

IN THIS ISSUE

Biotechnology and Emerging Technology

- 2... Shifting Paradigms: Understanding How Technology is Changing How the World Works
- 3... Opening Eyes with Biotechnology
- 4... Business and Industry Trends
- 6... Bioenergy Bursting with Opportunity
- 8... Meeting the Challenge Head On: Indiana's Advanced Life Sciences Curriculum
- 9... Agriscience Leads to Student Success
- 13... Positioning Your Program for Success
- 14... Harnessing the Power of Biotechnology
- 15... Collegiate Consortium Formed
- 15... Updated FFA Resources Coming Soon
- 16... Building on Biotech
- 17... Teacher Resources
- 19... FFA News

Embracing Agriscience

as the pace of technological change continues to accelerate, the need to provide students with higher levels of science, math and technical skills also increases. Agriculture teachers across the country are embracing this challenge.

Take, for example, Felix Landry, who teaches agriscience at St. James Parish Career and Technical School in Litcher, La., located on the east bank of the Mississippi River between Baton Rouge and New Orleans. "The first year I took a group of students to the national FFA convention, I told my students that if they wanted to attend the convention again, they would need to earn their way by winning something at the state level."

Most of Landry's students come from rural, non-farm backgrounds and don't have access to many traditional SAE opportunities. The students visited the National Agriscience Fair and decided this was where they wanted to concentrate their efforts.

Reaching Out

When they returned home, Landry asked the school's chemistry teacher to work with the students and help brainstorm projects that could qualify for both the school's science fair and the FFA agriscience fair. "My biggest successes have always come from partnering with other teachers," says Landry. "Once we started working with the chemistry teacher, that opened doors to laboratory access at a nearby university. Then, more opportunities presented themselves and the students just blossomed."

Many of Landry's students focus their projects on environmental science. One

student, Jennifer Becnel, decided she wanted to study mercury contamination. Becnel visited EPA mercury advisory waterway sites in southeast Louisiana to gather samples of tree cores, lichen and water. After analyzing the data, Becnel realized there was a correlation between the tree core samples and the lichen.

Science Fair Success

Becnel experienced success at the local and state science fairs, qualifying to compete in the 2004 Intel International Science and Engineering Fair in Portland, Ore. One of the judges at that event had focused his doctoral work in mercury poisoning and recognized that Becnel had discovered new information worthy of publication.

Becnel invested many hours in retesting her samples and working with other researchers to verify the results. As a high school senior, her work was published in a professional scientific journal, *Micro Chemical Journal*.

While Becnel's work clearly stands out, many other students, approximately 50 percent of whom are students of color, have benefited from Landry's strong agriscience emphasis. "When we begin looking for projects in class, I ask the students to think about challenges they face and questions they'd like to have answered," Landry says. "We find little things and set up basic experiments to determine why this does that. Once a student experiences a little bit success, they become interested in finding out more. Also, the more advanced students motivate the less advanced students to push harder. Over time, we have students who are achieving more and setting higher goals than they ever thought would be possible."



Shifting Paradigms:

Understanding How Technology is Changing How the World Works

We are constantly being bombarded with news of technological breakthroughs and scientific advances. Frequently, these stories provide a peek into how the latest whiz-bang widget or service will affect our lives; however, it is often difficult to synthesize how all these advances work together, let alone what it will mean to our students.

Enter Pulitzer Prize-winning *New York Times* columnist Thomas Friedman and his most recent book, *The World Is Flat: A Brief History of the Twenty-first Century*. In this volume, Friedman explains how technology is “flattening” or “leveling” the playing field by enabling small businesses to act big and big businesses to act small. While Friedman doesn’t specifically address how these changes impact agriculture, the concepts are easily transferable.

Creating a New Perspective

What Friedman means by “flat” is “connected.” He explores how the lowering of trade and political barriers and the exponential technical advances of the digital revolution have made it possible to do business, or almost anything else, instantaneously with billions of other people across the planet.

While this in itself is not necessarily news to anyone, Friedman points out that just when we stopped paying attention to these developments – when the dot-com bust turned interest away from the business and technology pages and when 9/11 and the War on Terror turned all eyes toward the Middle East – is when they actually began to accelerate.

Globalization 3.0, as Friedman terms it, is driven not by major corporations or giant

trade organizations like the World Bank, but by individuals: desktop freelancers and innovative startups all over the world (but especially in India and China) who can compete—and win—not just for low-wage manufacturing and information labor but, increasingly, for the highest-end research and design work as well. While most of the book focuses on the positive aspects of this trend, Friedman doesn’t forget the “mutant supply chains” like Al-Qaeda that let the small act big in more negative ways.

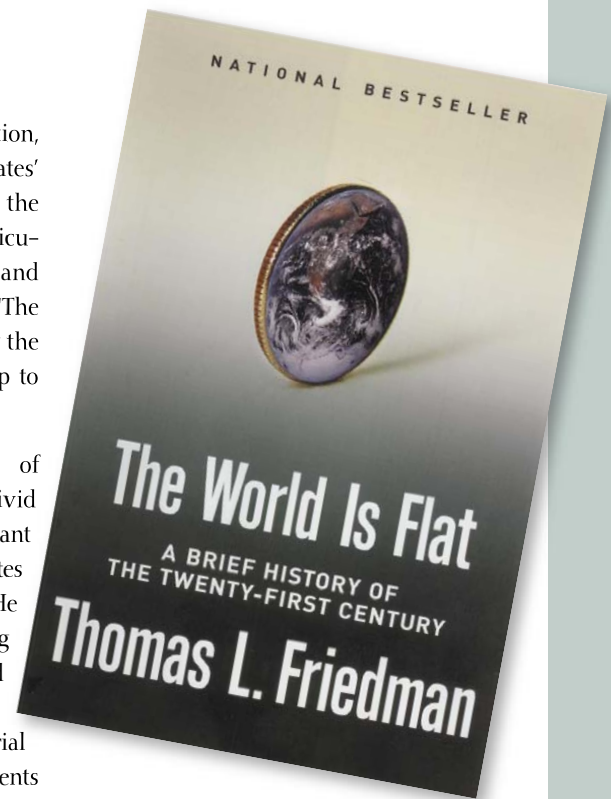
Impact on Education

After presenting the trends in motion, Friedman analyzes the United States’ ability to respond and focuses on the increasing need for education, particularly in the areas of science, math and technology. In a chapter entitled, “The Quiet Crisis,” Friedman discusses how the American education system stacks up to its global competitors.

Through a wide-ranging series of examples, Friedman paints a vivid picture about how and why significant change is needed if the United States is to remain competitive globally. He provides historical context, noting that when the country experienced the agricultural revolution of the last century and moved into the industrial age, the norm moved from most students receiving only primary education to most students receiving primary and secondary education. Friedman argues that this new century will require more students receiving not only primary and secondary, but also tertiary (or collegiate) education.

Friedman writes, “As American society produced more higher-skilled people by making high school mandatory, it empowered more people to get a bigger slice of the bigger, more complex economic pie. As that century progressed,

we added, on top of the high school movement, the GI Bill and the modern university system...What is missing at the moment is a political imagination of how do we do something just as big and just as important for the transition into the twenty-first century as we did for the nineteenth and twentieth...The obvious challenge is to make tertiary education, if not compulsory, then government-subsidized for at least two years, whether it is at a state university, a community college or a technical school.”



Not only will teachers find this eye-opening story enlightening, today’s tech-savvy teens will also find it of interest. Friedman wants to tell his readers how exciting this new world is, but he also wants you to know you’re going to be trampled if you don’t keep up with it. This is a smart and essential read for those who will be expected to live and work in this new global environment. And nowadays, few are excluded.

Making a Difference

FFA Advisors Making a Difference is published eight times a year to assist FFA advisors in making a positive difference in the lives of students.

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The FFA Mission

FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education.

The Agricultural Education Mission

Agricultural education prepares students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems.

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Watch for the LPS Logo



The logo shows how this issue of FFA Advisors Making a Difference relates to Local Program Success, a national initiative to strengthen agricultural education programs. You'll see this icon on all FFA materials. The shaded apples show which areas the materials address.

