationships among science programs in the school, helps students develop research and problem-solving approaches to learning and work, makes teaching and learning agriculture more relevant and enjoyable, motivates students, provides excellent recognition of students and the agriculture programs as a whole, and helps create and/or reinforce a more positive and accurate image of agricultural education as an important, scientific, enjoyable, and attractive field of study. With all of these advantages, why not get your students involved in science fair competitions this year?

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a cause of concern and alarm but a key for action. Perhaps learning to manage should be a top priority for the pre-service and in-service education of all teachers.

### Preparing Teachers for a Mission of Excellence

*"Each honest calling, each walk of life, has its own elite, its own aristocracy based on excellence of performance."*

James B. Conant

A renewed mission for agricultural education points the direction for teacher preparation. Excellence in teaching is absolutely essential to that mission. The following suggestions may hold promise as the quest for excellence is pursued:

- **Increased emphasis on principles of teaching and learning** will produce a more *lasting* knowledge base for the professional education component of teacher preparation. These conceptual understandings will apply to instructional technology yet to emerge. This solid conceptual base will allow teachers to accept and use technology changes. *Learning to learn* is important to excellence in teaching just as it is to a work force that faces a new era of technology.
- **A science and technology base** is essential to teacher education programs. Rapid changes in agricultural business and industry demand that teachers be educated in the basic sciences and technologies that apply to agriculture. This base will enable teachers to understand and stay abreast of the physical and biological changes that are occurring.
- **An interdisciplinary approach** could strengthen preparation for the modern school environment. A trend in public schools is toward interdisciplinary teacher teams formed on the basis of learner groups. Teachers prepared to work in this environment will need to experience an interdisciplinary preparation program if they are to develop a team member attitude. Teacher education should encourage an open system and guard against the *separatism* that is created by a *closed fraternity* approach.
- **A total team approach** defines *agricultural education* in a more generic way. This educational team provides a continuum of education including "Ag in the Classroom"; secondary, post-secondary and informal education through cooperative extension as well as business and industry. Teacher education should include the conceptual understandings and experiences that prepare graduates to

understand these different settings and to work together as a team across the *agricultural education continuum*.

- **Multiple professional identities** can become a goal of teacher education in agriculture. Colleges will need to structure curricula to provide for these several identities or kinds of agricultural educators. This approach could move teacher education to serve a broader role in providing courses and internship experiences for students who are not headed directly for teacher certification.
- **Individualized programs of pre-service and in-service preparation** are needed to meet a wide range of teacher competence. Teachers come to the profession with varied backgrounds of experience and capability. Consequently, their needs for professional improvement are varied. At least one state has launched a funded individualized in-service program. This program will address the specific needs of those teachers applying. With this system each teacher will be able to follow a carefully planned, long-time individualized professional improvement program.
- **Mentoring and peer coaching** can create a developmental relationship that provides information, professional guidance, informal appraisal and feedback. Mentoring can help new teachers clarify their impressions of the profession. It can provide personal support to help the new teacher cope with uncertainties and isolation. A mentor provides access to information and opportunity which fortifies the new teacher's ability to cope with a new working environment. Mentoring has limitless potential as an informal individualized form of inservice education.

### Summary

The statement of mission and a strategic plan offer all components of agricultural education an opportunity to reaffirm *proven ways* and to change in positive directions. Excellence in teaching is vital to the accomplishment of that mission. Therefore, teacher education (pre-service and in-service) has an opportunity to strive for excellence and remain at the heart of the mission.

### REFERENCES

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## An Over-Arching Mission

(Continued from page 3)

ceptance by the profession and without considerable effort by all involved. What is needed is a group of individuals with a pioneering spirit willing to conquer a new frontier in agricultural education while protecting, enhancing and expanding the occupational programs on which our reputation has been established. This is not an either/or decision, rather an expansion opportunity. The profession is not re-

jecting its values nor an established program delivery system. We are not turning our back on the industry for which we have provided educational and occupational preparation, but are facing the reality of doing it better and in another realm. As Dr. Case points out in the title of his theme article, the destiny of Agricultural Education is in our hands. I have no doubt that we have the talent to achieve the vision; the question is, do we have the will and wisdom to make the commitment required.



