CHARLES H. BRONSON
COMMISSIONER OF AGRICULTURE

FLORIDA AQUACULTURE

Issue Number 49
April, 2006

FDA TOURS TROPICAL FISH FARMS

BY SUZIE HERSHBERGER, DACS-DIVISION OF AQUACULTURE

The University of Florida Tropical Aquaculture Laboratory hosted a visit by U.S. Food and Drug Administration, Center for Veterinary Medicine (FDA-CVM), Aquaculture Drugs Team, based in Rockville, Maryland.

Dr. Roy Yanong, Associate Professor/Extension Veterinarian, coordinated a series of presentations and tours March 14 through 17 to provide the FDA Team with a better understanding of ornamental fish aquaculture.

Dr. Don Prater, FDA-Veterinary Medicine, examines ornamental fish with David Drawdy, Oak Ridge Fish Hatchery. Kal Knickerbocker, DACS, looks on.

The FDA Team particularly wanted information on: species in trade, production and shipping methods, how therapeutic drugs are used within Florida's tropical fish farms, what types of drugs are most useful, and how these drugs may interact with the environment beyond the farms. This information will help them to determine what steps should be taken to approve or re-approve these drugs, and how to label them to ensure proper use.

For example, because of Florida's comprehensive approach to effluent treatment and reduction provided by the Aquaculture Best Management Practices, some drug approvals may be easier, as there is a low probability of these drugs being discharged into the environment.

Presentation topics included descriptions of tropical fish industry support in Florida (University of Florida, USDA-APHIS Wildlife Services and Veterinary Services, and Division of Aquaculture), current research, Best Management Practices, non-native and transgenic species, and biosecurity.

Mr. Art Rawlings, President, Florida Tropical Fish Farms Association, led an evening program by Association members to discuss farmer perspectives, needs, and concerns.

Participants visited ornamental fish facilities of varying sizes and production system designs. The farm visits allowed participants to get a first-hand look at a variety of breeding, grow out, harvesting, grading, transport, counting, water treatment, and shipping operations.

Dr. Yanong summarized the event, "By visiting the industry and speaking directly with producers, the FDA-CVM's Aquaculture Drugs Team now has a better understanding of the inner workings of the ornamental industry, as well as its needs. We are encouraged by the FDA's strong interest in helping ornamental producers gain legal access to badly needed drugs. The drug approval process can be lengthy and complicated, but this visit definitely will help facilitate the process."

For additional information, contact Dr. Yanong at 813-671-5230 ext. 104.

NEW EMPLOYEES JOIN THE BARTOW FIELD OFFICE

Suzie Hershberger is an Environmental Specialist monitoring aquaculture BMP compliance. Suzie received her Bachelor of Science degree in Natural Resources Management from the University of Maryland. Suzie has extensive experience as a wetland educator working with teachers, youth and the general public. Suzie also trained with the Peace Corps in the Dominican Republic. Having spent most of her life in and around the waters of the Chesapeake Bay, she is looking forward to spending more time in the warmer waters of South Florida.

Daniel Merryman is an Environmental Specialist. He will assist in aquaculture BMP compliance efforts in Central and South Florida. Daniel received his degree in Ecology from the University of Pittsburgh and has nine years of fisheries science experience. Previously employed with the Florida Fish And Wildlife Conservation Commission (FWC) at the Fish and Wildlife Research Institute, he was involved primarily in Florida saltwater gamefish research. This included managing the Fisheries Age and Growth Laboratory where fish otoliths were processed and analyzed to determine fish age, a foundation of fisheries science. Aside from research, he represented the FWC during outreach events; including boat shows, fishing shows, school functions, and kids fishing clinics.

To contact Suzie or Daniel, call 863-519-8459.

14th International Conference on Aquatic Invasive Species

The introduction and spread of invasive species in freshwater and marine environments is a worldwide problem that is increasing in frequency. There are various pathways by which nonindigenous invertebrate, fish, and plant species are being introduced, becoming established, and causing significant damage to coastal and freshwater ecosystems, and to the economies that depend upon them.

The U.S. Geological Survey is hosting the 14th International Conference on Aquatic Invasive Species (ICAIS) that will be held in Key Biscayne, Florida, from May 14 to 19, 2006.