Perspectives

Opening Eyes with Biotechnology

biotechnology. Just the sound of the term will make many agriculture instructors cringe. There is always something new to incorporate into our ever-changing curriculum and program structures, but how do we decide what we should keep, what should go, what is good for students, and what is good for the future of the agriculture industry? New topics can be very challenging to mix into our already-packed curricula and schedules.

Just over a year ago, I was presented with an opportunity to attend a week-long training session to become a National Agriscience Ambassador. I nervously headed to Lexington, Ky., with no idea what to expect or how this would impact my program. After all, I teach in a traditional, rural, single-teacher, small-school program. Over the last year, I have had my eyes opened to many opportunities. I began incorporating biotechnology, and more science in general, to my program. I would encourage you to learn more about the Agriscience Ambassador training program and challenge yourself to learn about the opportunities available in this area.

I incorporated a simple biotechnology unit into my Agriculture III & IV curriculum this year, unaware how the students would perceive this material. Using material gained from the agriscience training and the biotechnology curriculum CD

By Donna Karspeck,
Agriculture Teacher
Idalia High School,
Idalia, Colorado



from The Council, I combined several resources to develop the unit.

I also used a variety of other small resources. The hands-on portion of the curriculum was mostly derived from Lab-Aids kits and Pioneer's curriculum CD and experiments. As we progressed through the unit, I had mixed feelings about how much the students were understanding and what they were gaining from the material. However, when the unit concluded, several students continued their study of biotechnology as the basis for prepared speeches. They really were learning more than I had initially thought.

I challenge you to answer this question for your program: Is biotechnology for your students? I strongly believe in the tradition of agriculture and that there are parts of our curriculum that should always remain steadfast; however, there are other places where we can and should incorporate new concepts.

Biotechnology is a topic that can be woven into core units of crops, soils, environmental science, animal science, etc. Agriculture teachers can be some of the greatest supporters and motivators for our students; we need to be sure we are exposing them to those issues and concepts they will face in the wonderful world of agriculture tomorrow!

Business and Industry Trends

Editor's Note: The following is excerpted from a speech delivered by Elin Miller, president and CEO, Arysta LifeScience North America Corporation, to the National Agricultural Education Inservice meeting held in Indianapolis, Feb. 2-4. Miller served as a national FFA officer in 1979-80 and is the 2008 chairman-elect on the National FFA Foundation Sponsors' Board of Trustees.



By Elin Miller,
President and CEO, Arysta LifeScience
North America Corporation

i greatly appreciate the opportunity to join you today as a business-woman in agriculture who is a product of agricultural education/FFA. I can honestly say that my career success is directly related to the values, the curriculum and the leadership I gained in my affiliation with what, at the time, was called vocational agriculture/FFA. I believe the role of agricultural education is profoundly important to the United States, especially today.

Global Competitiveness

You don't need a crystal ball to see that America's downward slide in student performance rankings for math and science will diminish our global competitiveness in the future. While I am not in the business of education, I am in the position of trying to hire the "best and brightest" so that I can deliver bottom-line results to keep shareholders happy. While I can't speak to the challenges you face in agricultural education, I can provide you with some insight into trends in industry

and business and why your role is even more critical to America's future.

Let me set the stage with a story. As head of the dominant region for the world's largest privately held crop protection company, my success is dependent on the quality and caliber of my team. Recently, the head of our North American supply chain accepted a job at the corporate headquarters in Tokyo, with my encouragement. This extremely capable man – who is not Japanese by the way – speaks Japanese as fluently as English and earned this opportunity in Tokyo. To replace him, I looked at a number of candidates already in the United States, knowing I needed the best person I could find who could add value to my business. So where did I find the new supply chain director? I brought in a leader from Mexico.

Math and Science Skills Critical

This illustrates two points I'd like to share with you. First, business and industry will continue to need qualified, smart people to remain competitive. Like me, other heads of business are not going to be "satisfied" by lowering the bar on qualifications just to fill a job opening. Math and science are integral in most jobs and industries – even more so in agriculture. People are a critical resource for the success of any business, and our ability to partner with education to manage this resource well is essential.

Second, in a global economy, U.S. companies are no longer limited to finding people within these 50 states to meet business needs, and other countries are competing for the same high-performing workers. Today's students need a solid education to be considered for opportunities in America's future workforce. America is facing a competitive crisis, especially in the fields of mathematics, science and engineering.

Here are some rather alarming statistics.

- American K-12 students are consistently outperformed by their international counterparts on math and science assessments. In 2004, the PISA study ranked the United States 24th out of 29 countries. Formerly known as the Program for International Student Assessment, the PISA survey measures how well students nearing the end of their secondary school education are prepared to meet the challenges they are likely to face in society. In this latest survey, the United States has fallen behind such countries as Poland, Hungary and Spain by some measures of math proficiency.
- On state assessments in English and mathematics, roughly one in three students fails to meet the standards. (Achieve, Inc.)
- Nationwide, only 71 percent of students graduate from high school. (Achieve, Inc.)
- Only about half of black and Latino students graduate from high school. (Achieve, Inc.)
- A high school diploma is no guarantee that a graduate is prepared for the next step; nearly one-third of high school graduates who enroll in college require remedial courses. (Achieve, Inc.)
- More than two-thirds of jobs will require some postsecondary education. The jobs requiring the most education and offering the best pay are the fastest growing. (Educational Testing Service, 2003)
- Job opportunities in science and engineering are growing, yet the number of science and engineering degrees awarded to U.S. citizens is decreasing. (Business-Higher Education Forum)
- Non-U.S. residents with temporary visas accounted for one-third of the Ph.D.s awarded in science and engineering in 2003. (National Science Foundation)

Why am I sharing all this educational doom and gloom? Because you can be America's solution to this science and math education challenge. What better avenue than 10,000 high-quality agricultural education programs with 100% FFA participation by 2015?

Triple A Approach

In Chinese, the term “change” combines the characters for crisis and opportunity. The crisis in math, science and engineering education is here. I believe that as agriculture educators, you have the opportunity to jump-start the future of America’s competitiveness through what I propose as the Triple A Approach.

The first “A” is for aggregation. Success for the future means the pulling together of agriculture educators to capitalize on the infrastructure that is already in place around the country. A solid agricultural education network is already embedded within the high school, community college and university systems. Now we have to speak with one voice across the nation to demonstrate the relevancy of math, science and engineering concepts to students and deliver that content with excitement and creativity.

The second “A” is for affiliation. No longer can agriculture educators be in a separate camp from those in the math and science disciplines. Instead, we must actively work together and become closely connected with our colleagues in math and science to offer living examples of the concepts they are teaching. Agriculture teachers need to be the first to forge collaboration and partnerships with the sciences, math and engineering teachers. When we can get young leaders excited about a career in biology through the excitement we create in the classroom, greenhouse, SAEs and in career development events, we are headed in the right direction.

The final “A” is for application. Here is where we truly shine. In agricultural education/FFA, we bring concepts to life. Your students don’t learn about photosynthesis from a textbook. You take them into flowerbeds and fields to learn the hands-on application of theories.

From personal experience, I can tell you that I learned more in high school through FFA horticulture contests than I did in my college plant physiology class. As a high school sophomore, I can vividly remember describing Krebs’s Cycle to whoever would listen as I prepped

for the national competition. And what was more important was that I did not just memorize it, I knew why it was important. My advisor, Richard Sawyer, introduced me to a new world in agricultural sciences and it stuck. When I got to college, science was a snap, but only because agricultural education/FFA had given me the real-world application that made it not only relevant, but also an exciting adventure in learning.

No Time for Complacency

If you are feeling at all complacent, or if you think agricultural education is doing all it can do to prepare students to compete and thrive in the world of the future, then I will argue that times are changing, and this is the moment that we, collectively, have been waiting for.

In business, I see many agriculture educators and departments on the sidelines of the big game because they are willing to define themselves solely as “agriculture.” In this 21st century information age, we have the chance to redefine our role and, in doing so, match reality to the conceptual. Not only will we help recruit and train a new generation of math, science and engineering experts, but we may gain additional recruits to the agricultural industry as well.