## New Directions in Agricultural Education For High School Programs

*(Continued from page 15)*

of the teacher in seeing that the purposes are met and the necessary clientele involved. Since vocational agriculture teachers are the best prepared of all teachers in the school system in the field of agriculture, their expertise should be used. They should be coordinators or consultants for instituting such programs. They could render a great service to lower grade teachers desiring to integrate basic knowledge about agriculture in their instructional programs. They could also offer basic courses at junior high and secondary levels to students desiring more knowledge about agriculture. Evening school classes could also be offered in consumer agriculture and environmental problems to adults who want to broaden their knowledge in special fields of agriculture.

This is too great a job for vocational agriculture teachers. It should be a task for all workers in agriculture. There is a need to extend an agricultural literacy program to some degree to all people in education with administrative and supervisory responsibilities. School administrators and guidance counselors during their preparation process, or as in-service training, should be made aware of the importance and career opportunities in agriculture. They should become cognizant of the role of agricultural education in the process. Teacher educators should be involved in helping to

prepare teachers at all levels of education who will be involved in an agricultural literacy program. This could be done through special or in-service training courses.

There is a need for a good agricultural literacy program for the benefit of all people. At present it appears to have low priority among educators and other public service institutions.

The perennial problem of funding and identifying responsibilities will determine, to a large degree, the extent and success of the program. Agricultural literacy was one of the problems identified in the study by the National Academy of Sciences.

### Conclusion

The agricultural education program at Cherokee High School is committed to making changes as warranted by the agricultural situation in the community. Many changes have been made but others are due. Hopefully, these changes can be made as personnel and resources are made available.

There is a need for a change in agricultural education. This has been true since its beginning in public school in 1917. Agriculture is and always has been a changing industry. Those in agricultural education must change with it. There is a dire need for agricultural education to continue changing to fulfill its purposes for the 1990's and into the next century. Those in agricultural education have always arisen to meet the challenge of the times and they will continue to uphold this tradition.

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## A Mission Statement — Our Philosophical Anchor

*(Continued from page 16)*

enjoy positive educational experiences for the first time in their lives as they participate in agriculture classes.

Agricultural education experiences are important to the communities, states, and nation because they teach students to exercise competent, aggressive leadership skills. Many former agriculture students are now leaders in agriculture, the business world, government, and international affairs.

Managing the changes which are occurring in agricultural

education without first mapping a strategy is like attempting to cook a gourmet meal without a cookbook. Very few people are able to do it. It is not enough to know the ingredients of a specialty dish . . . we must also know the correct proportions and the sequence in which the ingredients should be added to achieve predictable results. We need a strong mission statement.

With a well-defined mission, agricultural education will be able to focus the talents of educators on providing relevant agricultural learning experiences for the students of America. Without a well-defined mission, agricultural educators could wander in the wilderness for forty years and never once cross the river into the promised land.

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## Agricultural Mechanization Clouds Mean The Environment Is Changing

*(Continued from page 8)*

much emphasis upon individual achievement and very little emphasis upon teamwork. This is another area in agricultural mechanics education where we need to focus more attention. We need to provide learning environments where our students are working as teams. We need to teach team goal setting, delegation of team responsibilities, teamwork, and team values. In order for our students to be suc-

cessful they will need to learn to cooperate as team members.

These three areas; critical thinking, cooperative learning, and experiential learning, represent some of the changes we are experiencing in our teaching and learning environments. As with technology education we should not be intimidated by these kinds of changes, but rather we should embrace these changes as possible improvements to the environments in which we teach and our students learn. Clouds are often times an indicator of an impending change, but sometimes we need some change so we can progress into a clear future and these clouds can be a welcome sight.

