EDITORIAL

It's Your Journal: Please Use It

David A. Munn*

It has been my privilege to serve on the Editorial Board of the Journal of Natural Resources and Life Sciences Education for 9 years. During the past 5 years I have served as editor and I want to thank the former and current associate editors, Managing Editor Susan Ernst, and American Society of Agronomy Editors-in-Chief Gary Heichel and Gary Peterson for making the journal a success. During the 9 years, the journal has grown in number of contributions, changed the name, and attempted to broaden the scope beyond agronomy to natural resources and life sciences education and technology transfer contributions.

I truly believe that a great potential lies before the journal if it can offer a forum for publishing teaching methods, extension programming, public policy issues, and choices in the natural resources and life sciences. I can picture contributions and subscriptions from geologists, geographers, foresters, biologists, botanists, and others who want to share teaching scholarship in a refereed journal. Unless and until that broader pool of contributions and subscribers kicks in, it will be up to agronomy educators and technology transfer specialists to sustain this journal with contributions and subscriptions.

Just as agronomy has been a discipline at the interface of plant and soil science, I see agronomy, crops, and soils at the interface of many natural resource and life science issues. Soil is of course the thin layer of “dust on the crust” that sustains terrestrial life. It is at the interface of rocks and atmosphere (weather). Plants are key components of food chains and meet basic fiber and construction material needs. Plant diseases and insect pests, animal agriculture, water supply, and quality—it is hard to conceptualize a problem or issue in agriculture and natural resources without an agronomic component.

I look forward to enhanced communication and access to information, but I would be sad to see “e-mail” or other individual-to-individual communications replace carefully considered and peer refereed journals as the principal communication mechanism in science. Consider the benefit that accrues from internal review of a manuscript before it even leaves a department as a journal submission (if the system is working properly). Will e-mail advocates get three knowledgeable colleagues to consider a communication or report or simply spit out their thoughts over the electronic trunk lines? Probably not.

I will close by saying that it was a great pleasure to be associated with JNRLSE, and I wish Editor John Gravelle and the journal the very best. •

Your comments concerning the content of this editorial or other published material in this journal are welcome at any time. Please send your Letter to the Editor to: John G. Gravelle, JNRLSE Editor, Department of Agronomy, Purdue University, 1150 Lilly Hall of Life Sciences, West Lafayette, IN 47907.

Comments concerning editorials, manuscripts, or other printed materials in recent issues of the Journal of Natural Resources and Life Sciences Education, if approved for publication, will be printed without page charges. Send your letters to Dr. John G. Gravelle, JNRLSE Editor, Department of Agronomy, Purdue University, 1150 Lilly Hall of Life Sciences, West Lafayette, IN 47907.

Ohio State Univ. Agricultural Technical Institute, 1328 Dover Road, Wooster, OH 44691 (David A. Munn served as Editor of this journal from 1989 to 1993). Received 22 Nov. 1993. *Corresponding author.
Project Food, Land & People Focuses on Sustainability, Today and Tomorrow

The issue of sustainability relates directly to Project Food, Land & People’s mission: “...to encourage critical thinking and wise decision-making among students. The understanding of the interdependence of food, land, and people is crucial to maintaining a viable agricultural system conducive to a healthy society.” Project Food, Land & People (FLP) is a nonprofit, interdisciplinary, supplementary educational program that emphasizes agriculture and conservation.

Teaching the Importance of Sustainability. Sustainability has long been a term applied to many things, not just agriculture. The dictionary says the word sustain means to nourish or to keep us and prolong. Obviously there are many things we work to sustain in this world.

There is an old story told of a foolish man who noticed the price of firewood had risen during an unusually cold winter. Anxious to make a lot of money, he tore down his house and sold the wood for money. In the end he had money, but he had no place to live. The man had learned a difficult lesson about sustainability.

Many farmers learned this lesson the hard way in the dust bowl years of the 1930s when thousands of acres of land plowed up during the previous decades without consideration to the potential damage of soil and wind erosion were severely damaged. The farmers of the 1930s learned new ways to sustain the land by building terraces and planting windbreaks. But, how do farmers in the 1990s practice sustainability?

Project Food, Land & People’s curriculum strives to answer this question through a variety of interactive lessons for students. Students learn the importance and value of conserving our resources for the next generation and generations beyond.