This conference series has evolved over the last decade into the most comprehensive international forum for the review of accumulated scientific knowledge; presentation of the latest field research; introduction of new technological developments for prevention, monitoring and control; and discussion of policy, legislation, public education and outreach initiatives to raise awareness of the impacts of aquatic invasive species and prevent new introductions.

The conference typically involves over 400 participants from 30 countries representing academia, industry, government agencies, environmental organizations, and other stakeholders involved in the issues and seeking opportunities for cooperation and collaboration to address them.

For additional information visit: http://www.icais.org

MUD MINNOW MARKET FEASIBILITY EXAMINED

The Bureau of Seafood and Aquaculture Marketing is partnering with the Floridan Resource Conservation and Development Council, Inc., USDA Rural Development Agency, Putnam County Agriculture Extension Office, and growers to develop a new and emerging business enterprise in the rural areas of Putnam, Flagler, St. Johns, Volusia, Duval and Nassau Counties.

The goal is to assist local agricultural producers to utilize their ponds for the production, marketing and sales of the bait fish, *Fundulus grandis*, commonly known as the mud or bull minnow.

Mud minnows are a highly prized bait fish that is currently caught in the wild in Florida and is sold to bait shops along the Atlantic and Gulf Coasts. (cont'd on page 4)

Aquacultural Therapeutants and Anesthetics

The availability and use of drugs by aquaculturists is strictly regulated by the U.S. Food and Drug Administration (FDA) and U.S. Environmental Protection Agency. Generally a drug is an article intended for use in diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals. It includes an article, other than food, that is intended to affect the structure or any function of the body of man or other animal, and includes articles that are intended for use as a component of a drug. For aquatic animal production, articles such as ice, oxygen and salt are, by definition, drugs.

There are seven drugs approved for use in aquaculture: one anesthetic, one parasiticide, one spawning agent, and four antibiotics; and a variety of materials that FDA considers of low regulatory priority (i.e., ice, salt, garlic, carbon dioxide, etc.) One of the approved antibiotics is no longer manufactured and available.

Approved Drugs

Chorulon® (chorionic gonadotropin) is a prescription product that is used as an aid in improving spawning function in male and female brood finfish. As a prescription product, federal law restricts this drug to use by or on the order of a licensed veterinarian.

Finquel® and Tricaine-S® are the same drug (MS-222; tricaine methane sulfonate). MS-222 is intended for the temporary immobilization of fish, amphibians, and other aquatic, cold-blooded animals. For food animals there is a mandatory 21-day withdrawal time before the fish can be harvested for human or animal consumption. Further, when used in food fish, use is restricted to fish from the Ictaluridae, Salmonidae, Esocidae, and Percidae families. For non-food aquatic animals it can only be used under laboratory or hatchery conditions. The drug does not require a veterinary prescription and is available over-the-counter.

"Withdrawal time" is the period between the last administration of the drug to the aquatic animal and the time when the aquatic animal can be harvested and offered for food (human or animal). The withdrawal time ensures no harmful drug residues are present .

Formalin-F®, Paracide-F®, and Parasite-S® are the same drug (formalin). Formalin-F® and Parasite-S® are labeled for all finfish, all finfish eggs, and penaeid shrimp. Paracide-F® is restricted to use in salmon, trout, catfish, bluegill, and largemouth bass. Formalin is used as an external parasiticide to control protozoan parasites and monogenetic trematodes. For finfish eggs, the drug is used to control fungi and for penaeid shrimp it is used to control protozoan parasites. There is no withdrawal time prior to food or non-food animal harvest (formalin does not bioaccumulate) and there is no prescription required.

There are only three approved and available antimicrobials for use in domestic aquaculture but their approvals are limited to specific food fish (catfish, salmonids and lobster) and specific diseases. These antimicrobials are oxytetracycline (Terramycin for Fish®; oxytetracycline monoalkyl trimethyl ammonium), a potentiated sulfonamide (Romet-30® and Romet-TC® ormetoprim: sulfadimethoxine) and florfenicol (AQUAFLOR®). These drugs can only be administered through feed in a specific feed formulation.