## ASSISTANTSHIPS AND FELLOWSHIPS

# Assistantships and Fellowships in Agricultural Education 1990-1991

The 1990-91 survey of institutions offering assistantships and fellowships in agricultural education is provided by the Publications Committee of the American Association of Teacher Educators in Agriculture. This survey is published annually to assist those in the profession who are seeking information about graduate studies. Twenty-five institutions responded to a request for details concerning assistantships and fellowships.

### Key To Understanding

The information is provided in the following order: nature of assistantships (number available); number of months available during the year; beginning month of employment; amount of work expected; monthly remuneration and other considerations, such as remission of fees; whether aid is for master's advanced graduate program, or doctoral students; source of funds; the 1990 deadline for application; and the person to be contacted. Slight variations in this pattern are due to the nature of the data provided by reporting institutions.

### University of Arizona

Research Assistantship (1); 12 months; July; one-half time, 20 hours/week; \$708.75 per month; out-of-state tuition waived; master's; department budget; March 1 or 6 months prior to enrollment; Phillip Zurbrick, Department of Agricultural Education, The University of Arizona, Tucson, Arizona 85721, Telephone (602) 621-1523.

### University of Arkansas

Research Assistantship (1); July 1; one-half time, 20 hours/week; \$500-650 per month; full tuition and fees provided; master's or doctoral; May 1; Dr. Nolan Arthur, Department Head, Department of Agricultural & Extension Education, Agriculture Building Room 301-B, University of Arkansas, Fayetteville, Arkansas 72701, Telephone (501) 575-2035.

Teaching Assistantship (1); September 1; one-half time, 20 hours/week; \$500-650 per month; full tuition and fees provided; master's or doctoral; May 1; contact same as above.

### Clemson University

Graduate Teaching Assistantships (2); 10 months; August through May; one-half time; \$650-\$850 per month plus remission of out-of-state tuition and one-half fees; master or doctoral; SDE and/or Instruction funds; March 15 or until filled, Dr. Glen C. Shinn, Head, 112 Poole Agricultural Center, Clemson University, Clemson, SC 29634-0356. Telephone (803) 656-3300, FAX (803) 656-3608.

Graduate Research Assistantships (2); 12 months; July;



By JOHN HILLISON

(Dr. Hillison is Professor and Program Area Leader, Agricultural Education, Virginia Polytechnic Institute and State University.)

one-half time; \$650-\$850 per month plus remission of out-of-state tuition and one-half fees; master's or doctoral; Instruction and/or Experiment Station funds; March 15 or until filled; Dr. Glen C. Shinn, Head, 112 Poole Agricultural Center, Clemson University, Clemson, SC 29634-0356. Telephone (803) 656-3300, FAX (803) 656-3608.

### Cornell University

Teaching Assistantship (1); June or September; 15 hours/week; \$9,880 annually (\$378.95 bi-weekly); waiver of tuition and fees; doctoral, state funding, April 15, 1990. Arthur L. Berkey, Department of Education, Roberts Hall, Cornell University, Ithaca, New York 14853, Telephone (607) 255-2197.

Research Assistantships (2); 9 or 12 months; June or September 15; 15 hours/week; \$7,200 for 9 months; \$9,880 for 12 months (\$357.89 bi-weekly); waiver of tuition and fees; master's and doctoral; Hatch Act and other research funds; April 15, 1990; contact same as above.

### University of Florida

Graduate Assistantships (2-3); 9-12 months; July 1, 1990; 14-20 hours/week; out-of-state fees waived; Master of Science; remuneration varies depending upon position; April 1; Dr. Carl E. Beeman, Department of Agricultural and Extension Education, 305 Rolfs Hall, University of Florida, Gainesville, Florida 32611, Telephone (904) 392-0502.

### University of Illinois

Graduate Research Assistantships (3-5); 9-12 months; July or August; one-half time; \$900 per month doctoral, or \$625 per month masters; in- and out-of-state tuition and nearly all fees waived; April 1 or until filled; Dr. Earl B. Russell, Chair, Agricultural Education, University of Illinois, 124 Mumford Hall, 1301 W. Gregory Drive, Urbana, IL 61801, Telephone (217) 333-3166.