A few years ago when I worked for Dow AgroSciences, I spent quite a bit of time in India. One visit to the Dow plant in Lote (150 KM, but a five-hour drive, south of Mumbai), I experienced something truly amazing. The small community of Lote was near the coast and in rolling hill country. There was not a hotel, but a compound we stayed in while visiting. As many large corporations do, Dow helped by investing in the community. We helped build a classroom so the

children wouldn’t have to study in the rain during monsoon season.

The first time I visited Lote, the children in the village had a parade for me. At the end of the parade, we sat in the large schoolroom. All the children were sitting on the floor and just as beautiful and prim and proper as they could be. We spoke in English and thanked them and the community. There were 100 children of grade school and high school age in the room, hanging on our every word. It just so happens that their math and science scores dwarfed anything that we could see in the United States and in much of Europe. They have what we would think is so little, but in reality is so much.

Look at what we have in the United States. We can make this work through the infrastructure, affiliation and application opportunities we have in agricultural education. This is our opportunity. Agricultural education/FFA is the perfect avenue to connect the conceptual to the practical. To get kids excited about their future – our future – and excited to explore new opportunities in science and math through the world of agriculture.

“Working together, we can take agricultural education and the agricultural industry to new levels of respect and importance. In so doing, we’ll create renewed interest in math, science and engineering for the continued competitiveness of America in the global marketplace.”

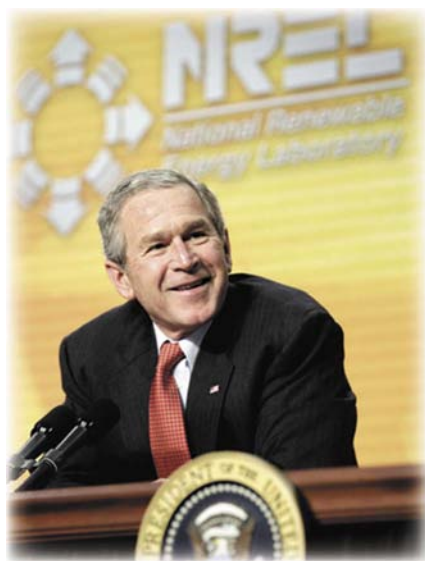
This will take courage. We must be willing to work in new ways, to seek out new experiences, to extend the offer of partnership with other parts of the education system, and to work in concert with other agricultural industry experts. This will create the atmosphere where we can attract and retain the best and the brightest as future leaders in the agriculture industry.

You hold the future in your hands. Working together, we can take agricultural education and the agricultural industry to new levels of respect and importance. In so doing, we’ll create renewed interest in math, science and engineering for the continued competitiveness of America in the global marketplace.

Bioenergy Bursting with Opportunity

Agricultural Waste is New Energy Source

While many agriculturalists have been tossing around terms like biofuels, biodiesel, soy diesel, gasohol and wind energy for years, a whole chorus of voices has recently joined them. President Bush added his voice to the choir earlier this year during the State of the Union address.



President Bush visits the National Renewable Energy Lab in Golden, Colo., to promote biofuels.

"Keeping America competitive requires affordable energy, and here America has a problem," Bush said. "America is addicted to oil, which is often imported from unstable parts of the world. The best way to break this addiction is through technology...By applying the talent and technology of America, we can dramatically improve our environment, move beyond a petroleum-based economy, and make our dependence on Middle Eastern oil a thing of the past."

Bush cited several different projects that are developing new ways to move the United States away from its dependence on foreign oil. These projects include the recently completed "Billion Ton Study," a joint feasibility study for the departments

of Agriculture and Energy, on cutting-edge methods of producing cellulosic ethanol.

Biomass as an Energy Feedstock

The study, completed by the Oak Ridge National Laboratory (ORNL), outlines a national strategy in which one billion dry tons of biomass – defined as any organic matter that is available on a renewable or recurring basis – would displace 30 percent of the nation's petroleum consumption for transportation. Currently, biomass supplies about three percent of the nation's energy, surpassing hydropower as the largest domestic source of renewable energy.

"Our report answers several key questions," said Bob Perlack, a member of ORNL's Environmental Sciences Division and a co-author of the report. "We wanted to know how large a role biomass could play, whether the United States has the land resources and whether such a plan would be economically viable."

Looking at just forestland and agricultural land, the two largest potential biomass sources, the study found potential exceeding 1.3 billion dry tons per year. That amount is enough to produce biofuels to meet more than one-third of the current demand for transportation fuels, according to the report.

Such an amount, which would represent a six-fold increase in production from the amount of biomass produced today, could be achieved with only relatively modest changes in land use and agricultural and forestry practices.

"One of the main points of the report is that the United States can produce nearly one billion dry tons of biomass

annually from agricultural lands and still continue to meet food, feed and export demands," said Robin Graham, leader for Ecosystem and Plant Sciences in ORNL's Environmental Sciences Division.

Energy Security and Reduced Emissions

The benefits of an increased focus on biomass include increased energy security as the United States would become less dependent on foreign oil, a potential 10 percent reduction in greenhouse gas emissions and an improved rural economic picture.

Current production of ethanol is about 3.4 billion gallons per year, but that total could reach 80 billion gallons or more under the scenario outlined in this report. Such an increase in ethanol production would see transportation fuels from biomass increase from 0.5 percent of U.S. consumption in 2001 to 4 percent in 2010, 10 percent in 2020 and 20 percent in 2030. In fact, depending on several factors, biomass could supply 15 percent of the nation's energy by 2030.

Meanwhile, biomass consumption in the industrial sector would increase at an annual rate of 2 percent through 2030,

A recent report concludes that the one billion dry tons of available biomass – defined as any organic matter that is available on a renewable or recurring basis – could displace 30 percent of the nation's petroleum consumption for transportation.

while biomass consumption by electric utilities would double every 10 years through 2030. During the same time, production of chemicals and materials from bio-based products would increase from about 12.5 billion pounds, or 5 percent of the current production of target U.S. chemical commodities in 2001, to 12 percent in 2010, 18 percent in 2020 and 25 percent in 2030.



Illinois FFA members helped Chevy unveil its newest vehicle that is powered by E-85, an ethanol-blended gasoline, at the Chicago Auto Show.

Land Use Implications

Nearly half of the 2.263 billion acres that comprise the U.S. land base has potential for growing biomass. About 33 percent of the land area is classified as forest, 26 percent as grassland, 20 percent as cropland, 13 percent as urban areas, swamps and deserts, and 8 percent as special uses such as public facilities.

The full report, titled "Biomass as Feedstock for a Bioenergy and Bioproducts Industry:

The Technical Feasibility of a Billion-Ton Annual Supply," was sponsored by the Department of Energy's Office of Energy Efficiency and Renewable Energy, Office of Biomass Program. The complete report is available at: http://feedstockreview.ornl.gov/pdf/billion_ton_vision.pdf

Industry Initiatives

Beyond what governmental agencies are doing, industry is working on its own bioenergy solutions. Several of the major auto manufacturers have recently launched campaigns featuring their efforts to produce vehicles that use bio-based fuels. Twelve Illinois FFA members recently participated in launching the 2007 Chevy Avalanche, which is powered by E-85, a blend of 85 percent ethanol and 15 percent unleaded gasoline, during the Chicago Auto Show.

Major energy and agriculture companies are also pursuing biofuel solutions. Archer Daniels Midland Company (ADM), one of the world's largest agricultural

processors of soybeans, corn, wheat and cocoa, is making major investments in both ethanol and biodiesel production.

BP, formerly British Petroleum, is one of the world's largest energy companies and has also made commitments to pursuing alternative energy sources. Significantly, the company has started using the tagline, "Beyond Petroleum," in some of its advertising campaigns.