A New Partnership. Conservation—people know it’s important, but not many can translate that knowledge into action. They want to use natural resources responsibly, but don’t know how.

That is why the USDA Forest Service created the Natural Resource Conservation Education Program (NRCEP). The program helps people learn more about natural resources and how to use them.

The NRCEP funds are being used to develop FLP’s 4 to 6 grade lessons, and to develop a teacher training workshop that integrates not only FLP, but also activities from several other national, interdisciplinary, supplementary education programs such as Project Learning Tree, Project WILD, Ag in the Classroom, 4-H, FFA, and others. By drawing on many programs instead of one to develop this workshop model, FLP is developing a truly revolutionary concept in natural resource education.

Investing in the Future. Educators have the capability to guide, shape, and inspire the future. FLP is committed to leading the way in positively shaping the future of education through providing K-12 grade curriculum materials dealing with the interrelationships of agriculture, the environment, and people.

Today, educators are being charged with meeting the demands, challenges, and uncertainties of the future. No longer will teaching students bits of information about many topics suffice. Students will need information, they will need to be literate, and they will need to develop a stewardship ethic concerning their role in our basic life-support systems. FLP will provide educators with a set of tools for teaching students about how systems relate, interact, and are dependent on each other. FLP believes that education for today and the future must include teaching students about how to live sustainably.

To this end, the 4 to 6 grade FLP lessons are presently being pilot-tested by educators in classrooms around the country, just as the K-3 grade lessons were tested a year ago. This piloting process is being facilitated through the efforts of many supporters and key representatives in individual states. The 4 to 6 grade lessons will be revised by using the feedback from the pilot-testing process. During the 1994 to 1995 school year, educators will field-test the K-6 grade lessons in three states and FLP will publish the first draft of the K-6 grade materials.

For more information or questions about Project Food, Land & People, contact: Project Food, Land & People, Attention: Roxanne Brickell, Education Consultant, 643 Jackson St., Denver, CO 80206. Phone: (303) 393-6897.

Reprinted (in part) with permission of Food, Land & People (Vol. 4, No. 2, Fall 1993), 408 East Main, League City, TX 77573.

Editor’s note: The ASA Executive Committee met with Roxanne Brickell at the summer executive committee meeting in Madison, WI, 27–29 July 1993. Ms. Brickell reviewed the FLP program and invited ASA participation in the program.

Students Learn in Apprentice Programs

Bright, motivated, impressive, energetic, and enthusiastic are some adjectives used to describe students involved in the Minority High School Summer Research Apprentice Program held at The Lovelace Institutes (TLI) during June, July, and August last year (1993).

The high school and college programs are part of TLI’s continuing effort to encourage young people to choose scientific research as a career. Funds from national and local sources allow these student scientists to work in the real world of TLI’s laboratories. Elementary and secondary teachers also participate, some returning to a research environment last seen in their college days.

Participants are selected on the basis of grades, recommendations from teachers, and the persuasiveness of their application letters. Science teachers also participate.
Apprentices may request a specific project, but most are randomly assigned to activities in various TLI laboratories. Teachers and students participated in research projects such as studying immunosuppressive qualities of nicotine, evaluating alcohol treatment programs, cloning genes and characterizing the clones, and studying the effects of tobacco smoke on nasal tissue. Teachers were enthusiastic about the program. "I returned to school in the fall with a real base to work from," one teacher says. "I enjoyed it, and I hope my students will benefit from my experience."

Participant enthusiasm is shared by researchers. Dr. Sandra Lapham, at the Institute for Health and Population Research, says, "This is a wonderful program, because it gives students an opportunity to participate in the research process. We try to heighten students' inherent enthusiasm for scientific research."

Reprinted (in part) with permission of Advances (Dec. 1993), the newsletter of The Lovelace Institutes: Health and Environmental Research, 2425 Ridgcrest Drive SE, Albuquerque, NM 87108-5127; phone (505) 262-7595.

Groundwater Flow Models are Great Educational Tools

"A groundwater flow model is one of the best teaching tools available," said James Cowden, director of Penn State Cooperative Extension.

Cowden uses the table-sized flow model to depict how groundwater moves and how it can become contaminated. The flow model looks like an ant farm and contains layers of sand and gravel sandwiched between panels of clear plastic. Groundwater flow is simulated by using tubes to "pump" water from "underground" and contamination is represented by injections of food coloring.

