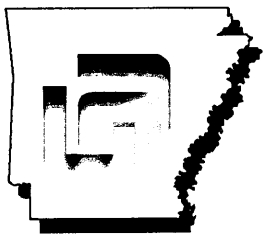
Cooperative Extension Service



Submitting Fish and Water Samples for Disease Diagnosis

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

H. Steven Killian
Extension Fisheries
Assistant Specialist

When you have sick or dying fish, you need help fast. A rapid and accurate diagnosis is dependent on the fish and water sample submitted for examination. Poor quality samples are of little or no value to the disease diagnostician and result in a loss of valuable time.

Critical Information Needed For Diagnosis and Treatment

There are a number of key characteristics that give a diagnostician clues into the possible causative agent in a fish disease epidemic. The producer should record and report to the diagnostician such factors as feeding intensity, observed unusual fish behavior (swirling, topping, etc.) and mortality patterns (when fish started dying, number per day). Other helpful bits of information are recent dissolved oxygen, temperature measurements and stocking densities. This information will aid the diagnostician in making an accurate diagnosis and prescribing an effective treatment.

Fish Samples

The most important factor in determining the cause of a disease epidemic is the quality of the fish sample submitted for examination. Not all samples are of equal value. The two best types of fish samples that increase ones chances of determining causation are as follows: (1) Live fish (3 to 5 if possible) exhibiting physical signs of disease (open sores, frayed fins, red spots or reddish areas etc.); and (2) fish (3 to 5 if possible) exhibiting behavioral symptoms such as swirling, topping, hanging in the water, etc.. These two types of samples are usually best collected by dip nets or throw nets.

Other samples of marginal value are dead fish (3 to 5) with red gills and somewhat normal amounts of mucus, and fish (7 to 10) taken by random netting. Other types of samples which are usually of no value for disease diagnosis are live fish captured by baited hook and line and dead fish that have lost their body color and have white gills.

Transporting Fish Samples

The transportation of fish samples from the culture pond to the diagnostic lab is an extremely important link in the overall diagnostic process. An acceptable sample at the time of collection could be rendered unusable through faulty storage and transporting methods. The most important points in transporting fish are preservation of the sample and speed of delivery.

There are four basic ways of maintaining and preserving fish samples. The most common method is the transportation of fish in an open container of water. Keys to the success of this method are to hold the weak sick fish at very low densities, maintain good water quality and shield the fish from the sun. Mechanical aeration and or oxygen may be needed to ensure the survival of some samples. This method can only be recommended if the transport time is relatively short (less than 1 hour).

Another method is to put the live sick fish at a low density in a sealed plastic bag with approximately 20 percent water and 80 percent pure oxygen. Keep the sample out of the sun and transport immediately to the diagnostic facility.

Since most good samples are sick weak fish, many times the farmer cannot be guaranteed that the fish will survive the trip to the lab. When this is the case, the fish should be placed in a plastic bag without water and sealed. The bag of fish should then be put on ice for immediate transport to the lab. This method will keep the fish sample in relatively good condition for up to six hours.

Frozen samples may be submitted for diagnosis when the fish are over 24 hours from the lab. However, this method produces samples of only limited value in the diagnostic procedure.

Water Samples

Each time diseased fish are submitted for diagnosis, they should be accompanied by a pond water sample. Water quality plays an important role in disease epidemics in catfish culture. The water sample allows the diagnostician to determine if water quality is contributing to the disease state or causing the problem outright. Dissolved oxygen and carbon dioxide levels should be taken at the pond site because they will not give a true reading at the lab.

Water samples should be obtained in a clean glass or plastic container. Rinse the container in the pond water several times before obtaining the sample. Take the sample a few feet from the pond's edge and away from water inlets. Submerge the water sample container and cap it so that no air bubbles are present. Place the sample in a shaded cool area and transport immediately to a diagnostic facility. If the water sample is to be held for more than one hour, put it on ice and transport as soon as possible. Old water samples will not accurately reflect water quality conditions in your pond.

Remember, properly obtained and preserved samples are the key to fast and accurate disease diagnosis.

The University Of Arkansas has two fish disease diagnostic labs in operation. Contact the one nearest you when disease problems arise.

University of Arkansas Cooperative
Extension Service
434 South Cokley St.
Lake Village, AR 71653
Phone: 265-2271 or 265-5883
Diagnostician: H. Steven Killian

University of Arkansas Cooperative
Extension Service
P. O. Drawer D (Highway 70 East)
Lonoke, AR 72086
Phone: 676-3124 or 676-3125
Diagnosticians: Larry Dorman, Melissa Hobbs

The U.S. Fish and Wildlife Service also operates a fish disease diagnostic lab in Arkansas.

Fish Farming Experiment Station
P.O. Box 860 (9 miles east on Highway 130)
Stuttgart, AR 72160
Phone: 673-4483
Diagnostician: Andrew Mitchell

KILLIAN is Extension fisheries assistant specialist, University of Arkansas at Pine Bluff, located at Lake Village.

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