Graduate Teaching Assistantships (1-2); 9-12 months; June or August; one-half time; \$900 per month doctoral; in- and out-of-state tuition and nearly all fees waived; April 1 or until filled; contact same as above.

### **Southern Illinois University**

Teaching Assistantships (2); 8 months; Summer or Fall; 30 hours/week; \$1065-1150 per month; tuition waived; April 1; Dr. Robert Wolff, Department of Agricultural Education and Mechanization, Southern Illinois University, Carbondale, Illinois 62901, Telephone (618) 636-7733.

Teaching Assistantships (4); 9 months; Fall; 10 hours/week; \$326-340 per month; tuition waiver; April 1; contact same as above.

Microcomputer Lab Assistantships (2); 9-12 months; Summer or Fall; 20 hours/week; \$711-735 per month; tuition waiver; April 1; contact same as above.

### **Iowa State University**

Research Assistantships (4); 9 or 12 months; July or September; one-half time, 20 hours/week; \$875 per month; fee reduction; master's or doctoral; Agricultural Experiment Station; March 1; Dr. David L. Williams, Head, Department of Agricultural Education, Iowa State University, Ames, Iowa 50011, Telephone (515) 294-0241.

Fellowships (3); 12 months; September; 20 hours/week; \$1000 per month; full fees paid; master's or doctoral; March 1; USOE for Minorities and Women; contact same as above.

### **University of Maryland**

Graduate Assistantships for minority students; 9½ months; approximately August 15; 20 hours/week; remission of tuition for 10 credits per semester; \$8,800-\$9,900 per year. (1989-90 rates); aid for qualified graduate students (M.S., AGS, Ph.D.) March 15; Dr. Merl E. Miller, Professor & Chairman, Department of Agricultural and Extension Education, University of Maryland, College Park, MD 20742, Telephone (301) 454-3738.

### **Michigan State University**

Graduate Teaching and Research Assistantships (2); 9 months in duration September 15 through June 15, (summer extensions possible); 20 hours per week, \$838 MS, \$922 PhD; waiver of out-of-state tuition fees; additional graduate fellowships available for prospective candidates. Funds are from projects with Agricultural Experiment Station, Cooperative Extension Service, and General Education. Deadline for applications is May 1; Dr. Carroll H. Wamhoff, Chairperson, Department of Agricultural & Extension Education, Michigan State University, East Lansing, MI 48824-1039, Telephone (517) 355-6580.

### **University of Minnesota**

Research Assistantships (2-5); 9-12 months; July or September 15; 10-20 hours; \$884-\$1,086 per month (50%); tuition reduced by two times % time appointed; master's or doctoral students; University; April 15; Dr. Edgar Persons, Head, Division of Agricultural Education, 320 Vocational and Technical Education Building, University of Minnesota, 1954 Buford Avenue, St. Paul, Minnesota 55108, Telephone (612) 624-2221.

Graduate School Fellowships in Vocational Education (2); 9 months; September 15; none, but full-time students; \$1,500-\$2,000; master's or doctoral studies of outstanding potential; Graduate School, April 15; Director of Graduate Studies; Department of Vocational and Technical Education

Building, University of Minnesota, 1954 Buford Avenue, St. Paul, Minnesota 55108, Telephone (612) 624-2258.

### **Mississippi State University**

Research Assistantships (2); 9 or 12 months; July or August; \$600-\$1,000; tuition waived; doctoral; March 1; Head, Department of Agricultural and Extension Education, Post Office Drawer AV, Mississippi State University, Mississippi State, Mississippi 39762, Telephone (601) 325-3326.

Research Assistantship (1); 9 months; August; \$600-\$1,000, tuition waived; master's, educational specialist, or doctoral; March 1; contact same as above.