The project's two groundwater flow models have been demonstrated this past year before some 20 different audiences, including citizens, students, planners, and local officials.

For information, contact James Cowden, Director, Penn State Cooperative Extension, Courthouse Annex, 207 W. Fifth Ave., Warren, PA 16365; phone (814) 723-6003.


Hands-On Summer Camp and Natural Resources Careers

For kids growing up in big cities, pursuing a career in natural resources may seem like a far-fetched idea. Moreover, urban settings are statistically where most of America's minority populations live. As a result, only a handful of minority high school students choose to study agriculture, life sciences, and natural resources in college.

We can change this trend by introducing minority students to the natural world and related career possibilities while they are still in high school, says Dan Meyer, University of Wisconsin (UW) Department of Forestry Associate Outreach Specialist. One way the Department of Forestry and the UW College of Agricultural and Life Sciences (CALS) does this is through the INFORMS (Introduction to FOREstry for Minority Students) summer camp program, which takes young minority students on a 4-day excursion to survey a northern Wisconsin forest. It was all part of the "Forestry 655" course known as the Forestry Summer Camp.

"It's a program where everyone wins," says Meyer. "We get students interested in forestry and natural resources; plus, there is virtually no cost to the university because the professors would be teaching the classes anyway." The students' travel, room, and board is paid by a USDA Challenge Grant.

This past May (1993) five high school students—two African American, two Loatian, and one Vietnamese—took advantage of the program. The five worked alongside UW undergraduates identifying trees, taking sample plot measurements, and interpreting aerial photographs, as part of the Forestry 655 course.

"The INFORMS students worked well with the undergraduates and asked if they could come back in 2 years to check on the plots they surveyed and the trees they planted," says Meyer. "One student even said he wants to become a forester now."

The UW School of Natural Resources and the Department of Forestry will continue to offer the INFORMS program every 2 years concurrently with the undergraduate Forestry Summer Camp.

The UW CALS has worked in partnership with Oscar Mayer Foods Corporation to establish another promising project, the "Oscar Mayer Agricultural Institute." During the summer of 1993, the 6-week pilot program brought high school students to UW-Madison to work on research projects with assistance from UW faculty, professionals from Oscar Mayer, and teachers from their own high school.

The program focuses on minority students who may be working below their potential. According to Barbara Smith, the project's director and an assistant dean in CALS, the program is designed to provide awareness within the agricultural and life sciences.

For more information about INFORMS, contact Dan Meyer, (608) 262-0134. For more information about the Oscar Mayer Agricultural Institute, contact Barbara Smith, (608) 262-3288.—JENNIFER SMITH, reprinted (in part) with permission of Natural Resources Report (Vol. 4, No. 4, Fall 1993), UW School of Natural Resources, 1450 Linden Drive, 136 Agriculture Hall, University of Wisconsin, Madison, WI 53706.

10 Ideas for Math and Science

Students need to learn more and different types of mathematics, and teachers need to shape the classroom environment so that mathematical conversations become a daily part of classroom activity. When it comes to teaching science in elementary and middle school, educators should understand that hands-on, inquiry-based instruction is an effective teaching strategy, and that exploration, dialogue, and discourse promote understanding of scientific concepts. And both parents and educators must realize that mathematics and science are for all children.

These are just some of the "transforming ideas" contained in two new OERI reports designed to help educators—particularly teachers—make fundamental changes to bring about state-of-the-art classroom instruction in mathematics and science. Based on research and promising practice, the 10 ideas in each report challenge parents' and educators' beliefs about the nature of math and science and their teaching and learning. If implemented, these ideas promise to help students reach their full potential in these subjects.

Single copies of Transforming Ideas for Teaching and Learning Mathematics and Transforming Ideas for Teaching and Learning Science are available free from OERI. Bulk copies of the reports are available from GPO at $25 for 25 copies; ask for stock no. 065-000-00574-3 for mathematics and stock no. 065-000-00599-9 for science.
Think Earth Education Program

Think Earth is an environmental education curriculum for grades K-6. Last year, Think Earth taught some 2 million school children across the nation about the environment and good pollution control habits.

The curriculum includes a student handout entitled "Everything Comes from the Environment" and a quiz, which is compiled from test questions used throughout the Think Earth unit. Can you correctly complete the quiz?

