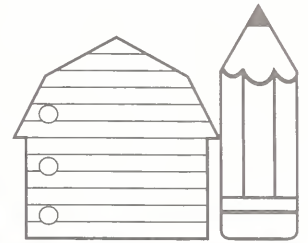


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Ag in the Classroom

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Ag Mags: A High-Interest Way to Improve Ag Literacy

In a growing number of states, the answer to the old riddle, "What's black and white and red all over?" may be "The ag mag." AITC state organizations have found these publications are a cost-effective way to help students learn more about agriculture today.

Agriculture magazines, or "ag mags" as they are usually known, offer teachers and students an in-depth look at a current agricultural issue. "In contrast to our curriculum guide," says Kathie Johnson, state AITC contact for Idaho, "the magazine lets us focus on topics of current interest to students and teachers."

Today, ag mags are published by AITC organizations in seven states: Colorado, Idaho, Illinois, Minnesota, Ohio, South Dakota, and Wyoming. The magazines have proved to be popular with teachers, students, and agriculture educators.

Teachers love ag mags because they make it easy to integrate agriculture into other basic subjects. For example, a recent article in the Colorado Reader introduces students to integrated pest management. At the same time, however, students learn that an adult ladybird beetle can eat 50 aphids a day. In a related math challenge, students are asked to determine how many adult ladybird beetles it will take to eliminate 600 aphids



Please see AG MAGS on page 2.

Editors's Note

From time to time I am asked for a definition of agriculture. One of the best I have seen is given by Dr. David Phillips in the "1990 Yearbook of Agriculture": Agriculture is not simply farming. It's the supermarket, the equipment factory, the trucking system, the overseas shipping industry, the scientists' laboratory, the houses we live in, and much more. It has an effect on the air we breathe, the ground we walk on, the water we drink, and the food we eat. Dave Phillips has been a friend and supporter of Ag in the Classroom since 1981 when he became a charter member of the task force that guides the program. He retired this summer from the U.S. Department of Education, but wants to continue his association with Ag in the Classroom. We welcome his interest and support, and we wish him many fruitful and enjoyable retirement years. Most of all, thanks, Dave, for all you have done for Ag in the Classroom.

High-Interest Magazines Improve Agriculture Literacy

AG MAGS, from page 1.

from a lettuce plant. An activity in Minnesota's Agriculture Magazine invited students to create a bar graph showing the nation's top 10 farm states.

Kids love ag mags for a different reason. Most include features that have high appeal to students. Word puzzles, games, and jokes all reinforce the basic teaching theme. In Idaho, the all-important joke section is titled "Corny Ag Yolks" and includes this riddle:

Q. Why can't you keep a secret in a corn field?

A. There are just too many ears.

Agriculture educators have found a third reason for appreciating the ag magazines—their ability to communicate accurate, up-to-

the-minute information. "Information about agriculture is not always easily accessible to teachers," says Judy Welsh, program director for Ohio's Agriculture Awareness Council. "Many textbooks contain no information at all."

Even when they do, the information can be badly outdated. "Most textbook articles on agriculture are based on information from the 1940s and 1950s," says Ellen Culver, state contact for Illinois. "These publications present information about agriculture in the 1990s."

Whether the ag mag is sent to every teacher at a specific grade level—as in South Dakota and Minnesota—or only to teachers who have taken an AITC training session—as in Idaho—they reach thousands of students and their families each month. Many give real meaning to the term "public-private partnership." In Minnesota, for example, nearly 60 organizations support the development, printing, and distribution of the magazine.

Helen Davis, state contact for Colorado, home of the nation's first ag mag, says, "The greatest benefit of an ag mag is that they are written for the kids. We've all seen a lot of very well-developed, expensive teacher resources. But in many cases they sit on a shelf gathering dust. The biggest advantage of the ag mag is that we know they get into the hands of the students."

These high-interest student publications are helping today's students learn about today's agriculture.



L.A. Teacher Makes History—And Agriculture—Come Alive

Lois Bechely teaches a third- and fourth-grade combination class at Carthay Center Elementary School in central Los Angeles. Most of her students qualify for free lunch; more than half do not speak English at home. She has found that integrating agriculture into the curriculum is a great way to involve and interest her students.

"I have found that my Latino students and their families are more in touch with agriculture than my city kids," she says. "Many have uncles or grandfathers who are raising cows or corn or pigs."

