

Expanding and Enhancing Rural Education Through Agricultural Education

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*Premier leadership, personal growth and career success through
agricultural education.*

— *National FFA Mission*

The above mission statement from the National FFA Organization touches key issues for rural America. A mission statement promising premier leadership, personal growth and career success addresses what everyone wants for youth in America. Can curriculum and activities in agricultural education really offer that reality? Is there a future in the food, agricultural, and natural resources industry? Why would students want to study this basic industry?

These are all questions that we as agricultural educators face daily. The answer is yes, curriculum in agricultural education does address premier leadership, personal growth, and career success in our students. Our inter-curricular education model is unique and has worked for millions of students across the country. Yes, there is a future in the food, agricultural, and natural resources industry. This industry is not and never will be obsolete. Our world is growing at an unprecedented pace and our current students need to learn how to live and work in a global society. Feeding and clothing the world will be one of the many issues they face in the future. Our current secondary students can be the change-makers in our society. And finally, students do want to study agriculture, because contrary to popular belief, agricultural education does not just educate students to be farmers, which is a noble profession. Agricultural education students are future chemists, veterinarians, government officials, entrepreneurs, international business leaders, teachers and premier professionals in numerous other careers.

What makes agricultural education unique is the context it provides for learning. Science becomes real, mathematics makes

sense when it connects with real-life problems, communication areas of speaking and writing become far more interesting when they involve issues important to life such as the food, agricultural, and natural resources industry.

My thesis is that every school in Minnesota is capable of building and sustaining a secondary agricultural education program that will help increase student achievement. When I think of agricultural education, I think of prosperity, opportunity and success for students. Agricultural education worked to educate generations before us and will hopefully continue to educate future generations. It provides reasons to learn.

We as a society are at a crossroads. Agricultural education is not seen as a value in most schools, where high test scores seem to dominate a school. Schools have become so focused on making the magic test score that making schooling interesting and useful is lost for many students. Agricultural education can make schooling interesting and useful again, but although the number of agricultural education programs in Minnesota has held steady the past five years, the future looks bleak if we do not take some immediate steps to help qualify and quantify why agricultural education is of value in the rural school system.

Historical Value of Agricultural Education

Agricultural education in the secondary public schools can trace its roots to pre-Industrial Revolution America. Several factors contributed to the development of agricultural education. During the mid-1800s this nation was experiencing steady population growth, and a vast majority of the workforce was engaged in agriculture. The United States was a net exporter of goods and held a positive balance of trade as an exporter nation. Because it was such a large part of the culture, agriculture was often taught in the public schools as one of the core subject areas, as a "liberal art" or a "core science."

The late nineteenth century saw rapid population growth. At the beginning of the Industrial Revolution much of the rural work force moved from rural towns and villages to the population centers in the cities where industrial expansion was beginning. A decreasing proportion of the work force was engaged in agricultural production while the need for agricultural products was expanding with the population and with increasing exports. A smaller proportion of the population was expected to produce an ever-increasing amount of food and fiber products. Whether agriculture could keep up with the demand was a chief concern of the decision-makers of that period.

Agriculture was both a social and cultural concern of the time. Seeing the long-term impact of the inability of agriculture to meet future demand, Congress passed legislation such as the Morrill Act of 1862 and the Hatch Act of 1887. Each of these and several other pieces of legislation provided clear evidence of the concern of this nation during that period for the health of agriculture. It is interesting to note that the Morrill Act was passed during one of the greatest periods of social strife in this nation, a time when Congress undoubtedly had many pressing issues. American society was asking agriculture as an industry to produce more with fewer human resources.

The first two decades of the twentieth century brought a persistent debate in Congress over the need for an agriculturally literate populace. This discussion was included in the argument for a trained workforce and a technically literate society. In nearly every session of Congress from 1904 to 1914, legislation was introduced to promote the teaching of agriculture in the public schools. Each was defeated, not over the issue of "why" but of "how." Then in 1917, Congress passed the Smith-Hughes Act. This permanent federal legislation gave an incentive for secondary schools to teach vocational agriculture, industrial arts and home economics. This was the first piece of federal legislation providing direct support for vocational education. To distinguish between programs, vocational agriculture focused on entrepreneurial skills, while industrial arts taught skills for students to gain employment from others.

