MEETING GENERATES ENTHUSIASM FOR BIOTECHNOLOGY ACTIVITIES

In February, a Family and Consumers Science Biotechnology Update was held in Ottumwa for Area 15. It was very well received, according to Nancy Plowman, Davis County High School home economics teacher and one of the organizers of the event. Most of the participants plan to attend biotechnology workshops this summer.

"The workshop inspired me to start writing biotechnology curriculum for my own classes," says Plowman. "When I finish, I plan to send it to the Office of Biotechnology at Iowa State University so it can be included in the new `Tips for Teachers' section of the Iowa Biotech Educator." Plowman said that when teachers share biotechnology activities, they help each other prepare students to understand and make informed decisions about biotech products. "For example, most of the cheese products on the market today are already made with chymosin, an enzyme used to remove the solids from milk. Flavr Savr tomatoes, the latest food product from biotechnology, will be reaching the market any day now," she added.

At the meeting, Sue Siedschlag, from Russell High School, demonstrated how chymosin readily coagulates milk and how she uses ribbons as a DNA model. Siedschlag has also used chymosin to make ice cream with kindergartners and plans to do the activity with junior high students this summer at a Forest Lake 4-H camp, south of Ottumwa. According to Sue, "These are easy activities that I also plan to share with my colleagues at an Area workshop this summer." NETWORKING KEEPS BIOTECHNOLOGY DEVELOPMENTS MOVING

Paul Mayes, Coordinator of Science, Muscatine Community College, is working with an informal network among five eastern Iowa high schools. The network, called "Tech Prep Consortium," includes Louisa Muscatine Senior High School at Letts, Columbus Community High School at Columbus Junction, Wilton High School, Durant High School and West Liberty Senior High School. According to Mayes, "Our major aim is to coordinate the tech prep program between high schools and colleges so students are better prepared for technical careers and further scientific training." "Our network is small at this point," says Mayes. "We only meet a couple of times each year but want to expand it to more schools if we find a source of funding. One thing we plan to continue to do is to keep in touch with the Iowa State University Extension and the Office of Biotechnology so we don't miss any of the latest biotechnology developments."

Mayes became excited by the "grass roots" type of biotechnology training that the ISU Cooperative Extension and Office of Biotechnology offer after he attended a workshop with 14 other community college instructors last winter. Mayes says, "The community college teachers who attended call each other when they try something new that works or have an interesting question from a student they hadn't contemplated before."
will be on the Iowa State University campus for their own workshop from July 18 - July 22. This workshop is sponsored by the Howard Hughes Medical Institute grant and the Office of Biotechnology. Each master teacher was asked to nominate another teacher with the help of his/her Area Education Agency science consultant. "At this workshop, the teachers will discuss their experiences with laboratory activities in biotechnology, discuss current topics in biotechnology, learn about computer networking for biotechnology education, and visit biotechnology research facilities in Ames and Des Moines," says Walter Fehr, ISU Director of Biotechnology.

Current Master Teachers include: Cindy Reher, Humboldt Senior High, Rod DeVries, Forest City High School, Marge Welch, Lenox High School, Dave Millis, Edgewood-Colesburg High School, Gary Garton, Iowa City High, Brian D. Cummings, Columbus Community High School, Diane Den Herder, Sioux Center Community High, Gene Ficken, Independence Community High School, Morris Green, Emmestburg High School, Dan Boelts, Iowa Falls High School, Ernest Schiller, Central Lee High School, Ronald Wilmot, Akron Westfield School, Daniel J. Huey, Atlantic High School, Mike Zeller, Woodward-Granger High School, and Donald Holland, Tri County Schools at Thornburg.

Other teachers who have accepted an invitation to attend include: Jerry Heying, Marshalltown High School, Kris Howes-Vonstein, Washington High School, Vinton, Jay Staker, Ballard Community High School, Jim Langhous, MPL-Mar-Mac High School, Monona, Barb Jacobson, Bettendorf High School, Carol Sadler, Battle Creek/Ida Grove High School, Pat Campbell, Lewis Central High School, and Darrin Strike, Ventura High School.

ANNUAL MEETING FOR HOME ECONOMICS

FEATURES BIOTECHNOLOGY

This spring, the Iowa Home Economics Association members held their annual meeting in Iowa City. Their focus was on new technology. They placed major emphasis on developments in biotechnology that are important to consumers. "Many of the Iowa Home Economics Association members attended biotechnology workshops for Extension Family Specialists and Home Economics teachers last summer at ISU. They felt the subject was important for all association members," said Jan Temple, Nutrition and Health Field Specialist from Iowa State University Extension. Temple, who participated in planning the meeting, added, "As home economists, we can provide consumers with the opportunity to learn about new biotechnology products and the basic science behind them."

