

# Students Learn Aquaculture At Juniata

ALEXANDRIA, Va. — Students at Juniata Valley High School will discover the secrets of science and math in the course of learning how to raise and market fish and other aquaculture products when classes resume this fall.

The students and their instructors are part of a pilot aquaculture education program being implemented by The National Council for Agricultural Education. Six sites were selected from applicants across the nation to receive a \$49,100 grant to develop an aquaculture learning center and test curriculum materials. The program is being funded by Congress through the U.S. Department of Agriculture's Cooperative State Research Service.

The program was created in response to a shortage of people trained in aquaculture. Diet-conscious Americans are eating more fish. This rise in demand comes at a time when the supply of natural fish and seafood resources is falling because of overharvesting and polluted waters. The resulting supply gap has created tremendous opportunity in the aquaculture industry, thus a need for more people trained in this area.

The aquaculture program integrates instruction in science, math,

English, and agriculture through a hands-on approach. John Pope, executive director of The Council, said, "We will be teaching science and the use of high technology in an emerging industry which is of increasing economic importance." Pope sees aquaculture education as a means of stimulating American students to study math and science, particularly as it relates to water quality and the environment.

Each of the six selected applicants will send a team of teachers, including an agriculture teacher and a biology or chemistry teacher, to a two-week inservice workshop July 7-19 at the Gulf Coast Research Laboratory (GCRL) in Gulfport, Miss. The workshop will include instruction in aquaculture and a review of the curriculum materials to be tested. The curriculum materials were developed by GCRL, the Oceanic Institute in Honolulu, and Iowa State University in Ames.

Aquaculture isn't a separate course at Juniata Valley High School. It's a part of the agriculture, biology, and chemistry curricula. According to Peter Ludwig, principal, students will be required to take a one-half semester agriculture course during their freshman year that includes instruction in aquaculture.

Joe McMullen, formerly the

biology teacher and now the aquaculture program coordinator, explains the program's team teaching approach. "Our students will receive training in aquaculture through other courses. Biology courses will include information on water quality. Chemistry students will study water chemistry. Agriculture students cover feed rations and feed conversion. All of

these classes will use the aquaculture lab facility."

In addition to the high school program, McMullen teaches an adult class which focuses on developing an economically viable aquaculture module. McMullen has traveled extensively gathering information for the project and has designed a working fish produc-

tion unit for a relatively small capital investment.

The aquaculture program was developed by The National Council for Agricultural Education, a partnership between education and agriculture involving more than one-half million students and 12,000 teachers. The council is the leadership organization for agricultural education.

## Lyme Disease Protection

UNIVERSITY PARK (Centre Co.) — As you head to the great outdoors for spring and summer recreation, what is your risk of contracting Lyme disease? How can you prevent infection by the Lyme-carrying deer tick?

The answers to these and other questions about Lyme disease are provided in a newly released Penn State video titled "Outsmarting the Deer Tick."

"Although Lyme disease should not be taken lightly, the potential for acquiring the disease is extremely low if you follow current recommendations," said Penn State entomologist Steven Jacobs, who helped develop the video. "We hope to inform the public of the risks associated with Lyme disease and recommend strategies to deal with those risks."

Jacobs said outdoor and wildlife

groups, scout troops, health care providers, and other organizations will find the video useful in educating their members and clients.

The time to plan strategy for Lyme disease prevention is now, Jacobs said. "Ticks become active by mid-May and continue to be a threat throughout the summer."

The video gives advice on prevention and personal protection, tick control in the backyard, and Lyme disease and pets. It also covers symptoms, difficulties in diagnosing the disease, the appearance and ecology of the deer tick, and other topics.

Jacobs is one of three Penn State researchers conducting a three-year survey of Lyme disease in Pennsylvania. Now in its second year, the survey is designed to map the distribution of Lyme disease in the state. The goal is to develop a

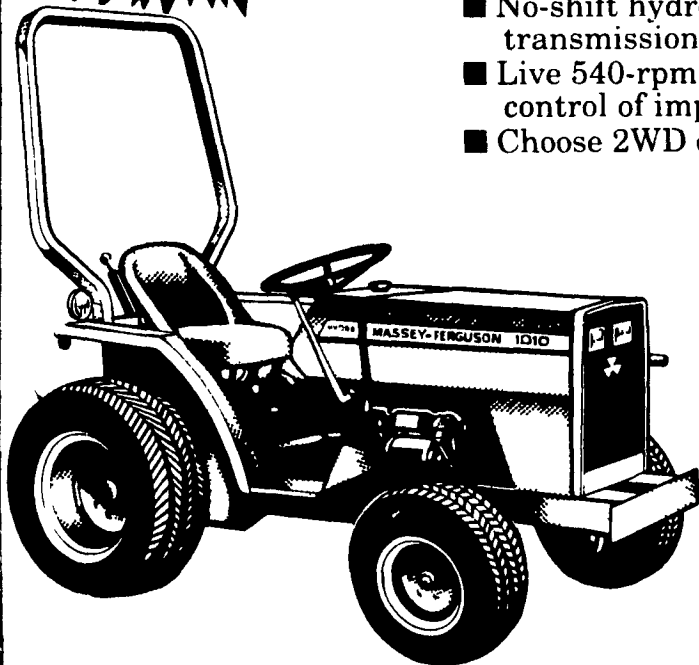
program to advise the public on the risks associated with outdoor activities in various habitats.

The researchers ask that Pennsylvania residents assist in gathering data by taking any ticks they find, dead or alive, to their local Penn State Cooperative Extension county office. The extension office will send the tick and a completed questionnaire concerning where and how the tick was found to the University Park campus for the researchers to analyze.

Jacobs said preliminary statistics indicate that three areas of the state appear to have the heaviest concentrations of ticks: the southeast, from Philadelphia to Dauphin County; parts of Elk, Cameron, and Clearfield counties, including Moshannon State Forest; and Presque Isle in Erie County.

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