### **University of Missouri-Columbia**

Research Assistantships (2-4); 9-12 months; July and September 1; 20 hours/week; \$670 per month; fees waived; doctoral; May 1, Bob R. Stewart, Agricultural Education, 121 Gentry Hall, University of Missouri-Columbia, Columbia, Missouri 65211.

Teaching Assistantships (1-2); 9 months; August 20, 20 hours/week; \$670 per month; fees waived; doctoral; May 1, contact same as above.

### **University of Nebraska**

Graduate Teaching Assistant/Graduate Research Assistant (1); 9-12 months; July 1; 20 hours/week; \$500-\$700 per month plus remission of tuition; master's candidate; department budget appointment; April 1 or until filled; Allen G. Blezek, Telephone (402) 472-2807.

Graduate Project Assistant (1); 9-12 months; July 1; 20 hours/week; \$500-\$700 per month plus remission of tuition; master's or doctoral candidate; grant budget appointment; April 1 or until filled; Allen G. Blezek, Telephone (402) 472-2807.

### **University of New Hampshire**

Approximately 4 fellowships for females for 2 semesters and possible summer funding beginning September 3 with 8 hours/week of work expected.

Students receive in-state tuition and mandatory fees plus a stipend of \$1,200. Total value \$4,660.

Provides teacher certification as a part of the Master's program.

Source of funds - Federal Equal Access grant for State of New Hampshire for Preservice Teachers of Agricultural Education.

Deadline for 1990 is February 15, 1990. Contact Dr. William H. Annis, (603) 862-1710.

### **North Carolina Agricultural and Technical State University**

Research and Graduate Assistantships (5); 9 months; August; 20 hours per week, \$600 per month, Master's Degree, deadline July 1. Contact: A.P. Bell, (919) 334-7711.

### **North Dakota State University**

Graduate Teaching Assistant (1); 9 months; September 1; one-half time; \$600 per month; master's; School of Education; May 1; Donald Priebe, Professor and Chairman, Dept. of Ag. Education, 155 Home Ec. Building, North Dakota

*(Continued on page 22)*

## Assistantships and Fellowships in Agricultural Education - 1990-1991

(Continued from page 21)

State University, Fargo, ND 58105; (701) 237-7437.

Graduate Research Assistant (1); 12 months; July 1; one-half time; \$550 per month; master's; grant funds (number and salary dependent upon funding); March 1; Donald Priebe, Professor and Chairman, Dept. of Ag. Education, 155 Home Ec. Building, North Dakota State University, Fargo, ND 58105; (701) 237-7437.

### The Ohio State University

Teaching Associateships (2); 12 months; July or later; one-half time; \$840 per month; in- and out-of-state fees waived; doctoral; February 1; Dr. Kirby Barrick, Acting Chairman, Department of Agricultural Education, The Ohio State University, Agricultural Administration Building, 2120 Fyffe Road, Columbus, Ohio 43210-1099, Telephone (614) 292-6321.

Research Associateships (4-6); 9-12 months; July or later; one-half time; \$710-840 per month; master's or doctoral; February 1; contact same as above.

Administrative Associateships (2-3) with emphasis in Extension Education (same as above).

### Oklahoma State University

The Oklahoma State University Agricultural Education Department is seeking qualified applicants for assistantships within our department. The assistantships are available to individuals wishing to pursue the Doctoral Degree in Agricultural Education.

The following assistantships are available:

(1) Teaching assistantship; 9 months; starting date September 1, 20 hours per week; remuneration; up to \$888 per month; out-of-state fees waived, partial fee waiver; scholarships and competitive college fellowships available; application deadline August 1; duties would include: teaching undergraduate professional courses, working with state vocational-technical staff; assisting with undergraduate student advisement.

(1) Teaching assistantship; 9 months; starting date September 1, 20 hours per week; remuneration, up to \$888 per month; out-of-state fees waived, partial fee waiver; scholarships and competitive college fellowships available; application deadline August 1; duties would include teaching undergraduate professional courses, working with state vocational-technical staff, assisting with undergraduate student advisement, serving as assistant director of student teachers, supervising of student teachers in the field.