Classroom Connections

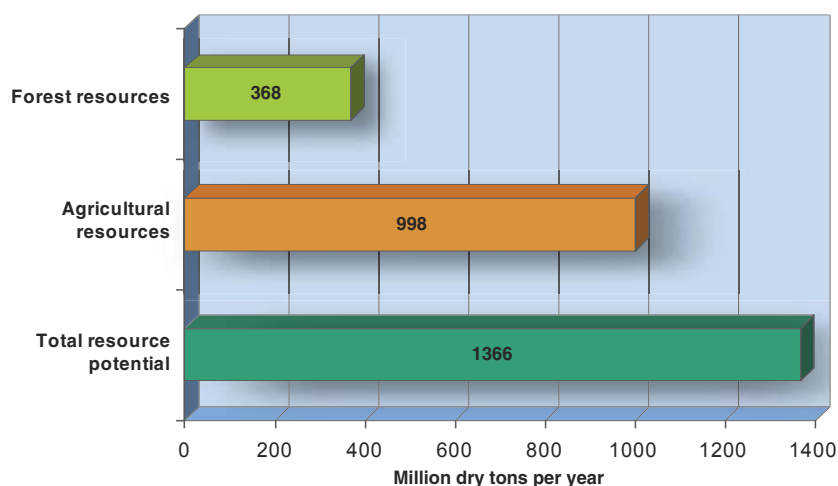
Add all of this up and what you find are great opportunities for today's students in the rapidly emerging sector of bioenergy. So, how do we prepare students to take advantage of these opportunities and play key roles in developing bioenergy? The answer lies in adding the topic to our curricula and making sure their science and math skills are solid.

A number of resources are available online at no cost. For example, the National Renewable Energy Laboratory (NREL) has a section on its website devoted to education entitled, "Learning About Renewables." It may be accessed at www.nrel.gov/learning/. Another point of entry is the National Association of Agriculture Educators website, which includes a lesson on biomass www.naae.org/links/resources/usdalessons.html.

Bioenergy is a complex topic that requires expertise in many different fields. It is an excellent topic to team-teach with your science and math counterparts. Reach out to your colleagues and explore how bioenergy can be addressed in science, math and agriculture courses, and how you can each reinforce concepts the others are teaching. Beyond science and math, the topic is also ripe for discussion in economics, current events and government courses.

Understanding this topic can give your students a head start toward careers in the industry or just help them gain a better grasp of the world in which they will live.

Annual Biomass Resource Potential from Forest and Agricultural Resources



Source: Biomass as Feedstock for a Bioenergy and Bioproducts Industry

RESOURCES

- U.S. Department of Energy Biomass Program, www.eere.energy.gov/biomass/
- National Renewable Energy Laboratory Biomass Program, www.nrel.gov/biomass
- Biomass Research and Development Initiative, www.bio-products-bioenergy.gov
- Archer Daniels Midland Biofuels, www.admworld.com/naen/fuels/petroleum.asp
- National Biodiesel Board, www.biodiesel.org
- American Coalition for Ethanol, www.ethanol.org
- Ethanol Promotion and Information Council (EPIC), www.drivingethanol.org

Meeting the Challenge Head On:

Indiana's Advanced Life Sciences Curriculum

the business of life science is significant in Indiana. The state is home to Eli Lilly and Company, Dow AgroSciences and many more organizations with a life science focus. Indiana's \$13 billion life sciences industry employs more than 82,000 workers in nearly 900 companies.

In an effort to more appropriately prepare students for this growing industry, agricultural education leaders in the Indiana Department of Education teamed with their colleagues at Purdue University to develop three new high school courses:

- Advanced Life Science: Animals
- Advanced Life Science: Plant and Soil
- Advanced Life Science: Foods

These courses are designed to introduce high school students to agricultural life sciences, postsecondary education and careers. They allow students to apply agricultural concepts to real-life experiences and to explore the technological, economic, social and political implications of life science.

John Demerly, formerly the assistant director for life science initiatives with the Indiana Department of Education, was one of the project's key drivers. "Stakeholders in agriculture and education knew that for agricultural education to survive in a highly technical and competitive world, we needed to increase the rigor of our coursework and make sure students were learning concepts that are relevant to tomorrow's agriculture industry."

Demerly continues, "The Indiana Department of Education worked collaboratively with Purdue University

and other postsecondary institutions in our state to develop courses that addressed rigorous agriculture and science standards. By working with these institutions, we created a level of buy-in that was critical to the overall success of these courses."

The Indiana Commission for Higher Education approved all three courses for Core 40 and Academic Honors Diploma science credit. Because they are career and technical education as well as academic courses, they are funded through the state when taught by a certified agricultural science teacher.

In addition, the group worked with Purdue University to create end-of-course test-out assessments. Students who successfully complete the course are eligible to take the assessment for a small fee. In the first year, 70 percent of the students who took the assessment passed, thereby earning three credits equivalent to Animal Science 102 at Purdue University.

Teacher Preparation

One of the keys to the program's success was developing and offering a professional development course to prepare teachers for delivering the courses. "Mark Balschweid at Purdue surveyed the agriculture teachers to identify their concerns and what we needed to cover to prepare them to teach the courses," Demerly says. "The teachers' primary concern was with their individual levels of technical knowledge in a laboratory setting, so Mark focused his training in those areas."

The teachers' second area of concern was how the students would respond to courses that were significantly more robust than what they were accustomed to. "Our students really rose to the challenge," says Natalie Schilling, an agriculture teacher at Eastern Hancock High School in Charlottesville, Ind. "Because we were relating the scientific concepts to their area of interest—in this case, animals—it was easier for them to understand. These courses push our agriculture students to stretch themselves academically."

To summarize, Demerly says, "The primary thing we need to recognize is that the world of agriculture is changing rapidly. The level of science, math and technology skills tomorrow's workforce will need is much higher than it ever has been. Today's students need to take a set of courses that will prepare them academically and technically for their respective futures."

For more information about these courses, visit www.indianaaged.org/AgEdStandards/html.



An Eastern Hancock High School student demonstrates DNA extraction for Dr. Suellen Reed, Indiana Superintendent of Public Instruction.

Agriscience Leads to Student Success

What does it take to earn recognition as an outstanding agriscience teacher? A passion for applied science and helping students achieve are two of the traits that led Carl Aakre to hearing his name called on stage as the 2005 National FFA Agriscience Teacher of the Year.

"Agriculture is an applied science and provides great options for teaching advanced science concepts," says Aakre. "As agriculture teachers, we have the opportunity to help students better understand what they're learning in other classes, like biology, and apply that knowledge in the real world. Once students see that connection, they understand why the information is important."

Real-World Issues

Students in Aakre's classes use real-world issues such as biotechnology, precision agriculture and food science to learn scientific concepts. "By using real-world situations, students can inquire about the social and economic aspects of science on the agriculture community and the consumers of all agricultural products," Aakre explains.

Aakre, who joined the Perham High School faculty in Perham, Minn., last fall, taught at the Agricultural and Food Sciences Academy in suburban Minneapolis from 2001-2005. "At AFSA, the majority of my students had limited farm backgrounds," Aakre says. "By discussing the environmental, social and economic impacts that they read about in the local newspaper, they became more aware of the relationships between agriculture, science and their futures."



Carl Aakre is named the 2005 Agriscience Teacher of the Year.

Aakre continues, "All students come into a class with an opinion about certain topics. As an agriscience teacher, I challenge my students to think for themselves and develop their own opinions about scientific technologies based not only upon scientific facts, but also on their own ethical beliefs as well. I feel it is my obligation to agriculture and science to encourage students to think through their opinions in many different areas, including environmental protection, conservation, biotechnology, and alternative fuels. Encouraging students to develop their own opinions based on scientific fact, while having the knowledge of agricultural applications, will provide today's students with the capability of solving future agricultural problems."

Teaching Technique

One of Aakre's favorite teaching techniques is designed to emphasize how understanding science can change a person's perspective. "Biotechnology is an area that has sparked many students' interest because of the media attention it receives," Aakre says. "On the first day of

my biotechnology class, I ask students to write a one-page paper describing what they think biotechnology is, the effect it will have on their lives, and their personal opinion of biotechnology."

As the course continues, the students study agricultural organisms from the inside out, working from DNA to cells to eukaryotic and prokaryotic organisms. Aakre takes biological concepts and asks the students to apply them to agricultural products and experiments. He says, "At the end of the course, I return the students' opinion papers they wrote on the first day, and we discuss if and how their ideas and opinions about biotechnology have changed. This is always a great end-of-course discussion and allows the students to reflect on what they have learned."