As a result, Bechely says, these students find the agriculture curriculum "both real and relevant. It gives them a chance to be the experts in the classroom."

Bechely began incorporating agriculture into her teaching when she taught first grade. She read books about agriculture to her students and included social studies and science lessons about agriculture. "But because teaching reading takes so much time at the first grade level, I found I couldn't do as much with agriculture as I would have liked," she says.

The solution was to move to a different grade level. "Since California history is the center of the curriculum at these grade levels," she says, "I'm able to do much more."

Bechely chooses her students' reading from classic children's literature rather than a basal reader. She finds that agriculture helps her make literature come alive—literally. When her students read *Charlotte's Web*, Bechely brought a pig into the classroom.

"Whenever I can tie in something historical to something today, I'll do it," she says. A science lesson involved planting two gardens—a pre-Columbian garden (with Indian corn and Hopi cotton) and crops from today's new hybrid seeds. "Our new crops did great and the old seeds didn't make it, which was a lesson in itself."

In teaching California history, Bechely lets students see how civilization changed from a hunter-gatherer population to what is today

the nation's largest agricultural producer. In presenting this story, she confesses that she shares with her students her "romantic" view of history: "Over time, agriculture has made civilization grow and populations survive."

Nonetheless, Bechely does not gloss over difficult issues in history. "You need to tell the story with all the honesty you can. When students begin to see all sides of an issue, they learn critical thinking skills. I want my students to be able to put themselves into the shoes of the people who were making the decisions and see why we've come to where we are now."

A pig in the classroom is just one of the ways Lois Bechely excites her students about agriculture.



Looking for signs of new growth on our grape plants.

Comic Book Teaches Agriculture's Role in Protecting the Environment

In "Visit to a Green Planet," an extraterrestrial robot helps kids from Earth learn how farmers and ranchers protect the environment.

A new colored comic book is helping students learn that agriculture's commitment to environmental protection is no joke. "Visit to a Green Planet," developed by the American Farm Bureau Federation, focuses on how farmers and ranchers take care of the land.

The full color, cartoon-style booklet uses children's natural interest in both comics and environmentalism. It introduces them to the world of American agriculture and shows how they can discover new and different ways we can keep our planet

green and growing.

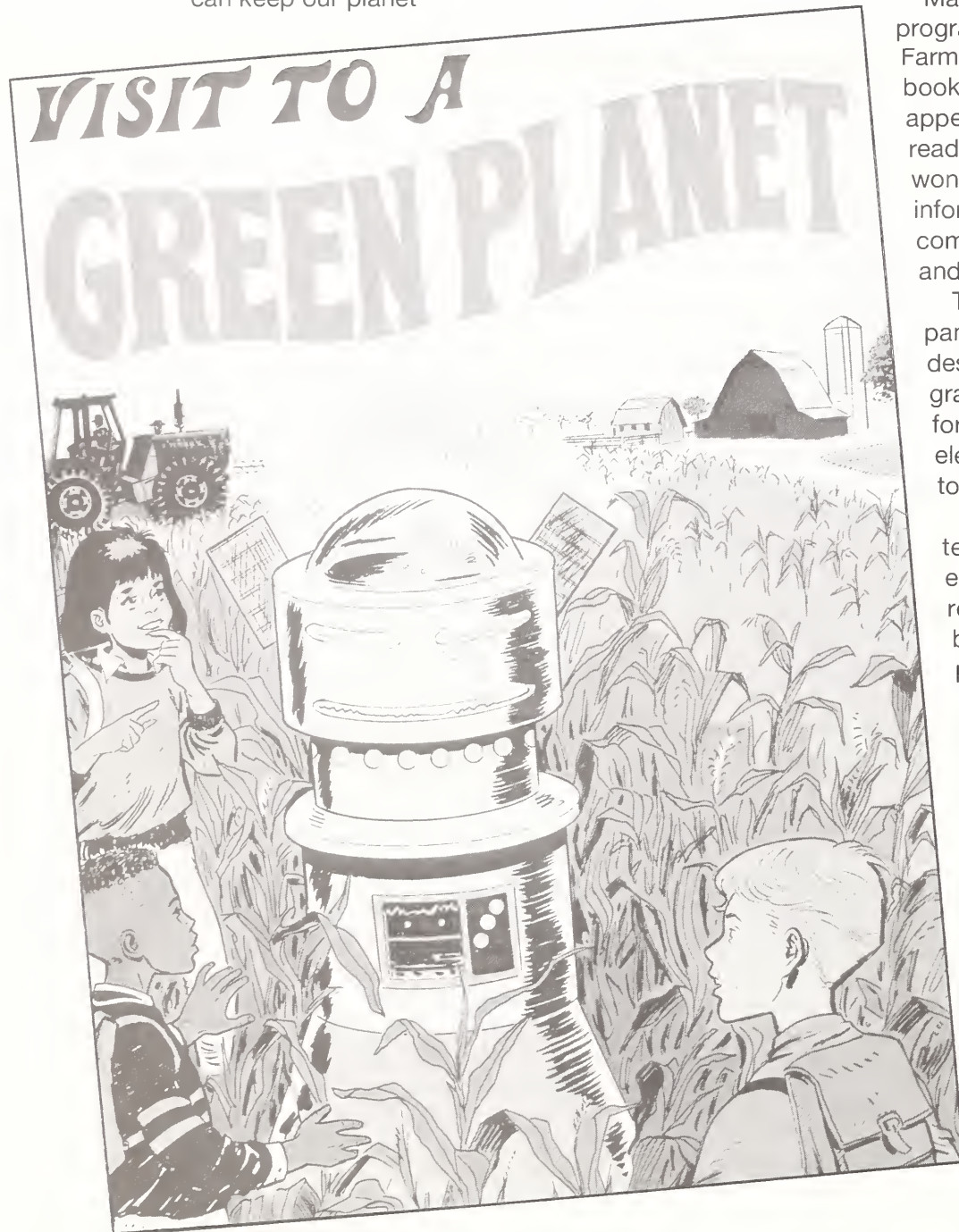
In "Visit to a Green Planet," three students encounter an extraterrestrial robot named A.C.E., for Agricultural Computerized Explorer. A.C.E. tells the students that he has been sent to Earth by citizens of his planet, which is in danger of running out of food. "We need to learn how to manage our resources. My mission is to discover how your farmers use your natural resources so wisely," he says.