(1) Research assistantship; 12 months; starting date September 1, 20 hours per week; remuneration, up to \$888 per month; out of state fees waived, partial fee waiver; scholarships; scholarships and competitive college fellowships available; application deadline August 1; duties would include: assistance in writing RFP's, computer programming, conducting literature searches, developing literature reviews for staff research, and assisting with a research design course.

Persons interested or requiring additional information concerning these assistantships should contact: Dr. Robert Terry, Professor and Head, Department of Agricultural

Education, 448 Agriculture Hall, Oklahoma State University, Stillwater, OK 74078, Phone (405) 744-5129.

### The Pennsylvania State University

Teaching and Research Assistantships in Agricultural Education and in Extension Education (4); 12 months; starting August 20; 20 hours/week; \$4,230 per semester; remission of fees; out-of-state; master's and doctoral; applications due March 1; Dr. Samuel M. Curtis, Head, Department of Agricultural and Extension Education, 102 Armsby Building, University Park, Pennsylvania 16802; Telephone (814) 865-1688.

### Purdue University

Teaching Assistantship (2); 10 months; August; one-half time; \$660 per month; tuition and fee waiver; doctoral or master's; February 1. Dr. James P. Greenan, Chairman, Vocational Education, Purdue University, South Campus Courts F-25, West Lafayette, Indiana 47907, Telephone (317) 494-7290.

Research Assistantships (3-5); 10-12 months; August; one-half time; \$660 per month; tuition and fee waiver; doctoral or master's; February 1; contact same as above.

### Texas A&M University

Assistantships; teaching (3), non-teaching (3), research (2); 9-12 months; generally September 1 or January 15; 20 hours/week; \$800-\$1,000 per month for doctoral, \$500-\$650 per month for master's; out-of-state tuition waived for teaching or research assistantships; public (state) and private; April 1 for September appointment; Dr. Don R. Herring, Graduate Coordinator, Department of Agricultural Education, College of Agriculture and Life Sciences, Texas A&M University, College Station, Texas 77843-2116, Telephone (409) 845-2951.

Fellowships: doctoral (2), master's (2); 12 months; generally September 1 or January 15; 20 hours/week; \$800-\$1,000 per month for doctoral, \$500-\$600 per month for master's; public (state) and private; April 1 for September appointment; contact same as above.

### Texas Tech University

Assistantships: teaching (2), research (2); 9-12 months; generally September 1; 20 hours/week; \$525-\$700 per month; waive non-resident tuition; masters' state and private funding; April 1; Dr. Lewis Eggenberger, Graduate Coordinator, Department of Agricultural Education and Mechanization, College of Agricultural Science, Texas Tech University, P.O. Box 4169, Lubbock, TX 79409-2131, Telephone (806) 742-2816.

### Utah State University

Two Assistantships available, MS and EdD students. Responsible for Agricultural Mechanization Laboratory instruction and/or departmental research. Twelve months possible employment beginning September 1. Requires 20 hours per week and 12 credit hour course load per quarter. Stipend of \$700 per month and waiver of out-of-state tuition. Send a letter of application to Dr. Gary Straquadine (801) 750-2230 by May 1.

One Assistantship available, MS and EdD students. Responsible for design and implementation of computer aid instruction in secondary agricultural science courses. Twelve months possible employment beginning September 1. Re-

(Continued on page 23)

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## Assistantships and Fellowships in Agricultural Education - 1990-1991

(Continued from page 22)

quires 20 hours per week and 12 credit hour course load per quarter. Stipend of \$800 per month and waiver of out-of-state tuition. Send a letter of application to Dr. Steve E. Poe (801) 750-2230 by May 1.

### Virginia Polytechnic Institute and State University

Graduate Assistants (2); 9 months; August 16; 20 hours/week; \$930-\$990 per month; master's or advanced degree; University; March 1; contact Dr. John Hillison, Agricultural Education, Room 223 Lane Hall, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061, Telephone (703) 231-8187.