Ken Prusa, ISU Associate Professor of Food Science and Human Nutrition, talked about new biotech meat products that are on the horizon. Nolan Hartwig, ISU Professor of Veterinary Medicine updated the group on food safety. Temple said that these presenters had standing room only during their sessions.

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Temple and Rhoda Barnhart, ISU Extension Family Field Specialist, had a display for the participants on DNA fingerprinting. Walter Fehr, ISU Director of Biotechnology, had a hands-on exhibit for isolating and viewing DNA from onion.

TIPS FOR TEACHERS

We are happy to include instructions from Gary Garton, Master Teacher from City High, Iowa City, for making inoculation loops and needles at an affordable price. You will find the instructions at the end of this newsletter. Garton's instructions will help teachers equip their labs at a reasonable cost. Please remember to send your "tips" to Walter Fehr, Director of Biotechnology, 1210 Molecular Biology Building, Ames, IA 50011.

PUBLIC EDUCATION PROGRAMS

DATE: July 6-9, 1994
LOCATION: Iowa 4-H Ed. and Natural Resources Center near Madrid, IA
TARGET AUDIENCE: Youth in Grades 8 - 10
CONTACT PERSON: Judy Levings, Statewide Youth and 4-H Camp Director, 33 Curtiss Hall, Iowa State
DATE: July 8, 1994 LOCATION: Iowa State University, Ames, IA 50011
TARGET AUDIENCE: Iowa Vocational Agricultural Teachers' Assoc. Summer Conference Attendees
CONTACT PERSON: Robert Martin, Professor, Ag. Education and Studies, 217 Curtiss Hall, Iowa State University, Ames, IA 50011 Phone: 515-294-0896 or 800-262-0015, ext. 0896; FAX: 515-294-1047

DATE: July 12-14, 1994 LOCATION: Iowa Central Community College, Center, 330 Avenue M, Fort Dodge, IA 50501
TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other interested individuals.
DAY 1 - For persons interested in learning how to prepare and teach laboratories in DNA transformation, and DNA fingerprinting.
Days 2 and 3 - For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for instructional development. K-12 TEACHERS CONTACT: Arrowhead AEA, Box 1399, 1235 5th Ave. S., Fort Dodge, IA 50501 Phone: 515-576-7435 or 800-234-2183 FAX: 515-576-4734 NON-TEACHERS CONTACT: Lori Miller, Office of Biotechnology, Iowa State University, Ames, IA 50011 Phone: 515-294-9818 or 800-262-0015, ext. 9818 FAX: 515-294-4629

DATE: July 18-22, 1994 LOCATION: Iowa State University, Ames, IA 50011
TARGET AUDIENCE: Master Science Teachers CONTACT PERSON: Lori Miller, Office of Biotechnology, Iowa State University, Ames, IA 50011 Phone: 515-294-9818 or 800-262-0015, ext. 9818 FAX: 515-294-4629

DATE: July 26-28, 1994 LOCATION: Indian Hills Community College, Ottumwa Campus, 515 Grandview, Ottumwa, IA 52501
TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other
interested individuals. DAY 1 - For persons interested in learning how to prepare and teach laboratories in DNA, DNA transformation, and DNA fingerprinting.

Days 2 and 3 - For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for instructional development. K-12 TEACHERS CONTACT: Southern Prairie AEA, Rt. 5, Box 55, Ottumwa, IA 52501

Phone: 515-682-8591 or 800-662-0027 FAX: 515-682-9083

NON-TEACHERS CONTACT: Lori Miller, Office of Biotechnology, Iowa State University, Ames, IA 50011 Phone: 515-294-9818 or 800-262-0015, ext. 9818; FAX: 515-294-4629

DATE: August 2-4, 1994 LOCATION: Iowa Lakes Community College, North Campus, 300 South 18th St., Estherville, IA 51334

TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other interested individuals.
DNA transformation, and DNA fingerprinting.

Days 2 and 3 - For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for instructional development. K-12 TEACHERS CONTACT: Mississippi Bend AEA, 729 21st St., Bettendorf, IA 52722
Phone: 319-359-1371; FAX: 319-753-1527

NON-TEACHERS CONTACT: Lori Miller, Office of Biotechnology, University, Ames, IA 50011
Phone: 515-294-9818
or 800-262-0015, ext. 9818

DATE: August 9-11, 1994 LOCATION: Iowa

Western Community College,
Campus, 2700 College Rd., Council Bluffs, IA 51522
TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other interested individuals.

