

Antibiotics and Veterinary Feed Directives in Food Fish

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Antibiotics in Aquaculture



Approved Feed Antibiotics

- Florfenicol
- Oxytetracycline dihydrate
- Sulfadimethoxine/ormetoprim

Florfenicol

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

AQUAFLO[®]

Species	Bacterial Target
Freshwater salmonids	<i>Aeromonas salmonicida</i>
	<i>Flavobacterium psychrophilum</i>
Freshwater finfish	<i>Flavobacterium columnare</i>
Freshwater & warmwater finfish	<i>Streptococcus iniae</i>
Catfish	<i>Edwardsiella ictaluri</i>

Oxytetracycline dihydrate

- TERRAMYCIN[®] 200
- Available from Western Chemical
- Bacteriostatic, inhibits microbial protein synthesis
- Time dependent
- Incorporated within sinking feed
- **Dosing:** 2.5-3.75 g/100 lb fish per day for 10 days*
- **Withdrawal Time:** 21 days*

*Different for use in lobsters

TERRAMYCIN®

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

Sulfadimethoxine/Ormetoprim

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

ROMET®

Species	Bacterial Target
Catfish	<i>Edwardsiella ictaluri</i>
Salmonids	<i>Aeromonas salmonicida</i>

Aquatic Animal Drug Approval Partnership Program (AADAP)

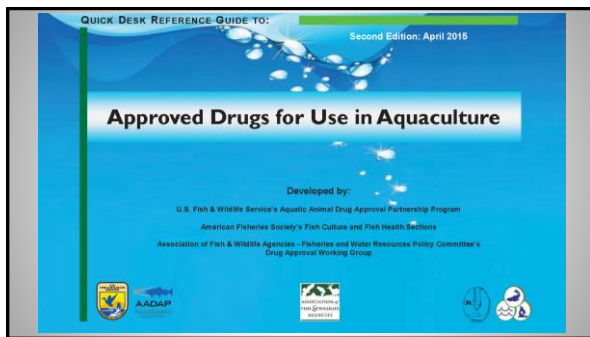
- Established in 1994 when FDA mandated medicine used in aquaculture be regulated
- Only program in the U.S. dedicated to ensuring continued progress toward obtaining new FDA-approved medications for use in U.S. aquaculture
- <https://www.fws.gov/fisheries/AADAP/home.htm>
- FDA website is the authoritative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

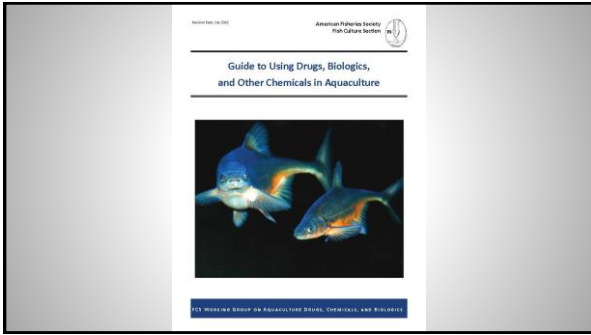


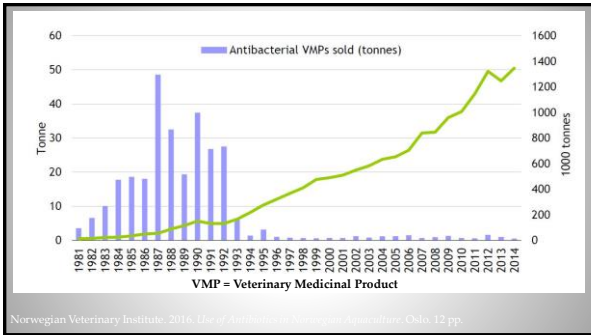
Investigational New Animal Drug (INAD)

- 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









Veterinary Feed Directives (VFDs)

Veterinary Feed Directive

- 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 Drug

- 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

Veterinarian Responsibilities

- 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
- Maintain original VFD for 2 years, copies to distributor and client

Producer Responsibilities

- 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

Summary

Few antibiotics are approved in the U.S.

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

Written VFDs are required before using any medicated feed on your farm

Maintain all records for at least 2 years

QUESTIONS?



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