### The University of Wisconsin-Platteville

Graduate Assistantships (3-5); 9 months; September 1;

15-18 hours/week; \$450/month; limited out-of-state waivers; master's only, in either Agricultural Industries or Education; University of Wisconsin System Grant; March 15; Dr. Ralph Curtis, Director of Graduate Studies, 303 Brigham Hall, UW-Platteville, Platteville, Wisconsin 53818, Telephone (608) 342-1262.

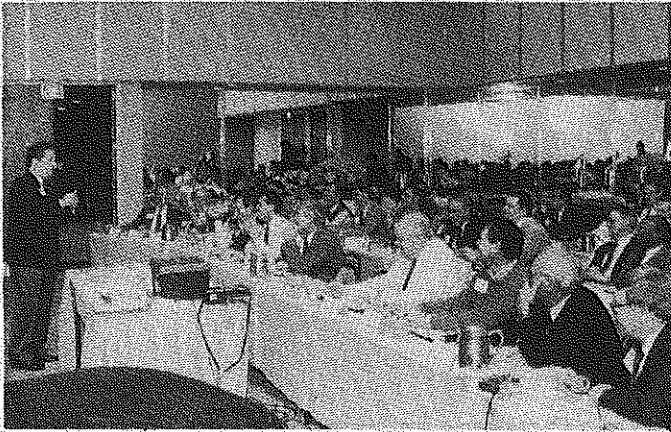
Teaching Associateships (1); 12 months; July or later; one-half time; \$840 per month; in- and out-of-state fees waived; doctoral; March 1; Dr. Joe Gliem, Department of Agricultural Engineering, 590 Woody Hayes Drive, Columbus, Ohio 43210, Telephone (614) 292-9356.

### University of Wisconsin-River Falls

Graduate Assistantships (1-2); 9 months; September; 15-20 hours/week; \$560-600 per month; remission of out-of-state fees; master's; state funding; April 1; Dr. Richard A. Jensen, Chair, Department of Agricultural Education, University of Wisconsin-River Falls, River Falls, Wisconsin 54022, Telephone (715) 425-3555.

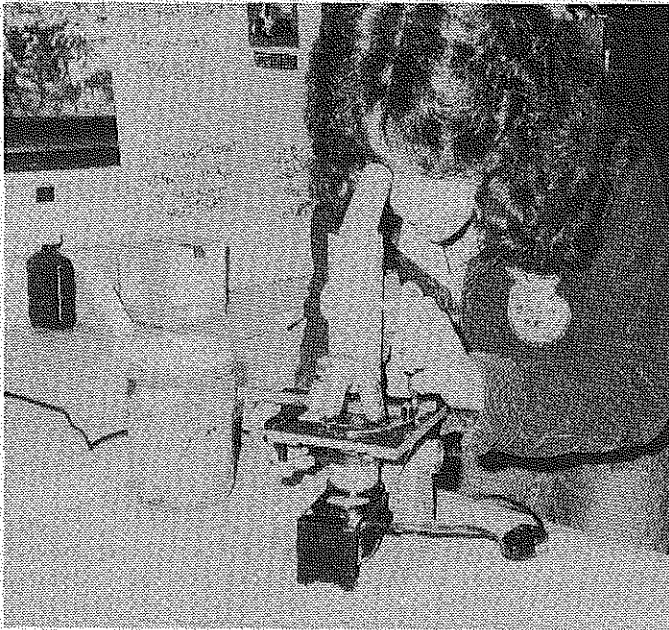


# Stories in Pictures



## The National Summit

*(Photos by National FFA Organization)*



Plant and animal genetics take on new dimensions in today's new agriculture. (Photo by Milton S. Natusch, FFA Executive Secretary, Connecticut State Department of Education.)



Hydroponics, one of the many new and emerging occupational choices of students graduating from vocational agricultural education programs. (Photo by Milton S. Natusch, FFA Executive Secretary, Connecticut State Department of Education.)