Marsha Purcell, director of program development, says the Farm Bureau chose the comic book format because of its "high appeal for students. Kids will read comic books when they won't read textbooks." The information presented in the comic book is based on facts and accurate statistics.

The booklet, with an accompanying teacher's guide, was designed for use by fifth graders. But it is appropriate for students in any upper elementary grade, according to Purcell.

Response to the new teaching package has been excellent. In fact, Purcell received orders before the books were even off the printing press.

Individual copies are available for \$.30 each, with discounts for multiple copies. For ordering information, contact the American Farm Bureau Federation, 2250 Touhy Avenue, Park Ridge, IL 60068.



Report Explores the Effects of Global Climate Changes on Agriculture

Even more than the rest of humanity, farmers and foresters worry about the weather. A new publication explores the relationship between agriculture and global climate changes—and suggests ways agriculture can adapt to any future climate changes.

Preparing U.S. Agriculture for Global Climate Change includes the results of a study by a task force established by the Council for Agricultural Science and Technology (CAST). The 96-page report includes answers to a critical question posed by the U.S. Department of Agriculture:

For a warmer planet with more people, more trade, and more CO₂ in the air, can U.S. farming and forestry prepare within a few decades to sustain more production while emitting less and stashing away more greenhouse gases?

The report shows that found that U.S. agriculture's emission of greenhouse gases is responsible for only about one percent of today's global warming. However, note the eminent scientists who made up the panel, the steady enrichment of the atmosphere by greenhouse gases from all global sources makes warming likely.

The report concludes that U.S. farmers and foresters will make the adaptations necessary to ease the impact of climate change. By adapting new varieties of crops, changes in husbandry techniques, and further use of biotechnology, the industry will ease the impact of any climate change. At the same time, farmers and foresters will likely slow the rise of greenhouse gases by continuing improvements in agricultural efficiency such as minimum tillage, forestry, conservation of energy and fertilizers, and further biotechnology.

Copies of the report are \$15 from CAST, 137 Lynne Avenue, Ames, Iowa 50010-7197.



A new task force report details the impact of global warming on agriculture.

“By adapting new varieties of crops, changes in husbandry techniques, and further use of biotechnology, the industry will ease the impact of any climate change.”

Pennsylvania's Summer AG Institute Sends An Apple to Teachers



It's not unusual for students to bring apples to their teachers. But this summer at the Pennsylvania summer ag institute, teachers took part in a workshop that taught them how to incorporate apples into their curriculum all year long.