Another technique Aakre employs is regular current event discussions. "On Fridays, students are invited to bring in news articles or topics that relate to the scientific concepts they are studying," Aakre explains. "We debate the issues in class and discuss how the scientific concepts are being applied in the real world."

Science-Based SAEs

Aakre encourages teachers to explore the potential for science-based supervised agricultural experience programs with their students. "Students who come from non-traditional backgrounds often have difficulty establishing SAEs," Aakre says. "Research projects are a great way for these students to develop an SAE and increase their skill levels."

All students at the Agricultural and Food Sciences Academy are encouraged to develop agriscience projects they can use as their SAEs. "Students develop the same skills as they would in a traditional agriculture SAE by performing ag-related

science experiments," Aakre explains. "Students need to record the skills they learn, the hours they have worked on the research and experiments, and present their findings with a formal interview and presentation."

Research-based SAEs allow students to apply the skills they are learning in class and provide physical proof they understand the material discussed in class and can apply it to real life.

A quick glance at Aakre's list of former students and their accomplishments provides insight into this remarkable teacher's ability to motivate and influence his students. Consistently Aakre's students earn trips to the National FFA Agriscience Fair and have locked in thousands of dollars worth of scholarships. In addition, two of his students, Hannah Von der Hoff and Elizabeth Argo, each received a \$1,000 scholarship and a bronze medal for their research project on genetic drift in organic soybeans at the prestigious Siemens Westinghouse Competition in Math, Science and Technology.

Increasing FFA Participation

One hurdle Aakre and his AFSA colleagues faced was engaging their culturally diverse urban students in FFA. "As a new chapter in 2001, many of the students had not seen anyone they knew benefit from FFA, so it was difficult to get them involved," Aakre explains. "When six students earned trips to the national FFA convention at the end of the school year through the agriscience program, that sparked an interest. More students wanted to know about summer camps and conferences, how to become a regional officer and how to earn a proficiency award."

As the AFSA students learned how they could benefit from FFA, their involvement soared. Over the past four years, more than 100 AFSA students have attended the national FFA convention, with 30

qualifying to compete in the National Agriscience Fair. "The agriscience program has been a self-esteem booster for a young, enthusiastic FFA chapter," Aakre says. "By experiencing early success in one area, other students wanted to find out how and where they could be successful. As a result, many students are now pursuing careers in an agricultural area that would have never thought of it without the FFA and agriscience program. In addition, the school board has been so impressed with the agricultural science program that they voted to require all AFSA students to join FFA."

PotashCorp sponsors the Agriscience Teacher of the Year program as a special project of the National FFA Foundation. For more information on this program, visit [\[www.ffa.org/programs/ag_sci/index.html\]](http://www.ffa.org/programs/ag_sci/index.html) or call 317-802-4402.



Aakre's students learn to propagate plants using tissue culture techniques. Since one Boston fern is used to grow many new plants, the topic of cloning is discussed as part of this lab.



You Can't Win if You Don't Enter

Teachers are often reluctant to complete award applications for themselves. In fact, their aversion to drawing attention to themselves can create challenges for programs designed to recognize outstanding educators. Such is the case with a number of National FFA Organization awards, including the Agriscience Teacher of the Year award.

Why Apply?

Too often teachers fail to fully embrace the professional and academic value of applying for awards. When a teacher is recognized for his or her accomplishments, it draws positive attention to the program and the students. The opportunities awards open for students, the partnerships they create for schools, and the recognition they generate for programs are tremendous wins teachers often seek to generate. Applying for this award is an easy step on the path to generating those opportunities, partnerships and recognitions for your program.

Details

In the Agriscience Teacher of the Year program, every state winner receives \$100, and the national finalists each receive a \$500 cash award and a \$1,500 grant for their school to purchase agriscience equipment. The application form, selection criteria and other details can be found online at [\[www.ffa.org/programs/ag_sci/index.html\]](http://www.ffa.org/programs/ag_sci/index.html). For more information, please send an e-mail message to [\[agriscience@ffa.org\]](mailto:agriscience@ffa.org) or call 317-802-4402.

Viscosity of Ketchup

Are generic food brands as high in quality as name brand foods? We all go to the grocery store and see various brands of food, whether it is cereal or ketchup, and wonder, "Is it worth the money to pay more for a name-brand food product when I can buy the generic brand for a much lower price?"

Background

Viscosity is the resistance of a fluid to flow. Many of us are familiar with viscosity of oil. Some cars require 5W-30 while others require 10W-40. These numbers refer to the thickness of the oil and its resistance to flow at different temperatures.

Activity

This activity will compare three different brands of ketchup and determine which one is the thickest. Students will build a viscometer, collect data from the different ketchups, graph the data, and determine which brand has the highest viscosity. The viscometer will measure the flow of ketchup in mL per second.

Preparation

This experiment is good for introducing the scientific method. Students should develop a hypothesis before beginning the experiment to answer the question, "Are brand name ketchups thicker than generic brands?" Students can do some research before developing the hypothesis by reading the manufacturer's label on each bottle and comparing them. Students should also determine how they are going to collect data in a table (see example below).



Materials

- 3 different brands of ketchup (preferably a generic grocery brand and two name brands)
- 10 mL graduated cylinder
- funnel
- stopwatch
- graph paper
- ruler

Ketchup	10 sec.	20 sec.	30 sec.	40 sec.	50 sec.	60 sec.	70 sec.
A							
B							
C							

1. Place a funnel on top of the graduated cylinder.
2. Fill the funnel with one brand of ketchup.
3. Start the stopwatch.
4. Record the amount of ketchup that has flowed into the graduated cylinder in 10-second increments in the table.
5. Continue recording until you have measured 10 mL of ketchup in your graduated cylinder.
6. Clean your materials and repeat steps 1-5 with the next brand of ketchup.
7. Graph your data with the amount (mL) on the Y axis and the time (seconds) on the X axis.
8. There should be three lines, one for each brand of ketchup.
9. Compare the lines, which one has a greater slope? Which one flowed the slowest? Why?

Final Report

Students should write a report that includes a question, materials, hypothesis, procedure, data chart, conclusion and recommendation. Students will find some ketchups flow much slower than others. They should then try to determine why by looking at the ingredients and the amount of water in the ketchup. Students should make recommendations on other experiments that could be done to determine the quality of each ketchup. For example, does the viscosity of the ketchup affect its taste?

Dissection of a Reproductive Tract

Question: What are the features of a cow's reproductive cycle?

This lab will provide students an opportunity to visually see where a cow is in its reproductive cycle, while identifying anatomical features of the reproductive tract with the additional option of adding a lab from *Biotechnology for Plants, Animals and the Environment*, published by the National Council For Agriculture Education (available on CD for \$25 at <http://store.yahoo.com/ffaunlimited/biforplanand.html>).

Background Anatomy

Students should be able to identify the following structures on the reproductive tract:

- Uterus – passageway to the uterine horns
- Cervix – neck of the uterus that softens for sperm to enter the uterus
- Vagina – canal in which sperm is deposited by the bull
- Vulva – External opening of the vagina
- Uterine Horns – where fetal development occurs
- Oviduct – Fertilization of the ovum occurs
- Ovary – Where the egg (ovum) is released through the ruptured follicle

Heat Cycle

A student can identify where the cow is in its heat cycle, or if it is pregnant, by looking at the ovaries of the cow and identifying the stage of the follicle or corpus luteum. The follicle is essentially a potential ovum or egg that could be fertilized once leaving the ovary. The corpus luteum forms after the follicle has ruptured and the ovum has been released. The corpus luteum produces progesterone, which aids in providing an environment in the uterine horn for embryo development, and forms where the previous follicle has been released.

Additional information can be found at the following websites:

- *Reproductive Anatomy and Physiology of the Cow*, Jack C. Whittier, Department of Animal Sciences, Missouri University, (<http://muextension.missouri.edu/explore/agguides/ansci/g02015.htm>),
- *The Reproductive Function of Dairy Cattle*, by Michel A. Wattiaux, Babcock Institute, (<http://www.babcock.wisc.edu/downloads/de/08.en.pdf>)

Activity

Students working through this activity will be able to identify the anatomical parts of a female cow's reproductive tract, explain the process for artificial insemination and embryo transfer, and explain what a heat cycle is while identifying where the cow was in her heat cycle.