1. Water that goes down our sinks, tubs, and toilets:
   a. goes straight to rivers and oceans.
   b. is cleaned at a wastewater treatment plant.

2. You should not wash down the drain:
   a. bleach.
   b. spoiled milk.
   c. paint thinner.

3. The pollution that can damage our lungs and sting our eyes is:
   a. smog.
   b. ozone thinning.
   c. acid rain.

4. To reduce air pollution, industry is:
   a. not burning fossil fuels.
   b. developing "cleaner" cars.
   c. recycling all hazardous waste.

5. In the United States:
   a. all aerosol sprays are banned.
   b. CFCs are not a problem.
   c. CFCs cannot be used in aerosol sprays.

6. Most of our landfills:
   a. are nearly full and will be closing in a few years.
   b. will last at least another 20 years.
   c. can continue to be used as the buried trash breaks down and disappears.

7. Overuse of our natural resources is mainly caused by:
   a. economic inflation.
   b. population growth.
   c. increased use of fossil fuels.

8. To conserve natural resources, we should:
   a. stop building on natural lands.
   b. quit using paper products.
   c. balance our needs with the environment’s needs.

9. You should never put in the trash:
   a. an empty paint can.
   b. an old car battery.
   c. a can of hair spray.

Answers: 1. a; 2. c; 3. a; 4. b; 5. c; 6. a; 7. c; 8. c; 9. b.

Think Earth provides information in a form that’s educational, enjoyable, and cost-effective. The program has met with widespread critical acclaim since its release, and was awarded the 1992 “President’s Environmental and Conservation Challenge Award.” For more about the Think Earth program, contact Ann M. Crafton, Educational Development Specialists, 5505 E. Carson St., Suite 250, Lakewood, CA 90713; phone (310) 420-6814.

This is a black-and-white reduction of a color poster from the first grade unit of Think Earth, an environmental education curriculum for grades K-6.

Test Your Ag IQ

What's your agricultural IQ? See how many of these questions you can answer correctly:

1. What is the number one agricultural export in the USA?
   a. beef
   b. potatoes
c. corn
d. roses

2. What is the world's most widely eaten meat?
   a. pork
   b. beef
c. chicken
d. turkey

3. How many one-pound leaves of bread can be produced from one acre of wheat?
   a. 500
   b. 2 000
c. 15 000
d. 7 000

4. Who was the first American farmer to eat ice cream?
   a. George Washington
   b. John Adams
c. Thomas Jefferson
d. James Madison

5. What's America's favorite fresh fruit?
   a. bananas
   b. apples
c. oranges
d. strawberries

Correct answers: 1, c; 2, a; 3, b; 4, a; 5, b.

Wisconsin Fast Plants News!

Fast Plants Information Now on Internet. Wisconsin Fast Plants is beginning an electronic information data base on the University of Wisconsin-Madison campus through various computer networks. A few basic technical documents and lists of sources are included so far. At the National Science Teachers Association convention in Anaheim, CA, in April, PHYTOS will be introduced, an Internet network linking Wisconsin Fast Plants in Madison, WI, with both science education programs at universities in Cambridge, UK, and Canberra, Australia.

Two Wisconsin Fast Plants Workshops. Workshop I. The Fast Plants Program offers two workshops each year, held on the University of Wisconsin-Madison campus, presented by Dr. Paul Williams of the Plant Pathology Department (the first one in 1994 was held in February).

The workshops are open to K-college teachers. A crash course in Fast Plants, the workshop covers topics including the life spiral, inheritance, and the effects of the environment. Bottle Biology is also incorporated into various parts of the workshop.

The workshops run Friday through Saturday at a cost of $75. Campus lodging is available if requested. Workshop dates are: 28–29 October 1994 and 10–11 February 1995.

Workshop II. Dr. Paul Williams will present Wisconsin Fast Plants as a featured module in the Teacher Enhancement Programs in Biology, UW-Madison Summer Sessions.

Building from the conception of the life spiral, the workshop will explore variation, inheritance, diversity, and the relationship of the environment and plants. Morning lecture and hands-on-exploration will be followed by afternoon labs where teachers will investigate specific ideas for implementation into their particular classrooms, develop and refine curricular materials, and make low-cost equipment to take home. The workshop is limited to secondary trained middle and high school biology teachers. Stipends are available. Workshop date: 18–22 July 1994.

