Antibiotics and VFDs in Aquaculture

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· The Sustainable Superfood ·

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Antibiotics in Aquaculture

Florfenicol

Oxytetracycline dihydrate

Sulfadimethoxine/ormetoprim

Feed Antibiotics

- AQUAFLOR®
- Available from Merck Animal Health
- Bacteriostatic, inhibits microbial protein synthesis
- Incorporated within floating feed
- **Dosing**: 10-15 mg/kg per day for 10 consecutive days
- **Withdrawal Time**: 15 days

Florfenicol

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Species	Bacterial Target
Freshwater salmonids	*Aeromonas salmonicida*
	Flavobacterium psychrophilum
Freshwater finfish	*Flavobacterium columnare*
Freshwater & warmwater finfish	*Streptococcus iniae*
Catfish	*Edwardsiella ictaluri*

- TERRAMYCIN® 200
- Available from Western Chemical
- Bacteriostatic, inhibits microbial protein synthesis
- Incorporated within sinking feed
- **Dosing**: 2.5-3.75 g/100 lb fish per day for 10 days
- **Withdrawal Time**: 15 days

Oxytetracycline dihydrate

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Species	Bacterial Target
Catfish (not <62°F)	*Pseudomonas* spp., *Aeromonas liquefaciens* (*A. hydrophila*)
Salmonids	*Hemophilius piscium, Aeromonas salmonicida* and *liquefaciens*, *Pseudomonas* spp.
Freshwater salmonids	*Flavobacterium psychrophilum*
Freshwater rainbow trout	*Flavobacterium columnare*
Lobster	*Aerococcus viridians*

- ROMET®
- Available from AquaTactics
- Bactericidal, inhibits enzymes in folic acid synthesis
- Incorporated within feed or as a top coat
- **Dosing**: 50 mg/kg per day for 5 days
- **Withdrawal Time**: Catfish: 3 days; Salmonids: 42 days

Sulfadimethoxine/Ormetoprim

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Species	Bacterial Target
Catfish	*Edwardsiella ictaluri*
Salmonids	*Aeromonas salmonicida*

- Established in 1994 when FDA mandated medicine used in aquaculture be regulated
- Only program in the U.S. dedicated to ensuring continued progress toward obtaining new FDA-approved medications for use in U.S. aquaculture
- https://www.fws.gov/fisheries/AADAP/home.htm
- FDA website is the authoritative source of approved aquaculture drugs
- http://www.fda.gov/AnimalVeterinary/DevelopmentApprovalProcess/Aquaculture/default.htm

AADAP
Aquatic Animal Drug Approval
Partnership Program

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

- U.S. Fish and Wildlife Service offers cooperative agreements with federal, state and local agencies as well as educational institutions and private farms
- Provided needed accesses to therapeutants to fisheries management and aquaculture facilities
- Generated target animal safety data used as supporting data for new animal drugs approved for use in aquaculture
- Strict obligations and procedures allow for validity of data and judicious use of INAD drugs

INAD Program

QUICK DESK REFERENCE GUIDE TO:

Second Edition: April 2015

Approved Drugs for Use in Aquaculture

Developed by:

U.S. Fish & Wildlife Service's Aquatic Animal Drug Approval Partnership Program

American Fisheries Society's Fish Culture and Fish Health Sections

Association of Fish & Wildlife Agencies - Fisheries and Water Resources Policy Committee's Drug Approval Working Group

AADAP

Aquatic Animal Drug Approval Partnership Program

ASSOCIATION of FISH & WILDLIFE AGENCIES

AADAP Desk Reference

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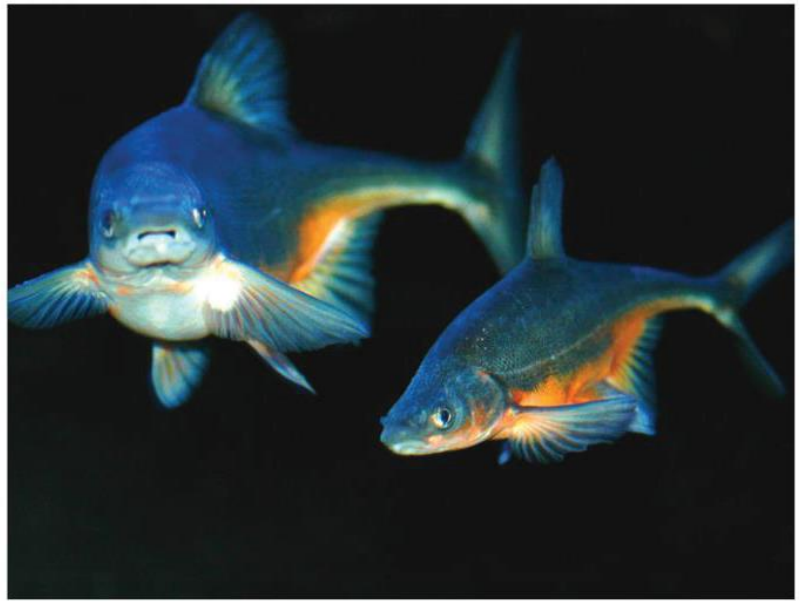
Revision Date: July 2016

American Fisheries Society
Fish Culture Section

Guide to Using Drugs, Biologics, and Other Chemicals in Aquaculture



FCS Working Group on Aquaculture Drugs, Chemicals, and Biologics

AFS Guide

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Veterinary Feed Directives (VFDs)

- Animal Drug Availability Act of 1996
- A written statement issued by a licensed veterinarian in the course of the veterinarian's professional practice that authorizes the use of a VFD drug in or on an animal feed
- A VFD authorizes the veterinarian's client to obtain and use animal feed containing a VFD drug
- Use of the animal feed containing a VFD drug must be in accordance with the VFD feed label and provisions listed in the VFD

Veterinary Feed Directive

- Regulated by FDA with the intent to
  - Reduce potential for antimicrobial resistance
  - Prolong effectiveness through judicious use

- A VFD drug is intended for use in or on an animal feed which is limited to use under the professional supervision of a licensed veterinarian

- Use of an animal feed containing a VFD drug must be authorized by a lawful Veterinary Feed Directive

VFD Drugs

- Must be a licensed veterinarian
- A valid Veterinarian-Client-Patient Relationship (VCPR) must be established
  - State vs Federal VCPR
- Recent examination of the fish
- Maintain medical records
- Proper use of medication
- Cover emergency and follow-up care
- Issue written VFD with all required information
- Maintains original copy for 2 years, copies to distributor and client

Veterinarian's Responsibilities

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- Cooperate with veterinarian and supply any necessary information
- Follow dose rate, duration and expiration date of VFD
  - **Duration of use**: length of time the VFD feed is allowed to be fed to the animals per the approved label
  - **Expiration date**: defines the period of time for which the authorization to feed an animal feed containing a VFD drug is lawful
- Work with feed mill to make final determination of the amount of medicated feed required
- Maintain copy of VFD for 2 years

Producer's Responsibilities

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- State license number
- Biomass of fish
- Quantity of feed ordered
  - Calculated by distributor and producer
- Date of treatment
- Expiration date change
  - Default expiration is 6 months from issuance
  - Veterinarian can specify expiration date of the VFD

No Longer Required from Veterinarian

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Aquaculture continues to expand globally

Few antibiotics are approved in the U.S.

Veterinarians are increasingly important in food fish production, especially with the implementation of new VFD rules

Opportunities exist within private practice, corporate production and federal, state, tribal agencies

Summary

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Questions?

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