Materials

- reproductive tract of a cow (talk to your local butcher or meat processor to see if there would be any available; you can freeze them until you need them for class)
- stickpins
- masking tape
- dissection kit
- protective gloves for all students

Aakre's students label parts of a bovine reproductive tract during this lab activity.

Preparation

This lab is great for reviewing a reproduction unit in animal science. Students should review the reproductive structure of a cow and the heat cycle of the cow before beginning this activity. They should have diagrams available for comparing and identifying the parts of the reproductive tract and formations of the follicle and corpus luteum.

Procedure

1. Review the anatomical parts of a cow reproductive tract.
2. Review the reproductive cycle of the cow reproductive tract
3. Students should identify all parts of the reproductive tract by making labels out of masking tape and stickpins that can be placed on the reproductive tract.
4. Each group should explain the function and location of each part to the instructor once they have labeled all parts.
5. Students should then identify the parts of the ovary and, using the heat cycle diagram, explain whether the animal is pregnant and where it was in its heat cycle when it was processed.

Conclusion

Review with all students the heat cycle and compare differences in the reproductive tracts. Discuss the processes of artificial insemination and embryo transfer and have students explain how they believe this is done. This can be a great inquiry activity for students to explain and learn using real-life visuals.

Additional Labs and Discussions

- Artificial Insemination
- Flushing of Embryos
- Embryo Transfers
- Aspiration of Oocytes (*Biotechnology for Plants, Animals and the Environment*)



Positioning Your Program for Success

We've all heard the axiom "perception is reality." Have you ever thought of applying that thought to where your program is physically (and mentally) positioned in the school?

When Lisa Konkel accepted the half-time agriculture teaching position at Big Foot Union High School in Walworth, Wis., 11 years ago, her predecessor told her with much certainty that the program would never grow enough to support a full-time teacher. Konkel took that as a challenge, and by the end of her first year, the program had attracted enough students to necessitate a full-time position.

By the time a school bond issue to fund the addition of a science wing came up in 1999, the agriculture program was positioned to take advantage of the opportunity. Konkel had developed a strong working relationship with the science department and was constantly borrowing equipment to teach science concepts in her program.

New Facility

When the time came to design the new facility, the biology teacher approached

the administration and requested that the agriculture classroom be a part of the new science wing. Today, when you walk into Big Foot Union High School, you'll find the Agricultural Education Department housed in the new science wing, right next door to classrooms for chemistry, physics and biology.

"This move has provided a big image boost to the program," Konkel says. "Because of where we are housed within the school, the program is perceived much differently than it was before, even though the curriculum hasn't changed significantly."

Konkel indicates that it took awhile to get all of the teachers on board, particularly some of the older science teachers. "I did meet with some resistance at first, but when the science teachers learned more about what I was teaching, they became supportive," Konkel says.

New Mindset

She chuckles as she explains how the advanced biology teacher's perception changed. "He really liked teaching Biology II, but there was a significant decline in student numbers from the beginning course to the advanced course. When I started teaching my biotechnology course,

many of those students would sign up for Biology II because they really enjoyed the subject and wanted to continue. When he started getting increased numbers of students in Biology II because of the biotech course, he became very supportive."

Although Konkel's courses almost always include the top students in every grade level, she stresses that students who are less academically proficient are also successful in her courses. "I serve all levels of students, and they can all be successful," Konkel says. "I incorporate a lot of hands-on activities and that really helps. Kids are willing to take tougher classes when they know they'll get to do things that interest them and that they can relate to. They will perform to the level of expectation that you set."

One of the things Konkel finds personally gratifying is the number of past students and graduates who come back to thank her. "I frequently hear from students after they've taken the ACT who say my class helped them score better. I firmly believe in challenging my students to push themselves and require homework almost every day in every course. Graduates who are in college often come back and thank me for teaching them how to study, saying that they had never been pushed to work so hard before. I believe if you're offering an easy course in high school, you're really doing your students a disservice because you're not doing all you can to prepare them for their futures."



Konkel incorporates many hands-on activities to engage students in the learning process.

Big Foot Union High School By the Numbers

- serves four small towns in the area, most students are rural, non-farm or in town
- ~600 students in grades 9-12
- ~180 students enrolled in the agricultural education program
- 90-minute block schedule; semester-length courses
- curriculum has strong science orientation (Exploring Agriscience, Plant Science, Advanced Plant Science, Animal Science I, Animal Science II, Biotechnology I, Biotechnology II, Pre-veterinary Medicine, Forestry and Wildlife, Food Science, Agriculture Leadership and Research, and Agribusiness)

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Local Program Success

Harnessing the Power of Biotechnology

as I've traveled the country working with agriculture teachers, I've noticed that some topics cause very diverse responses.

Take for example, biotechnology. The very mention of the word causes great apprehension in some teachers and great excitement in others. What is it about this "kryptonite-like" subject that causes some teachers great angst while empowering others to achieve great results? I believe it is the fear of the unknown. Once we break the fear barrier with knowledge, we are open to new challenges and propelled forward.

Benefits of Teaching Biotechnology

Each year, more and more teachers are discovering the secrets associated with teaching biotechnology and incorporating emerging technologies into their programs. Some of the benefits include:

1. Revitalizing struggling programs through increased student interest. Students who see opportunities for hands-on, cutting-edge applications of science and technology will be eager to enroll.
2. Increased respect from science teachers, administrators, parents and peers. No longer will you be "just the ag teacher." You will be able to show increased validity for your program as a viable science-based curriculum, and you will gain respect of science teachers by collaborating with them.

3. Become part of the solution to No Child Left Behind, not part of the problem. As accountability for test scores spreads throughout the entire school, instead of being looked at as a "cause," you become part of the answer to how to raise test scores.

Biotechnology has become such a popular subject in many agricultural education programs that it was one of the topics for the national convention delegate committees. The delegates examined the possibility of starting a Biotechnology Career Development Event (CDE). The delegates passed on to the CDE advisory committee a directive to either begin a specific Biotechnology CDE, or to incorporate more biotechnology into the current CDE structure. The advisory committee has passed the latter option on to the National FFA Board of Directors.



Incorporating Biotechnology

Teachers may ask, "What do I give up if I am to start teaching biotechnology?" The answer may be to start slowly by incorporating the topic into current lessons through adding a lab exercise or two, having a class discussion of current issues dealing with biotechnology, or training an



By
Larry Gossen,
LPS Specialist
National FFA
Organization

Ag Issues CDE team using a biotechnology topic.

Training Opportunities

It is easy to get started with the transition by incorporating more biotechnology. You can start by attending any number of professional development workshops on subjects related to biotechnology. Often, states will provide training during summer conferences or fall or mid-winter workshops. If your state in-service committee would like assistance in providing such training, have them contact me about having one of the 22 National Agricultural Science Ambassadors make a presentation.

Another outstanding professional development activity available this summer is the Washington Leadership Conference. The advisor's program has a new look, and there will be some emphasis placed on biotechnology education, including hands-on lab activities to take home to your program. I am confident you will enjoy the opportunities provided through this new format and focus.

Regardless of your level of experience with biotechnology, you can overcome the barrier of fear and supercharge your program with the "kryptonite-like" power of biotechnology.

Collegiate Consortium Formed

about a year ago, 16 national collegiate organizations came together to form Collegiate LifeKnowledge as a leadership development program for collegiate agriculture students. As a result of this collaboration, these organizations discovered further benefits of working together and sharing resources.

These 16 national collegiate organizations met early in 2006 to form The Consortium of Collegiate Agricultural Organizations. The Consortium aims to provide greater opportunities for college agriculture students. As a result of this meeting, a shared vision and mission were developed:

Vision Statement

To be the recognized consortium optimizing the effectiveness of collegiate agricultural organizations.

Mission Statement

The consortium maximizes collaboration of collegiate agricultural organizations and industry partners to enhance the personal, organizational, career and community education of future leaders.