To request an application for either workshop, contact the Fast Plants office at 1-800-462-7417.
The Development of a Natural Resources Curriculum: A Successful Business-Education Partnership

An outstanding natural resources curriculum for the high school level is in place and is being implemented this year in Chehalis, WA. A committee of 15 persons, mostly working in the natural resources field, created this curriculum between May 1992 and June 1993. This developmental process and final product are excellent examples of what a school-business partnership can produce.

The idea to develop this course grew from a need to prepare and inform a majority of high school students, not simply those who would choose a career in the field, about natural resources. The curriculum integrates agriculture, forestry, technology, science, social studies, and careers. Students may earn vocational, social studies, or science credit as objectives from these departments are met.

The units to be studied include soils, plants, animals, water, solar, air, and interrelationships. The course is built around basic knowledge, activities, field trips, laboratory experiments, and guest speakers. Examples of learning activities include manipulating a flume where water flows (developed specifically for the course); students can study runoff, dam conditions, erosion, irrigation, and stagnant water. Another project includes regular visits to a tree farm to control and observe various effects of experiments with light, water, chemicals, and natural and man-made forces.

A resources list of guest speakers include representatives from forestry companies, a university/county extension agent, career farmers, parents, a small business owner, a private forester, and governmental agency representatives. School personnel include a vocational/curriculum director, high school principal, and both a current and retired agriculture teacher. The committee will continue to serve as an advisory body to support and critique the program as it grows.

A grant from The Weyerhaeuser Company Foundation is helping to support the planning and implementation of this project. More information on the curriculum can be obtained from Chehalis School District in Chehalis, WA.—BARBARA RITTER, 15278 S.W. Teal Blvd. #B, Beaverton, OR 97007.

Teach about Reptiles and Amphibians

Here's your chance to learn more about reptiles and amphibians, then teach your students. The Long Island Herpetological Society (LIHS) is a resource for such questions as: What do I feed them? What is their life span? How do I keep them? What is their history?

For answers to these questions and more contact the LIHS at the address below. Members of the society receive six issues of the newsletter, *Herpetofauna Bulletin*, which includes semitechnical research articles, book reviews, field notes, question and answer columns, and more. Anyone interested in joining the Long Island Herpetological Society may do so by sending annual dues of $15.00. Make checks payable to LIHS, 476 North Ontario Avenue, Lindenhurst, NY 11757; phone 516-884-0042 (contact: Richard Meyer).
Botany Class Goes to the Movies

Science fiction movies can help teach and stimulate interest in the sciences (DubecK, 1981; DubecK at al., 1988, 1993). Hollywood produces many movies that feature plants, but mostly as monsters (Senn and Johnson, 1992). Some movies, however, are appropriate for teaching botany or plant science; these movies include comedies, adventures, and dramas, and can be used to introduce a variety of botanical topics.

Adventure. One well-known story is the famous 1789 mutiny on the ship, Bounty, which was on a botanical expedition to transport breadfruit [Artocarpus altilis (Parkins.) Fosb.] from Tahiti to Jamaica. The first two films, both titled Mutiny on the Bounty, were based on the novel by Charles Nordhoff and James Hall. The third version, The Bounty, portrayed events with greater historical accuracy. Another movie about plant exploration is Medicine Man, a story about a botanist with a gas chromatograph who searches the Amazon rainforest for a plant that will cure cancer. Valley of the Giants was filmed three times. It is about a greedy logger and efforts to save California redwoods [Sequoia sempervirens (D. Don) Endl.]. The 1952 title was The Big Trees.

Carnivorous Plants. Many movies deal with plant carnivory taken to extremes. The Thing from Another World is about an extraterrestrial humanoid vegetable monster; The Day of the Triffids is about mobile giant carnivorous plants. The classic thriller, Invasion of the Body Snatchers, is about plants from space that produce duplicates of humans. The Guardian has a druidic tree monster that eats babies. Giant carnivorous plants are the theme for The Woman Eater, The Navy vs. the Night Monsters, and Man-eater of Hydra. The low-budget movie Blood features Wolfman’s son and Dracula’s daughter marrying and then experimenting with carnivorous plants. Tarzan’s Desert Mystery shows a giant plant stalking Tarzan while he looks for plants to cure a disease. One of the strangest of the popular movies about carnivorous plants is The Little Shop of Horrors. This 1962 horror-comedy was filmed in 2 days on a small budget. Like Day of the Triffids, the 1962 Little Shop of Horrors video sells for $5. The 1986 remake of Little Shop of Horrors is a musical with a cast of well-known comedians such as Steve Martin.