In Minnesota, agriculture developed as a part of the school curriculum in the early 1900s with the passage of the Putnam Act. With the help of \$2,500 from the state, a school could develop an agriculture program that included the use of land to carry out students' research efforts. With the passage of the Smith-Hughes Act, the emphasis changed from the science of agriculture to a career and vocational focus, requiring agricultural education to change if schools wanted to participate in the program.

But even in this time of change, agricultural education was growing while the social emphasis on agriculture diminished across the country. In 1928 the Future Farmers of America (FFA) component was added to the agricultural education experience, making it the only school-based youth organization specifically given the right to operate by federal law. The classroom laboratory, FFA and a supervised out-of-school work experience became the core components of the agricultural education program. The bottom line was the development of the "whole" student. FFA's leadership component turned out to be an excellent teaching tool and laboratory

for many youth to learn communication and leadership skills, skills that are not normally associated with classroom instruction in a content area. FFA has produced countless citizens who experienced its benefits through hands-on learning in leadership and agriculture. Local business and community leaders, industry CEOs, governors, congressmen, and even a president have been FFA members (Leske, 1989).

(To reflect the broadening field of agriculture, in 1988 the official organization name of the Future Farmers of America was changed to The National FFA Organization).

Establishing the Need for Agricultural Education in Rural Minnesota

Leaders and decision-makers in this country determined more than a century ago that education was for all citizens and that education for work was worthy of integration into the public school system. Public education for the masses has generally been successful, accommodating a wide range of learning styles (Leske).

In this era, having high academic standards for our students is critically important. Students need to be challenged and motivated to learn. Careful attention needs to be paid so that we are not involved in an educational program that has no purpose and meaning. Agricultural education should be creating options in a student's life (Copa, 1989).

The context of agriculture provides an excellent educational setting when we are surrounded by bio-technology and hi-tech issues in rural areas. Teaching and learning in all phases of education (K to post-secondary) can be enhanced by the social, economic, scientific and technical connections to food, fiber, environment and natural resources.

Personally, I struggled with math and science throughout my time in elementary and high school. It wasn't until I started learning about math and science through the context of agriculture that I was able to overcome my struggles with learning these subjects. Agricultural education truly saved me and provided me an avenue to be a successful student in a collegiate setting. I am a hands-on learner and therefore learn in a manner different from some other students. When I can apply my knowledge directly to agriculture I can understand the concepts of algebra, chemistry and physics.

There are many students in our schools who struggle the same way I did with math and science. They get upset with their studies and give up. Agricultural education is a way for these students to experience success in math and science. Requiring more and more

science at the high school level to fulfill standards is a noble cause, but what about students who do not see the connections or relevance of chemistry, physics or physical science? They become upset and frequently stop trying to learn or eventually quit school.

We need to think about a wider view of excellence. The focus on mathematics, science and social studies as definitions of excellence are very narrow. To survive in a career, one needs to be able to cooperate with other people, take responsibility, make decisions, consider options, and build relationships. Agricultural education brings out a greater diversity of talents and possibilities in young people than schools sometimes focus on (Copa).

By allowing agricultural education teachers to offer their classes for science credit, the state will be opening up a completely new delivery mechanism for students to learn. What we need in rural Minnesota is a trained workforce that understands the basic concepts of science, communication, and civic engagement as a part of their everyday life experiences. If we can get students excited to learn about science through the context of agriculture, we can expand the economic base in Minnesota. A mechanic or welder in your local community utilizes mathematics, chemistry, physics and communication competencies every day in carrying out their work. However, neither of them would tell you, "I'm doing physics or chemistry." They simply function in a real and practical manner. That is the central point of today's agricultural education: simply putting the core sciences and communication in a meaningful and practical context.

Agricultural education is all about delivering options to students. We all want our students to succeed. Some will go on to a four-year college, some will enter the military, some will attend a two-year technical college, and some will work directly out of high school. Whatever their choice, we want them to be able to give back to the community and be knowledgeable citizens about the basics of life. I believe with my whole heart that agricultural education delivers that to our students.

Bucking the Trend

"I began to learn how to make a speech. And I began to learn how to work with other people. I also learned the value of agriculture, farm families, stability, commitment, idealism, hope, truth, hard work and patriotism from the FFA."