The consortium provides its member organizations with opportunities for open dialog on a number of issues and ideas. Through these conversations, resources can be shared, new ideas brainstormed, and further understanding of each organization will be achieved. During the development process, an initial list of strategic action plans was created to move the organization forward. Goals were set to enhance Collegiate LifeKnowledge, offer training and advisor development, create a website to share career opportunities and many more.

The participating organizations are:

- Agricultural Communicators of Tomorrow (ACT)
- Agriculture Future of America (AFA)
- Alpha Gamma Rho Fraternity (AGR)
- Alpha Gamma Sigma (AGS)
- Alpha Tau Alpha (ATA)
- Alpha Zeta
- Block and Bridle
- Collegiate 4-H
- Collegiate FFA
- FarmHouse Fraternity
- Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS)
- National Agri-Marketing Association (NAMA)
- National Agricultural Alumni Directors Association (NAADA)
- Postsecondary Agricultural Student Association (PAS)
- Professional Landcare Network (PLANET)
- Sigma Alpha

For more information about The Consortium or these collegiate organizations, please contact Eric Schilling at eschilling@ffa.org or 317-802.4214.



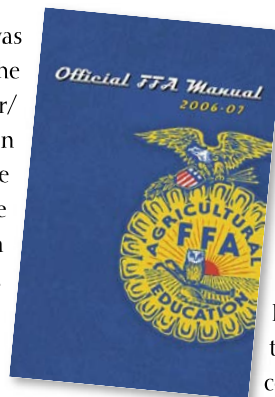
Updated FFA Resources Coming Soon

Several classroom resources produced by the National FFA Organization have recently been revised and will be making their debut this summer.

The *Official FFA Manual* has undergone a complete revision. "The whole effort stemmed from teachers and state leaders raising the question, Does the manual have everything we need in it?" says Tiffany Sanderson, an education specialist with the National FFA Organization. "So, last spring we visited eight of the top 15 manual-purchasing states (Virginia, North Carolina, South Carolina, Tennessee, Kansas, Oklahoma, Missouri and Arkansas) and asked teachers what is needed."

The overwhelming response was that the manual generally has the information they are looking for/need, but it isn't organized in a user-friendly way. "While we were talking with teachers, we also had the chance to visit with students in grades 10 through 12 to see what they would do to make the manual fit their needs," Sanderson says. "The students told us that the information could be organized in an easier-to-use format and it needed a fresh look."

Basically, the updated manual contains the same information. It just has a new look and is organized a little differently. The price will remain the same (one copy for \$1 or 25 copies for \$20).



The *FFA Student Handbook* and *Advisor's Guide to the FFA Student Handbook* have also been revised based on input received from students and teachers. The advisor's guide includes video clips and PowerPoint presentations that can be used with the comprehensive lesson plans provided.

Watch for these newly revised resources in the new edition of *The Core* catalog, which will be mailed this month. Or, find the revised products online at www.ffaunlimited.org.



Building on Biotech

b iotechnology is a tool we need to feed the world's future population, says Tim Turner, who teaches agriculture at Liberty-Union High School in Baltimore, Ohio. "We need to do a better job of educating people about biotechnology, both those who will work in the industry and those who will be consumers."

Turner and his teacher partner, Christi Bachman, have taken a proactive approach to keeping their courses up to date. One key to their success has been reaching out to industry and incorporating industry practices into their program.

Keeping Up with Industry

"This is my 29th year in the classroom," Turner says. "I've seen lots of change in the industry and feel we, as teachers, need to work diligently to make sure our programs are meeting our students' needs. My oldest son works for John Deere, and so I have some insight into where the equipment industry is going in terms of technology."

Turner and Bachman rely on their advisory council and members of their young farmer program for input. For example, a recent conversation on whether or not weeds were developing resistance to

glyphosate products, such as Round-Up, led to a student project on the efficacy of this class of crop protection products.

Industry Input

Turner and Bachman have also formed a working relationship with Pioneer Hi-Bred International, engaging company personnel to understand what the industry needs and where it is going. "Lots of companies have educational consultants who are interested in working with teachers," Turner says. "I have met some of my best contacts at the FFA National Agricultural Career Show. I encourage teachers to reach out to this group of professionals and keep in touch with them."

Liberty-Union students progress through a series of courses, including Agriscience I and II, and Agriculture Tech Prep I and II. Students who complete the tech prep courses, which are designed to be more like college courses, can receive credit from cooperating postsecondary institutions, including Agriculture Technical Institute, Columbus State University and The Ohio State University. Because of the level of science and math rigor in the tech prep courses, students are required to have completed prerequisites in those subjects.

Liberty-Union students learn how to propagate plants using tissue culture methods and grow tomatoes, cucumbers and lettuce using hydroponic techniques. "The greenhouse provides lots of great

learning opportunities," Turner says. "Growing plants hydroponically requires paying attention to lighting and the nutrient mix in the irrigation water."

Turning Infestation into Opportunity

Turner turns the occasional insect infestation into a learning activity. "We cover Integrated Pest Management (IPM) in the coursework, so when we have an insect problem, the students can learn how to apply IPM methods first hand," Turner says. "For example, we recently had an aphid problem in the greenhouse. We treated it with lady bugs, and the students could see how the method worked."

Liberty-Union students also develop skills that are needed in the industry. They conduct bioassays to identify useful properties in a variety of plant materials and use lateral flow tests to determine whether or not a particular food item might contain genetically modified ingredients.

"I believe it is important for my students to understand biotechnology and how the industry works," Turner explains. "By conducting the experiments themselves, they learn that these companies aren't playing backyard Frankenstein. They learn the science behind what industry is doing to produce the food our world needs. The students that are in our classrooms today will be tomorrow's agriculture ambassadors. It is our job to make sure they are well-prepared for that role."



A Liberty-Union student conducts a lateral-flow test to determine if the material she's testing has been genetically modified.

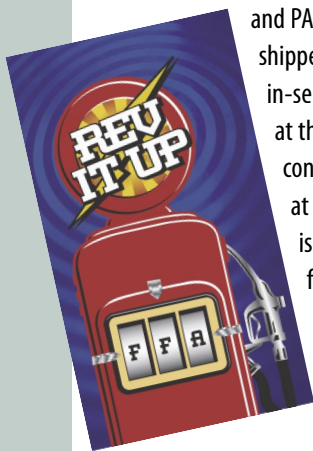
Liberty-Union High School by the Numbers

- serves predominantly suburban students
- local agriculture is predominantly corn, soybeans and wheat with some livestock
- school offers grades 9-12 to 425 students
- 147 students enrolled in agricultural education courses; all are FFA members
- SAEs required of all students; 25 percent of grade based on SAE
- courses offered include Agriscience I, Agriscience II, Agriculture Tech Prep I, Agriculture Tech Prep II
- facilities include classroom, greenhouse, agricultural mechanics laboratory

TeacherResources

New Tools for Teachers

Get your new tools for next year! You won't want to miss this summer's "Traveling Tool Show and Giveaway." The REV it UP



and PACES kits are being shipped to the states for in-service and distribution at this summer's teacher conferences. The workshop at your state conference is where the new "tools" for the classroom will be showcased, then given away free of charge to each program.

Each kit contains new materials on recruitment and retention of students, an interactive CD on Ag Career Exploration, PAWS Middle School Guide, PALS Resource Materials, new Volunteerism Guide, revised Food for America guide and a the new 2006 SAE handbook. All of these are on CDs and packaged with handouts for recruitment, 12 recruitment posters and other helpful tools. Don't miss your opportunity to see the "REV It Up Tool Show" when it comes to your state!

Agroterrorism Resource Online

The University of Kentucky, in conjunction with the Kentucky Department of Agriculture, has developed two computer-based courses pertaining to agroterrorism. The first course is a one-hour overview, and is more appropriate for FFA, 4-H and lay people in general. The four-hour course is approved by the Office of Domestic Preparedness (ODP) and is much more involved. Both courses come on one CD, which is free. You can request one or multiple CDs online at [\[www.kiprc.uky.edu/trap/agro_order.html\]](http://www.kiprc.uky.edu/trap/agro_order.html).