Monsters. Popular “monster” movies include Attack of the Killer Tomatoes and its sequel, Return of the Killer Tomatoes. A radiation-induced walking tree monster that kills is featured in From Hell It Came. Some biotechnology-gone-wild themes are shown in the movies Mutations, about a university scientist trying to breed super humans and plants, and the movies Swamp Thing and Return of Swamp Thing, about a scientist who is accidentally transformed into a half-man, half-plant creature.

More Science Fiction. Silent Running is a movie about a space botanist safeguarding the last of earth’s plants in a huge space greenhouse. The best-selling book The Secret Life of Plants seemingly inspired The Kirlian Witness or The Plants are Watching, which is about a psychic woman communicating with plants to find a murderer.

Even More Movies. One of the most famous children’s movies is the film Secret Garden, about an orphaned girl and her relatives who receive psychological and emotional benefits from restoring a garden. For comedy without horror there is A New Leaf, about a clumsy but wealthy botanist seeking immortality by discovering a new plant species. This movie also mentions real botanist Warren H. Wagner by name!—DAVID R. HERSHEY, condensed from Plant Sci. Bull. 39(3):17.

References

Video—Creating New Frontiers in Life Science Education

If we as educators are serious about improving scientific literacy and appreciation, we must utilize the technology of our times. Our knowledge and expertise to create powerful, short-subject videos can put scientific research and its applications into perspective for students.

The human dimensions of science must be conveyed to students to create more enthusiasm for subjects that have been considered cold and unfashionable. The general public’s scientific literacy and appreciation is woefully inadequate. Emeriti professors and interdepartmental relationships offer a gold mine of wisdom and knowledge to be shared with the public and documented for posterity.

During the past 50 years we have seen numerous milestones in the life sciences. New uses for clays in the pharmaceutical industry and new applications of biotechnology to crop production are just a sample of major developments.

How have these new methods, procedures, or applications been documented? Some history has been written in books and periodicals that, unfortunately, can be very dry and boring. Written narratives of scientific and technological breakthroughs do not always capture the personality of the researchers or field scientists. Often it is individual enthusiasm, cultural influences, economic factors, or social responsibility that are driving forces behind scientific developments.

Video. Video offers the opportunity to more effectively document the culture, sociology, and science of life sciences and natural resources. This medium is a vehicle for condensing the highlights of specific developments or individual careers into a few minutes. Imagine the educational value of a video of Galileo as he demonstrated various ideas. His comments on the influence of his culture, his religion, and his world’s economy on his research would be invaluable to us as we endeavor to understand scientific processes.

Educational institutions have the technology, expertise, and knowledge to produce short videos (less than 1 hour in length) for use in the classroom. Videos are widely used in teaching at all levels and in all subjects. One must, of course, be cautious to not overuse this medium. The video should supplement and en-
hance other educational methods and not serve as a substitute for live teaching.

Video topics can include subject areas, people, methods, procedures, or equipment. For example, one could explain soil surveys, the original purposes for them, and how objectives for their use have changed as society and our economy has changed. The professional and personal lives of leaders in the life sciences can be documented with explanations of the various routes they took to achieve particular goals.

Home use of video cameras has proliferated, and editing technology is much simpler than it was even 10 years ago. Educators may find it a daunting task to create the first video, but each subsequent video will become easier. Many educational institutions have audiovisual departments that can provide materials, equipment, and expertise to educators. A team effort of educators, video subjects, and audiovisual technicians will enable team members to learn from each other and make the creative process more effective. The new role of the educator as a videographer is simply the application of existing skills in new situations.

The teacher should have an idea of what he or she wants to convey to students in substance and style. The subject(s) and other contributors can provide ideas about the important aspects of the topic and how to adapt it to a script and video format. The entire team can develop narrative, graphics, and visual depictions that convey desired information.

Application. These types of videos can be used at any educational level including grade school. Of course, one must match the audience to the video content. Videos can be shared with other departments and other schools within a university. Professional societies can develop a list of these videos that can be loaned or purchased by other educational institutions.