*—Jimmy Carter, former U.S. president
and former FFA member in Georgia.*

Society has not held agriculture as a profession in as high esteem as it has other “professional careers.” Because of economic problems associated with agriculture coupled with negative perception, it may be difficult for parents whose livelihoods have depended upon agriculture, either directly or indirectly, to advise their children to pursue career interests in agriculture (Leske).

But consider this: The world is increasing in population at an astounding rate and all people of the world need to be clothed and fed properly. If anything, there is a shortage of well-trained workers in agriculture. We not only need farmers, we need scientists, sales personnel, engineers, educators, technicians, managers, and the list goes on. In order to keep up with the demand for high-quality food and fiber, we need to have high-quality students who understand agriculture and its complexities. Agricultural education students become part of a heritage that gives them distinct advantage.

In our agricultural education classrooms, there could be a future Norman Borlaug in our midst. Schools need to provide opportunities for students to find their dreams. Expanding their opportunities to include agricultural education will help them see the world and may challenge some to be our future leaders.

Value of Curriculum

Tradition has suggested that agriculture is only farming. However, it is far more than production. The science and business of agriculture provides a critical source of basic human needs that is often overlooked and undervalued.

Agricultural education programs go beyond the subject matter, using content to make education real and meaningful, providing a context in which students learn many skills while also taking into account alternative learning styles of students. The agricultural content becomes the context within which they learn math, science, etc.

In a study by Leske on the value of agricultural education courses, students answered that they liked these courses because of the group activities, the hands-on experiences, field trips, experiments, etc. These students noticed a genuine difference in teaching methods when comparing agriculture courses to other courses in which they were enrolled at the secondary level. Research has found that when an individual possesses a knowledge base or an interest in a given area, that base can be used as a foundation on which to build new interest in a given area (Leske, 1988).

Current students often do not have the luxury of enrolling in elective classes. Beyond a highly regimented course of study, today’s

students must also deal with the pressures of taking and passing standardized tests (Roberts & Dyer, 2004).

To help students reach their capabilities both academically and socially, agricultural education engages students in a balanced program of three core components:

- Classroom/Laboratory Instruction – quality instruction in and about agriculture that utilizes a “learning by doing” philosophy. This is fulfilled in a variety of courses of study.
- Supervised Agricultural Experience Programs – all students are expected to have an agriculturally related, work-based learning experience while enrolled in agricultural education courses. These experiences may involve entrepreneurship or placement in various on-the-job positions.
- FFA Student Organization – FFA activities are an integral part of the agricultural education program that all agricultural education students should participate in if they are to fully benefit from their enrollment in the program.

Value of Teachers

The most important variable in a successful agricultural education program is the teacher. They see opportunity in their students when nobody else does. Many prospective teachers want to be placed in a program that they can build from the ground up, and they want the students to be involved in building a program where they can be proud of their accomplishments.

Obtaining a degree and teaching license in agricultural education is not an easy feat. Teachers of agricultural education are often viewed as a jack-of-all-trades. During their academic career they will take such classes as microbiology, biochemistry, animal science, economics, and plant science along with all of their required education courses to become qualified, licensed teachers. Teachers also learn how to utilize their community and public relations to convey agriculture’s scientific and technological contributions. They learn how to instruct students in public speaking, conducting a meeting using parliamentary procedure, and becoming a leader in society.

Agricultural education instructors want all students to succeed on standardized tests. All teachers are expected to immediately contribute to advancing test scores in their students, regardless of the classes they teach. Therefore, agricultural education classes are advancing a student’s ability to perform. This occurs when they extract DNA from plants, use algebra to determine application rates,

and learn about chemistry through food technology classes.

Students value good teachers who are invested in their education and want to see students succeed. Luft & Thompson (1995) identified an effective agricultural education teacher as having the following traits: showing enthusiasm for teaching, serving as good role models for students, being committed to helping students learn, showing their commitment to teaching by belonging to a professional teaching organization, enjoying teaching, being self-confident and poised, being prompt and on-time, and being neatly dressed and groomed.