Science Resources Online

This Interactive Learning Objects website offers online "chunks" of learning

content that use various media — text, models, animation, audio and still images — to illustrate a particular concept. These resources, which can stand alone or be used as supplements to existing content, are suitable for students with different learning styles. Check it out at [\[http://ilo.ecb.org/\]](http://ilo.ecb.org/).

Free National & Global Youth Service Day Materials Available

Youth Service America is pleased to offer free materials to help you plan your chapter's service project for the 18th Annual National and Global Youth Service Day (N & GYSD), April 21-23. This would be a great way to kick off your chapter's involvement in the "Million Hour Challenge." Planning tool kits, service-learning curriculum guides and classroom posters are available in print and online. Download these materials or order free printed copies at [\[www.ysa.org/nysd/resource/nysd_resources_parent.cfm\]](http://www.ysa.org/nysd/resource/nysd_resources_parent.cfm).

- The planning tool kit is a comprehensive guide to help project planners identify their projects, recruit volunteers, generate media attention, raise funds and more.
- The service-learning curriculum guide contains eight lessons to develop students' project management skills while planning projects for N & GYSD. The curriculum guide is appropriate for educators and community leaders.
- Classroom posters are colorful tools to recruit volunteers, plan projects and decorate project sites. The backs contain project planning activity sheets for teachers and students to photocopy and disseminate.

Online Charts and Graphs from Farm Bureau

The American Farm Bureau Foundation has added a new section to its website that you might find useful for your classrooms. The Corner Post contains high-quality,

colored graphs you can print to use with your students. These graphs are taken from the corner post section of *Farm Bureau News*, developed by the American Farm Bureau Federation public relations staff. They have placed more than a dozen graphs on the site and will be adding graphs as appropriate. Visit [\[www.ageducate.org\]](http://www.ageducate.org) to see what is available.

Proficiency Award Application Samples

Teachers and students will find 28 completed proficiency application examples on the Proficiency Award Program home page [\[www.ffa.org/programs/proficiency/index.html\]](http://www.ffa.org/programs/proficiency/index.html). Example applications in the following areas have recently been added:

- Agricultural Mechanics Repair and Maintenance Entrepreneurship
- Dairy Production Entrepreneurship
- Wildlife Production and Management – Entrepreneurship
- Wildlife Production and Management – Placement

The applications are saved in PDF format and require Adobe Acrobat Reader to access.

National Agricultural Education Inservice Resources

The proceedings from the 2006 National Agricultural Education Inservice meeting are available at [\[www.ffa.org/statestaff/inservice/index.htm\]](http://www.ffa.org/statestaff/inservice/index.htm). Take a look at the materials presented in all the sessions. There is something for everyone! Note: due to the large size of some documents, it is advised that you right-click on the desired document link and select 'Save Target As'. Then, save the file to your computer before you attempt to open it.





Washington Leadership Conference

2006

When great minds meet,
even greater things happen



will you be there?
Register Now!

2006
Conference
Dates

June 6-11	July 11-16
June 13-18	July 18-23
June 20-25	July 25-30
June 27-July 2	

**For conference and registration information
visit www.ffa.org**



Timberland PRO is proud to sponsor the Washington Leadership Conference Service Day again. This marks the third straight year we'll gather with over 2,300 FFA members - all intent on sharpening their leadership skills and using them to serve their communities, fight hunger, and change the world. This year we're expanding our sponsorship with the WLC to a seventh week. Will you be there "Living to Serve"?

www.timberlandpro.com



**We are proud
to support FFA**

The FFA Mission: FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agricultural education. The Agricultural Education Mission: Agricultural Education prepares students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems. Diversity Statement: The National FFA Organization affirms its belief in the value of all human beings and seeks diversity in its membership, leadership and staff as an equal opportunity employer.

New LifeKnowledge Founding Partners

The National FFA Foundation announced that Cargill and Chevrolet have each committed \$500,000 to become founding partners for the LifeKnowledge® Center for Agricultural Education. Funds will be used to help extend, enhance and support the LifeKnowledge series of integrated youth development lessons created by the National FFA Organization. For more information, visit www.ffa.org/media/index.html.

New Advisors Program for Washington Leadership Conference

Take a closer look at the new multi-option advisor program for WLC. This year there are three different levels of participation from which advisors can select when attending the conference.

- Option A: package includes room, tours, upgraded advisor program meal plan, workshop materials, CEU credit hours, certificate of completion and FFA Core material gift certificate.
- Option B: package includes room, student buffet meal plan, and tours.
- Option C: package includes one rooming accommodation based on availability of single or double rooms.

Additional information about the WLC advisor programs can be found at www.ffa.org/programs/conferences/html/documents/wlc_advisorprogram.pdf.

Due to the increasing popularity of WLC, the 2006 conference will be offered for seven weeks instead of six! The 2006 conference dates are June 6-11, June 13-18, June 20-25, June 27-July 2, July 11-16, July 18-23, July 25-30.

Student WLC information can be found at www.ffa.org/programs/conferences/html/conf_wlc.html.

Official Jacket Sample Sets: Now Available for Try-on!

Not sure what size jackets you need? Ease your mind for only \$20 (the outbound shipping cost) and order a full sample set of jackets for your students to try on and find the perfect fit. It's simple! Go to www.ffaunlimited.org and order the SAM-SET for \$250 plus shipping. Keep the jackets for two weeks, then pack them up with the provided ARS shipping labels and call UPS for pick-up. Upon return, your account will be credited the initial \$250, leaving only the \$20 shipping cost to be paid by you.

Million Hour Challenge

The National FFA Organization is excited to announce the Million Hour Challenge — a special challenge issued to chapters across the country in an effort to unite youth with their communities. Knowing that service learning projects and community development projects can take place throughout the year, FFA chapters are being challenged to document the number of service hours they take part in from Nov. 1, 2005, to Oct. 1, 2006. The Million Hour Challenge is really very simple, but it can make a great impact. Visit www.ffa.org/ageducators/html/core_millionhour.html for more information on the role your chapter can play in reaching the one million hour mark.

FFA Recycles Program

FFA Recycles is a great program, not only for raising money, but also for reinforcing the role of FFA within the local community as good stewards of the land. All-new marketing materials sport attractive, bold graphics designed to get consumers' attention and participation. The marketing kit includes a poster, sell sheet, press release and a complete step-by-step guide to making the program a big success. The best

part is that the program is free, simple and profitable! Go to www.ffa-recycles.com to get the facts on e-waste, to learn about the opportunities in re-manufacturing and to find out just how easy it will be for your chapter to raise money year-round.

Kubota Donates Equipment

Kubota Tractor Corporation has donated 15 RTV900 utility vehicles and five portable commercial electric power generators to the Seeds of Hope campaign to help rebuild agricultural education programs and assist FFA chapters in five Gulf States hit hard by 2005 hurricanes. National FFA staff worked with state agricultural education leaders to identify schools needing assistance in Louisiana, Mississippi, Alabama, Florida and Texas. The utility vehicles and power generators will be delivered to Kubota dealerships nearest to the school locations identified. Local school officials will then coordinate with Kubota dealers for pickup and service of the equipment. Distribution should be completed by April 2006.

Former FFA New Horizons Editor Passes Away



Andy Markwart, who served as editor of *FFA New Horizons* from 1986-1994, unexpectedly passed away Feb. 24, at his home near Kansas

City. A dedicated family man, Andy is survived by his wife, Thelma, and their two children, Marlaine (7) and Owen (3). Messages of condolence may be sent to Thelma Markwart, 4716 Black Swan Drive, Shawnee, KS 66216. Contributions may be made to Capitol Federal Savings, C/O the Markwart Children Education Fund, 5700 Nieman, Shawnee, KS 66203.



CELEBRATE YOUR HARD WORK ON MARCH 20.

Recognize the success of American farmers by organizing an Ag Day celebration in your town.
To learn more, visit AgDay.org/celebrate.



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Look for your
next issue of *FFA Advisors*
Making a Difference in late April.
It will feature stories about leadership in
the classroom, as well as provide teaching
resources and FFA news.