Short-subject videos can be used for public education, recruiting undergraduates and graduates, and the never-ending task of fund raising. One can take an audience on a tour through years of research or through a greenhouse, a lab, and field situations in the course of minutes.

Benefits. Students can learn how a topic relates to other subject areas and how information can be applied by a video narrator making these comparisons. Audiences will learn how ideas are developed and transformed into scientific theories, methods, procedures, and technological applications. An appreciation for the impact of various factors on scientific developments can be better illustrated in videos than in written form. Most importantly, viewers can experience the personalities and people behind scientific research and applications.

After one becomes adept at producing videos or several videos are available, courses can be substantially enhanced without completely revamping a course. All courses should be somewhat revised each term. Videos offer educators an opportunity to adapt new information to a course with a minimum of effort, depending on how involved the educator is in the video production. However, one video can be used in many classes.

Videos offer the opportunity for informational exchange between researchers and teachers and for interdepartmental exchange. Relationships among individuals with seemingly dissimilar interests often lead to major breakthroughs. For example, the work of Dr. Joe White, a soil scientist at Purdue University, and Dr. Stan Hem from the School of Pharmacy, also at Purdue University, led to new applications of clays in indigestion remedies.

People who are generally not involved with classroom teaching will have opportunities, as video developers or video subjects, to improve their abilities to convey their goals and achievements. Videos can be used to advocate various research projects and development of current or interdisciplinary curriculum. Teachers and researchers can use videos as another tool to encourage financial, technical, and intellectual support.

The enthusiasm and skills of people who are immediately available and interested to create short-subject educational videos should be used by educators. Professionals with established interests in video production and individuals who have stories to be told can provide support to this unique form of education. Emeriti professors can use this method to remain involved in their subject areas and provide a valuable service and product to their fields.

Educators must take advantage of the wealth of knowledge and long-term perspectives that are easily accessible from emeriti professors, researchers, and extension staff. Technology offers new methods, new audiences, and new partnerships for education in life sciences and natural resources. We are limited only by our creativity.—MYRA L. PEAK, Peak Environmental Management, P. O. Box 404, Green River, WY 82935-0404.
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Segoe Road, Madison, WI 53711-1086. Phone:
(608) 273-8080. FAX: (608) 273-2021.

For Your Information

1994

National Science Teachers Association National Convention,
30 March–2 April, Anaheim, CA (800-328-8998).

When Science Becomes Culture, International Symposium,
10–13 April, Montreal, Quebec, Canada (416-696-3101).

Second Conference on Forage Quality, Evaluation, and Use,
13–15 April, Lincoln, NE (402-472-1558).

National Agricultural Biotechnology Council annual meeting,
23–26 May, Michigan State University, East Lansing, MI.

American Society of Agricultural Engineers summer meeting,
19–22 June, Kansas City, MO (616-429-0399).

Rapid Methods and Automation in Microbiology: Interna-
tional Workshop XIV, 8–15 July, Sanas State University,
Manhattan, KS (913-532-5654).

American Society of Animal Science annual meeting, 11–15
July, Minneapolis, MN (217-356-3182).

American Society of Plant Physiologists annual meeting, 30
July–3 August, Portland, OR (301-251-0560).

Plant Growth Regulator Society of America annual meeting,
3–6 August, Portland, OR (919-549-2408).

American Phytopathological Society annual meeting, 6–10
August, Albuquerque, NM (505-345-7250).

American Agricultural Economics Association annual meeting,
7–10 August, San Diego, CA (619-779-3700).

Soil and Water Conservation Society annual meeting, 7–10
August, Norfolk, VA (515-289-2331).

American Society for Horticultural Science annual meeting,
7–11 August, Corvallis, OR (703-836-4606).

Botanical Society of America annual meeting, 7–11 August,
Knoxville, TN (913-864-3255).

Society of American Foresters annual meeting, 18–21
September, Anchorage, AK (301-897-8720).

Wisconsin Fast Plants Workshop, 28–29 October, Madison,
WI (800-462-7417).

American Society of Agronomy, Crop Science Society of
America, Soil Science Society of America annual meeting,
13–18 November, Seattle, WA (608-273-8080).

American Society of Agricultural Engineers winter meeting,
13–16 December, Atlanta, GA (616-429-0300).

