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Aquaculture at Kentucky State University

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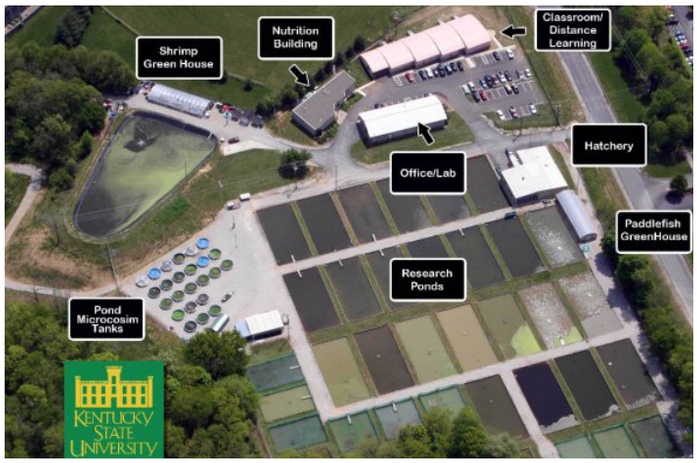
Aquaculture in the United States

In the U.S., over 91% of the seafood we consume is imported. This has resulted in a trade deficit in seafood products exceeds $14.5 billion. The continued growth of a domestic aquaculture industry is important to the health of the U.S. economy. Aquaculture production in the U.S. exceeds $1 billion. It is one of the fastest growing segments of U.S. agriculture and expected to remain a growth industry for the next 2-3 decades. Beyond economic considerations, issues related to biosecurity, food security, and food safety make U.S. consumers increasingly concerned about not only where there seafood comes from, but also the environmental conditions inherent in where it was captured or cultured.



KYSU Aquaculture Research Center 14-acre campus in Frankfort, Ky.

Program's History and Role

Kentucky State University (KYSU) is the 1890 Land-Grant institution in the Kentucky system. As such, its mission is to address the needs of the citizens in the Commonwealth through applied research, teaching, and service. KYSU's lead role in the Aquaculture area is recognized by the legislature. The overall Land-Grant model provides for the generation of essential information needed to develop aquaculture as a new enterprise for the state through applied research. Information is then transferred to producers through a statewide extension network. Support services, such as disease diagnostics, are also offered by KYSU. Instruction is provided at the undergraduate and graduate level through the Aquaculture/Aquatic Sciences degree program.

The Division of Aquaculture was named KYSU's Program of Distinction by the Kentucky Council on Post Secondary Education in 1999. The choice of Aquaculture was based on meeting two of the stated criteria; both the ability to conduct applied research with the potential of significant economic impact for the Commonwealth and the potential of a program achieving "national prominence." Areas of significant growth since the POD designation have been Aquaculture Genetics, Aquaculture Economics and Marketing, and Distance Learning/Internet course development.

Academic Programs

From 1985 to 1991 the program was entirely research and Extension. Kentucky State University began offering classes in Aquaculture in 1992. No other university in the Commonwealth offers an aquaculture curriculum. In 1999, the Council on Post-Secondary Education approved KYSU to offer a Master of Science degree in Aquaculture/Aquatic Science. This was only the second graduate level program offered at KYSU and the first graduate degree within the STEM disciplines. The program awarded its first MS degree in May 2002, and by May 2014 will have awarded 48 Master of Science degrees. Over 25% of our MS graduates go on to complete a PhD. The undergraduate program is part of the B.S. in Agriculture, Food, and the Environment (AFE). Aquaculture Systems is one of the Option Areas in that degree.

Distance Education

Students from all over the United States and many foreign countries have become involved in KYSU's Aquaculture Program by taking online courses. Currently the Division of Aquaculture has five online courses in an innovative, video-based format. They include Principles of Aquaculture, Fish Diseases, Fish Genetics, and Fish Reproduction and Spawning Techniques, and Aquaculture Production Methods. That course has a textbook that accompanies it which was edited by Dr. Tidwell, the instructor for the course. The KYSU Division of Aquaculture has the largest offering of online aquaculture courses in the U.S. The Division has had 900 online graduate students, from 40 states and 27 countries, enrolled in KYSU Aquaculture courses.

Students and professors harvest fish from a research pond at the KYSU Aquaculture Research Center.

Research

As primarily a thesis based graduate program in a STEM discipline, academics fully integrates with research. The goal of the KYSU Aquaculture Research Program is to increase the knowledge base in aquaculture, thereby facilitate increases in farm income and the productivity of on-farm water resources in Kentucky around the world. This is to be accomplished by examining and developing production technologies suitable for the climatic and physiographic conditions prevalent in Kentucky and similar regions.

Facilities

The Kentucky State University Aquaculture Research Center is the only such facility in the Commonwealth of Kentucky. Facilities at the Aquaculture Research Center include 33 research ponds. A hatchery houses spawning, holding, and experimental tanks. An office/laboratory building includes histology laboratory, offices, and conference/classroom space. The nutrition laboratory contains a wet lab and analytical lab. There are two greenhouses and a 120,000-gallon, 24-tank facility, which serves as a pond microcosm facility. A classroom/multi-purpose building includes a Fish Disease Diagnostic Laboratory, a processing room for food science research, and a videoconferencing facility. A new Production Technologies and Genetics Laboratory is now complete and contains one of the only replicated aquaponics research system in the U.S.

Extension

Research information is of little practical value unless it is communicated to producers in a useful and understandable form. Training and extension programs serve as the primary means of transferring this knowledge from the researchers to the end users. KYSU Aquaculture Specialists are integrated into the UK Cooperative Extension System. Specialists are housed at KYSU's main campus, and in Paducah, Ky.

International Activities

As stated previously, Division of Aquaculture faculty are recognized not only nationally but internationally. As such, they have been involved in research and educational programs in a number of countries around the world. Formal agreements involving faculty exchange, cooperative research, or educational exchanges exist with the institutions in the Czech Republic, Ethiopia, and the Dominican Republic. Faculty have been actively engaged in many more countries including Nigeria, Cuba, Brazil, Australia, South Africa, China, Poland, England, India Turkey, and France.

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