DAY 1 - For persons interested in learning how to prepare and teach laboratories in DNA extraction from bacteria, DNA transformation, and DNA fingerprinting.

Days 2 and 3 - For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for instructional development. K-12 TEACHERS CONTACT: Loess Hills AEA, PO Box 1109, Council Bluffs, IA 51502
Phone: 712-366-0503 or 800-432-5804
FAX: 319-753-1527

NON-TEACHERS CONTACT: Lori Miller, Office of Biotechnology, Iowa State University, Ames, IA 50011
Phone: 515-294-9818
or 800-262-0015, ext. 9818
FAX: 515-294-4629

BIOTECH EDUCATOR page 6 DATE: August 15-16, 1994

LOCATION: Western Iowa Community College,
4647 Stone Avenue, Box 265, Sioux City, IA 51102
TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other interested individuals. For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for instructional development. K-12 TEACHERS CONTACT: Western Hills AEA, 1520 Morningside Avenue, Sioux City, IA 51106
Phone: 712-274-6080 or 800-352-9040
FAX: 712-274-6069

NON-TEACHERS CONTACT: Lori Miller, Office of Biotechnology, Iowa State University, Ames, IA 50011
Phone: 515-294-9818
or 800-262-0015, ext. 9818
FAX: 515-294-4629

DATE: August 15-17, 1994 LOCATION: Des Moines Area Community College, Ankeny Blvd., Ankeny, IA 50021
TARGET AUDIENCE: Ag. education, home economics, and science teachers, home economists and other interested individuals.

DAY 1 - For persons interested in learning how to prepare and teach laboratories in DNA extraction from bacteria, DNA transformation, and DNA fingerprinting.

Days 2 and 3 - For those who want to learn the principles of biotechnology, the products available to consumers, the ethical issues of biotechnology, and opportunities for
inoculating loops and needles at an affordable price

Gary Barton City High School
1900 Morningside Drive
Iowa City, IA 52245
Phone: 319-339-6811 FAX: 319-339-5705
E-MAIL: gargar@chop.isca.uiowa.edu

Inoculating loops and needles serve as a very handy way to transfer bacteria from one location to another. They can be sterilized with a bunsen burner, an alcohol lamp, or other convenient source of flame. One problem, however, is cost. At two to three dollars each, it can be costly to equip a laboratory with enough for each team member. Fortunately, there is an alternative way to come up with a class set that is equal to or better than the commercial varieties: Make them yourself for only a few cents each!

MATERIALS:
- Nichrome wire #24 gauge
- Capillary tubing 1/4" OD 11 cm long
- Hand drill
- Instant glue
- Emery cloth or sand paper
- Wire Cutters
- Rod short piece of 1/8" diameter such as those used for brazing

METHOD:
Cut a piece of #24 gauge nichrome wire approximately 30 - 40 cm long. Fold the wire to make a loop and place the two ends into the chuck of the hand drill as shown in Figure 1. Place the 1/8" rod at the top of the loop and have someone hold the ends of the rod while you crank the drill. Keep moderate tension on the wire while winding. Keep cranking the drill until the wire is tightly wound and the "loop" is formed to the shape of the diameter of the rod. Remove the newly formed loop from the drill chuck and pull out the rod. Cut off the unwound ends that were in the drill chuck.

Cut a piece of capillary tubing 11 cm long and smooth the cut ends with emery cloth or sand paper. Place a part of a drop of instant glue onto one end of the tube. Capillary action should draw the glue a centimeter or two into the tube. Insert the end of the wire loop into the tubing and let the glue set up. Do not seal the other end. It will be ready to use as soon as the glue cures.

To make an inoculating needle, follow the same preparation but cut the loop off when finished.

Figure 1. Hand drill with nichrome wire in drill chuck. Wire loops around a piece of 1/8" rod which will form the loop.
opening. (Please note if you want a copy of this figure, send me your name and mailing address. Thank you, Sheila Lacy. Hard copies are available for Extension in the Educator coming in next week's mail pack to extension offices too.) Sources of nichrome wire: Frey Scientific 905 Hickory Lane PO Box 8101 Mansfield, OH 44901-8101 Cat. No. 02249 4 oz. 216 ft. $13.40 Sargent-Welch 911 Commerce Court Buffalo Grove, IL 60089-2362 Cat. No. 5-85125-G $20.40 Science Kit and Boreal Laboratories 77 East Park Drive Tonawanda, New York 14150 Cat. No. 63651 $18.25