To help increase the retention rate of young teachers staying in the agricultural education teaching profession, the Teacher Induction Program (TIP) was started at the University of Minnesota. This program is for teachers in their first through third year of teaching agricultural education. Participants are paired with a senior mentor (a teacher labeled as exemplary) to help guide them through their experiences. They also meet quarterly to have peer reviews and discuss the nuances of teaching. Retention rates of early career teachers have been increasing since the inception of the TIP program. In 2004-05 the retention rate of teachers who participated in TIP was 81.2% (Joerger & Greiman, 2005). Teachers are staying in the profession longer and are making more positive impacts on their students. Students value consistency in teachers from year to year. Agricultural education teachers build strong relationships with their students because of the structure of the curriculum used. And when students help make a program excel, it not only grows the program, it also gives students a sense of community in their school.

Value of Students

Students are the sole reason we are educators. We see a future in their eyes and will do anything in our power to help make them be successful. Seeing students grow and develop is the most satisfying thing in my professional life.

Hubert Humphrey spoke about democracy creating a probable destiny. He spoke of extraordinary possibilities in ordinary people. You can see the opportunity agricultural education creates with students, extraordinary possibilities in ordinary students that other people may not see (Copa).

Everyone has a different definition of what makes a quality student. Some look at test scores, others look at extra-curricular involvement. But what about a host of other students with other gifts and talents? Agricultural education teachers take pride in seeking out those students, as well as the high-achieving students. We seek

to educate the student as a whole with curriculum, leadership, and applied work. All students can be successful in agricultural education.

The success of students taking agricultural education courses and FFA involvement is undeniable. Students involved in agricultural education earn a higher grade point average and participate more actively in sports, school and community activities than non-members (Balschweid & Talbert, 2000). It is also interesting to note that in the past decade the number of female students involved in agricultural education has increased. The common stereotypes of agricultural education being just for males who want to farm are past history. Females are now more likely to enroll in agriculture courses to develop life and teamwork skills as a whole (Sutphin, 1995).

Researchers have concluded that undergraduates at four-year institutions who enrolled in high school agri-science courses and participated in FFA and/or 4-H were more likely to complete their degree program than students who did not participate. These students were also more inclined to select agriculture for their major, less likely to change majors, and more likely to earn higher grade point averages (Ball, 2001).

Major obstacles that agricultural education programs face in recruiting and retaining students are scheduling difficulties, including competition from other programs and activities, lack of guidance counselor support or administrative support, and the overall image of agriculture. With a student's class load practically pre-determined for him or her, there is very little room for an agricultural education experience. This has the added effect of cutting students off from the opportunities of FFA, because the FFA organization is unique in that a student must be enrolled in an agricultural education class to participate in FFA.

Student Leadership

"I would not be in Congress if it wasn't for the FFA. It developed my interest in politics, gave me a better understanding of government procedures and an enthusiasm for service. The leadership skills I developed and the values that were enhanced during my FFA years have provided concrete results in my life."

—U.S. Senator Sam Brownback, former FFA member from Kansas

It goes without saying that the FFA organization is recognized as a premier youth leadership organization. One of the benefits of being a part of an agricultural education program is the opportunity

to participate in FFA. The inter-curricular nature of agricultural education and FFA helps students strengthen their classroom experience by letting them apply what they learn to leadership situations in the FFA. They also receive hands-on supervised agricultural career experience such as starting a business or working for an established company.

Participation in FFA and 4-H has been found to contribute to students' communication abilities (McKinley, Birkenholtz & Stewart, 1993). FFA programs and activities help members develop public speaking skills, conduct and participate in meetings, manage financial matters, strengthen problem-solving abilities and assume civic responsibility. Competitive events and awards programs in areas such as public speaking, commodity marketing and agri-science recognize students' achievements, encouraging them to excel beyond the classroom and develop career skills.

FFA members can participate and learn advanced career skills in 45 national proficiency areas based on their hands-on work experience ranging from food science and technology to agricultural communications to wildlife management to production agriculture. FFA members are also able to extend and test their industry knowledge through 23 national career development events such as public speaking, environment and natural resources, and business management.

Leadership development and organizational participation in high school appears to translate into continued involvement in college. If a similar pattern would hold true into professional careers, some of the current undergraduate leaders may develop into community and state leaders in agriculture and beyond (Sax, Astin & Avalos, 1998).