Terramycin for Fish® is approved to treat certain diseases in catfish, salmonids and lobster. It can be used to treat bacterial hemorrhagic septicemia and pseudomonas disease in catfish. For salmonids, Terramycin for Fish® can be used to control ulcer disease, furunculosis, bacterial hemorrhagic septicemia and pseudomonas disease. Terramycin for Fish® is not currently approved for use in salmonids at temperatures below 9°C ; although, efforts are ongoing that could ultimately lead to approval. Lobster can be treated with Terramycin for Fish® to cure the bacterial disease gaffkemia.

Romet-30® can be used in medicated feed to treat enteric septicemia of catfish and furunculosis in salmonids. In catfish there is a three-day mandatory withdrawal time and for salmonids, a 42-day withdrawal time. The shorter withdrawal time for catfish occurs because residues that might be present are removed with the catfish skin during processing.

AQUAFLOR® can be used in medicated feed to treat enteric septicemia of catfish. There is a 12-day mandatory withdrawal time. AQUAFLOR® has been recently approved (October 24, 2005) and ends a 21-year drought between drug approvals. AQUAFLOR® is also what FDA-CVM has termed a "Veterinary Feed Directive" (VFD) drug. VFD drugs are available through normal feed distribution but a licensed veterinarian must provide a signed VFD for their purchase and use and there is no extra-label or off-label use allowed.

There was only one approved antibiotic (Nifurpirinol: Furanace Caps) for freshwater ornamental fish that are not reproducing and held in an aquarium for treatment of columnaris disease. This drug was withdrawn from production by the manufacturer. There are no other antibiotics approved for aquatic non-food animals.

Dr. Roy Yanong, UF-Tropical Aquaculture Laboratory commented, "Because there are currently no FDA approved antibiotics available for use in non-food fish species, producers should work closely with a veterinarian or other fish health specialist who can assist with proper diagnosis of disease problems and provide treatment recommendations, to avoid unnecessary or improper use of drugs or chemicals."

(cont'd on page 4)

CHARLES H. BRONSON
COMMISSIONER OF AGRICULTURE

R. Sherman Wilhelm, Division Director
Florida Department of Agriculture and Consumer Services
Division of Aquaculture
1203 Governor's Square Boulevard, Fifth Floor
Tallahassee, Florida 32301

Phone: 850-488-4033
Fax: 850-410-0893
Email: wilhels@doacs.state.fl.us

Newsletter Editor: Paul W. Zajicek
Phone: 850-410-0849
E-mail: zajicep@doacs.state.fl.us

DACS-P-00082

Benefiting commercial aquaculture,
Conserving natural resources

(Mud Minnow cont'd from page 2)

Working as a partner under the rural business enterprise grant, the Bureau will assist with market feasibility of farm-raised mud minnows, and will pursue issues such as market potential, sales potential, market access and design of packaging and promotional materials.

For further information, please contact Ramsay Parham at the Bureau of Seafood and Aquaculture Marketing at 850/488-0163 or parhamv@doacs.state.fl.us

(Aquaculture Therapeutants cont'd from page 3)

It is illegal to use antibiotics prophylactically to prevent aquatic animal disease or for production purposes such as to promote aquatic animal growth. Top dressing feed with an antimicrobial (adding the antibiotic on top of the animal's normal rations) is specifically not permitted except for Romet-TC®. No antibiotics have been approved for hauling tanks or for immersion treatment of aquatic animals.

There are very limited circumstances where Terramycin® and Romet-30® can be administered in feed to other aquatic species. This is termed "extra-label use." Conditions for extra-label use are specified in the Animal Medicinal Drug Use Clarification Act of 1994 and include, but are not limited to, express written recommendation and oversight by a licensed veterinarian and complete and accurate record keeping.

Note: This article was adapted from a paper entitled, "Drugs in the U.S. Aquaculture Industry," posted to http://www.aquanic.org/asap/white_pages/drugs.pdf with additional information from Tom Bell, Randy MacMillan, Roz Schick, and Roy Yanong.

PRSRT STD
U.S. POSTAGE PAID
FLORIDA DEPARTMENT
OF AGRICULTURE AND
CONSUMER SERVICES

Division of Aquaculture
1203 Governor's Square Blvd, Fifth Floor
Tallahassee, FL 32301