Fish Health Management of Recirculating Systems

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Fish producers today have very limited choices for controlling fish disease problems. Many bacteria that infect fish are now resistant to the only two FDA approved antibiotics. A fish health prevention/maintenance program is presently recognized as a required management practice by fish producers to lessen the risk of diseases,. This management approach has become particularly critical for producers using recirculating systems. Fish health prevention/maintenance programs require many elements including quarantine procedures, examination and monitoring for fish pathogens, and prophylactic treatments for parasites. Developing fish health prevention protocols are necessary to reduce likelihood of bacterial and parasitic diseases.

The vital key in the prevention of disease outbreaks is water quality. It well known that recirculating systems water quality can go from good to bad very quickly. When this happens dreaded disease problems often appear and seem to never go a way. Monitoring and managing of water quality parameters on a daily schedule is necessary management practice for recirculating facilities.

The greatest disease problem facing tilapia producers is Streptococcus (Strep). Strep is a rapidly emerging disease in the aquaculture industry using recirculating systems. Since control of this problem is difficult (Requiring extra label use of antibiotics in many cases), a fish health management plan is needed for reducing this problem.

Fish (Tilapia especially) should be checked and monitored for Strep at recirculating facilities. CNA agar with 5% sheep blood can be used for isolating Strep from fish. This media is well suited for screening for gram positives such as Strep. The brain (nervous tissue) or the intestines are used as the inoculum from fish. Plates are incubated for no more than 96 hrs. Suspicious colonies are gram strained. Those colonies that are gram positive cocci in pairs or short chain are further screened using the catalase test. Strep is catalase negative while many other gram positive cocci such as Staphylococcus are catalase positive. The number of fish (60 fish in most cases) in samples should follow American Fisheries Society Fish Health Section Blue Book procedures for pathogen detection.

It is critical that producers have a quarantine procedure in place for new fish arrivals at their facilities. It is at this stage where fish are checked for potential diseases problems. Fish are examined for parasites and Strep before moving them to production tanks. Also fish should

be treated prophylactically for external parasites before moving regardless of parasite intensity of fish.

Once in production tanks, fish should be sampled two to three times during the course of production to monitor for parasites and for Strep. A planned management program adds to expense of the operation but is preferred to having to shut down completely and disinfect an entire system.

Since fish are going to be sacrificed for a Strep check, they should be also examined for parasites especially Gyrodactylus (Skin Flukes). Research indicates that Strep infections are more likely to occur when trauma occurs to the epidermis. A heavy infection of skin flukes attaching to skin could create such epidermal trauma. Prophylactic treatments for external parasites must be part of a management plan. When fish are moved or transferred to new tanks a standard practice should include treatment for external parasites.

When developing a production facility, a fish health management plan should be use in guiding its construction. A producer should have a production system that is easily treatable and manageable for diseases. A facility that uses a few large units would most likely have difficulty in treatment and management of a problem leading to a shut down for disinfecting the system, thus having no production for months. If a disease gets into a facility with many small units, individual systems can be isolated and disinfected without total facility shut down.