The workshop was part of a four-day institute attended by 45 elementary school teachers. "It was exciting to see people realize that teachers are eager to learn about agriculture and take that information back to their classrooms," says Beth Moore, state contact for Pennsylvania.

Although agriculture is Pennsylvania's number one industry, most of the teachers who attended the workshop had little first-hand information. One of the major goals of the institute was to give teachers a foundation in agricultural literacy.

Workshops introduced teachers to techniques ranging from hydroponics to compost-

ing to improving the drainage of the soil. When teachers took tours, the guides spoke to them as though they were students, allowing teachers to preview their students' experience.

At a mushroom test demonstration facility, some teachers were given kits so they could grow mushrooms in their classroom. At the Penn State Creamery, everyone enjoyed an ice cream cone—in the flavor of their choice.

Learning about food was a major focus of the institute. From a session on the new USDA Food Guide Pyramid to a commodity resource buffet featuring foods grown in Pennsylvania, teachers learned more about the food they eat.

Each teacher was sponsored by a local farm organization or an agricultural industry. The institute, says Moore, "proved to be an eye-opener for all of us. There's still a lot we can do to promote ag literacy."



Pennsylvania's Secretary of Agriculture was an honored guest at the summer agriculture institute sponsored by Ag in the Classroom.

USDA Summer Intern's Research is "Useful" -- and Then Some

Two years ago, Aimee Crago didn't know what an alfalfa plant looked like. Today, after spending two summers as a USDA intern, she's helped USDA scientists rate alfalfa plants for resistance to anthracnose, one of the crops worst diseases.

To Aimee, what science is all about is "the feeling I had, when I finally realized something had been discovered and the information would be useful." In the future, alfalfa farmers—who can lose up to \$200 million nationally when severe epidemics of plant disease strike—may rate Aimee's work as far more than just "useful."

Aimee worked with plant pathologist Nichole O'Neill in the Soybean and Alfalfa Research Laboratory, part of the Agricultural Research Center in Beltsville, Maryland. The project involved rating more than 2,000 strains of alfalfa and ranking them for resistance to anthracnose.

Crago grew thousands of seedlings in lab growth chambers. She sprayed them with a liquid solution of fungus spores and recorded how many survived. O'Neill compiled the results for use by both commercial firms and scientists.

As a result, a commercial breeder plans to release a new, anthracnose-resistant commercial variety of alfalfa next year. O'Neill continues to look for biochemical clues that explain how some alfalfa plants ward off the disease. "If we can identify the mechanism and the genes controlling it, we might be able to insert the genes into alfalfa plants. Then industry can develop new, highly resistant commercial varieties for farmers," she suggests.

Crago, now at Tulane University in New Orleans, learned about more than just alfalfa during her two summers spent as an intern with the Research Science Institute (RSI). "It's easy for scientists to forget that even the things we see as routine—such as how to design an experiment so we can have confidence in our results—are valuable new experiences for students," says O'Neill.

Apparently Crago learned her lessons well. One of her reports on her ARS experiments helped her win honors as a semifinalist in the Westinghouse Talent Search for 1990. She has also found a direction for a career in science. "By the end of that first summer," she says, "my experience had proven to me that a career in research was what I eventually wanted."



As a summer intern, Aimee Crago stained alfalfa tissue as part of a test for anthracnose resistance.

Photo: Agricultural Research Service,

For more information on the RSI program, contact Joann P. DiGennaro, President, Center for Excellence in Education, 7710 Old Springhouse Road, McLean, VA 22102.

New Book Highlights Women in Science

If the United States is to reach one of the six National Education Goals, becoming first in the world in math and science, it will need the talent of all our citizens. Yet studies consistently show that girls lose interest in science as they move through school.

To build interest in science careers for women, the University of Maine's College of Applied Sciences and Agriculture published a booklet entitled *Careers for Women in the Applied Sciences: Opportunities for the 21st Century*. The booklet features 30 women faculty, students, and University of Maine graduates who have found careers in the applied sciences.

The goal of the publication is to "change girls' perceptions of what careers are available to them," says Judith A. Round, Administrative Associate. "You have to get girls interested in science while they're in junior and senior high school," she says. "Otherwise, it may be too late."

Single copies of the publication are free. Multiple copies, \$.75 each, are available from the College of Applied Sciences and Agriculture, University of Maine, 105 Winslow Hall, Orono, Maine 04469-1063.

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