1995

Society for Range Management annual meeting, 13–21
January, Phoenix, AZ (303-355-7070).

Weed Science Society of America annual meeting, 7–10
February, St. Louis, MO (217-356-3182).

Association of American Geographers annual meeting, 15–19
April, Chicago, IL (202-234-1450).

American Society of Plant Physiologists annual meeting, 29
July–2 August, Charlotte, NC (301-251-0560).

American Society for Horticultural Science annual meeting, 30
July–3 August, Montreal, Canada (703-836-4606).

Ecological Society of America annual meeting, 31 July–3
August, Snowbird, UT (602-965-3000).

Soil and Water Conservation Society annual meeting, August,
Des Moines, IA (515-289-2331).

American Phytopathological Society annual meeting, 12–16
August, Pittsburgh, PA (612-454-7250).

 Contributions Accepted by
Journal of Natural Resources and Life Sciences Education

Letters to the Editor

Comments concerning editorials, manuscripts, or other printed materials in recent issues of the journal, if approved for publication, will be printed without page-charges. Send your letters to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Notes

These contributions may include instructional techniques, computer software descriptions, slide set articles, or any study that contributes to the development or better understanding of resident, extension, or industrial education. You need not have several years of research data to support your thoughts; your note can be based mainly upon personal philosophies or opinions. Although there are no page limitations on notes, brevity is recommended. Send notes (five complete copies) to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Regular Manuscripts

Most authors, despite the broad range of contributions being accepted by the journal, still prefer to report on classroom studies. These include student opinion surveys, experiences that have evolved through the years, comparisons of teaching techniques, and other instructional methodology that merits multiple research data support. Review articles, computer software articles, slide set articles, and case studies are also published as regular manuscripts. Submit five copies of regular manuscripts to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Computer Software Articles

As a natural consequence of increased computerization in the classroom, authors are submitting greater numbers of articles describing computer software. Authors should see J. Agron. Educ. 14:51 for more information. Send five copies of your contribution to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Slide Set Articles

The goal of slide-set publications is to encourage development and distribution of slide-sets for instruction. The specific objectives are to (a) give publication credit to the author, (b) describe a 2 x 2 slide-set for teaching or other purposes, and (c) relate its availability to the reader who may choose to use it. Slide-set publications are of significant value to readers and of professional advantage to the authors and the journal. For more information on the slide set publication policy, see J. Nat. Resour. Life Sci. Educ. 22:10. Send five copies of your slide set article directly to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Case Study Articles

Interest in providing problem-solving and decision-making experiences in education has sparked interest in the adaptation of decision cases for publication in this journal. Although decision cases have long been used in colleges of business, they have only recently been adapted to natural resources, life sciences, and agriculture. Guidelines have been developed to describe the format for publication of decision cases in the Journal of Natural Resources and Life Sciences Education. Prospective authors will find it helpful to see J. Nat. Resour. Life Sci. Educ. 21:2-3 for guidelines in manuscript preparation to ensure minimum editorial delay. Send five copies of your case study article to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Profiles

The educational contributions of many noted educators have been included in past issues of the journal. Manuscripts concerning colleagues who have become noted in the field of education are welcomed. If accepted for publication, page charges will be waived. Please contact Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080), prior to writing your profile for information on format and possible publication dates.

Media Reviews

Textbooks, software, videotapes, or other media that may have merit for undergraduate or graduate classroom usage are periodically reviewed by members of the Society who volunteer their services. If you wish to review media, contact Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Ideas and Issues

Any tips for incorporating systems approaches to teaching into your courses? Any hints for ensuring that students read their textbook assignments? Any good techniques for handling makeup exams? Any advising tips? The journal accepts contributions concerning ideas that do not warrant full-length manuscripts or notes. The "Ideas and Issues" section is a forum for opinions, reports, issues, and ideas in teaching and extension. These are limited to one or two paragraphs. Page charges for Ideas and Issues are minimal due to length limitation. Send your contribution directly to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).

Newsfeatures

The Newsfeatures section in the journal presents practices or ideas of interest to readers. The items differ from regular articles in that they are of limited scope and cover events too recent for full documentation. The Editor approves Newsfeatures. Send your contributions to Susan Ernst, Managing Editor, 677 South Segoe Road, Madison, WI 53711 (608-273-8080).