Agricultural Education in Minnesota

Currently, Minnesota has 188 secondary and middle school agricultural education programs, the majority of them in rural Minnesota. There are 240 agricultural education teachers reaching a total of about 20,000 students in grades 7-12 in agricultural education, and 8,500 of these students are involved in the FFA program in Minnesota.

Is there room for expansion of agricultural education in the rural school structure? Yes, now more than ever. Those schools seeking to fulfill more science credits should realize the opportunities a quality agricultural education program offers their students. In 2006, the Minnesota State Legislature adopted language stating that *"an agriculture science course may fulfill a science credit requirement in*

addition to the specified science credits in biology and chemistry or physics” (Sec. 4. Minnesota Statutes 2004, section 120B.024). This opens up doors for local school districts to offer science in agricultural education classes if the teacher is qualified.

Ironically, while rural schools seem to struggle with providing this agricultural education opportunity for their children, metropolitan schools are seeing the value of making food, agriculture, natural resources and the environment a context for learning. Metropolitan agricultural education programs are functioning today in the Twin Cities at the Agricultural & Food Sciences Academy (AFSA), and also in Chicago, Indianapolis, New York, Los Angeles, and other metropolitan areas across the country.

Funding

Funding for agricultural education is a joint responsibility between the state government and the local community, while federal funding, which provides for some regulation in programs, has made up a relatively small percentage of funding for agricultural education (Carl Perkins funding is the primary source of funding from federal dollars). For the second straight year, President Bush’s federal budget plan eliminates funding for all technical education programs, including agricultural education.

In such an environment, attention needs to turn to the local level. Much attention has been focused on the state level, and changes have been made to policies, but more of the changes in the future will be settled by local school districts. Budget concerns usually are cited as the top reason for cutting agricultural education programs. The pressure to save money is not unique to local school boards. Rural school districts are finding it more difficult to offer electives to their students when state and national standards are increasing. This leaves not only agricultural education out of a student’s academic experience, it endangers all career and technical education, the arts, and business classes. If programs are valued, they are funded and supported in school districts.

Team AgEd Minnesota

Minnesota has been proactive in helping sustain and expand agricultural education. In 1997 the Minnesota Association of Agricultural Educators (MAAE) enacted legislation to start the Minnesota Agricultural Education Leadership Council (MAELC). MAELC was created to help revive agricultural education in the state of Minnesota both as a profession and as a course of study in secondary schools. Successes include:

- Awarding over \$900,000 to local school districts and community groups around Minnesota through our grants program. Grant money has been used to start five new secondary programs and has helped purchase much needed curriculum and equipment in over 100 schools.
- Enrollment in the Agricultural, Food & Environmental Education program at the University of Minnesota has tripled in the past nine years. There are 105 students enrolled in the agricultural education major at the University of Minnesota.
- Increased academic test scores and class rank among incoming freshman at the post-secondary level.
- Increased retention rate of beginning teachers in the profession due in part to the Teacher Induction Program at the University of Minnesota, partially funded by MAELC.

Besides MAELC, Minnesota has a strong network of agricultural education organizations that we term “Team AgEd Minnesota.” The organizations involved in making agricultural education a success are: Minnesota Association of Agricultural Educators, Minnesota FFA Association, Minnesota Department of Education, the University of Minnesota, Minnesota State Colleges and Universities, Minnesota Association of Career and Technical Education, Minnesota Management Education Programs, and the Minnesota Postsecondary Agricultural Student Organization.

Bright Future Ahead

Think toward the future for your school and community. Think proactively. Start an agricultural education program in your rural school system. There are strategies in place to help you start a program. If you already have a program, support the teacher and students. Many of our rural communities are not experiencing a growth trend in population, but that doesn’t mean we cannot deliver a high quality, engaging education. Agricultural education is something to be added to every school’s curriculum, not taken away. When looked upon as an opportunity to deliver increased science, math and economic standards, it is surprising it hasn’t grown in size already. Add on top of that the opportunity to be a part of the FFA organization and the leadership opportunities afforded a student, and it seems too good to be true. Agricultural education has a long history of educating all students in all walks of life. Living proof of the impact our programs make live in your communities and are having positive effects. Give agricultural education another look. You may be surprised at the results you see.

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