

Off-Flavor in Catfish

Off-Flavor tastes in catfish are derived from certain types of algae and bacteria that occur in nutrient rich, densely stocked catfish production ponds. The flavors are varied, but are often described as musty, muddy, woody, sewage, rotten or diesel tasting. The two most common causes of off-flavor in catfish are produced by geosmin and 2-methylisoborneol (2-MIB). These chemicals are believed to originate from four or five species of the 100 to 200 species of blue green and other algae that commonly live in catfish ponds. The chemicals are strong enough in fish flesh for the average person to detect concentrations as low as 0.7 parts per billion. Fish absorb these chemicals readily as long as they are available in the pond water.

Off-Flavored fish must be purged of the bad taste before they can be processed or marketed. When left in the pond, this may take days, weeks or months depending on the severity of the off-flavor. Duration of the purging process will depend on the size of the fish, its fat content, water temperature and the initial amount of off-flavor causing chemical in the fish. Many fish will come back “on-flavor” when purged in freshwater for as little as 24 hours. However, this practice is too expensive and labor intensive to purge many thousands of pounds of catfish before they are harvested. At certain times, particularly during warm weather, up to 60% of Mississippi grown catfish can be off-flavor. Off-flavored fish present a tremendous expense to the entire farmed catfish industry and an estimated \$15 to \$23 million to catfish growers. Fish are lost to disease and predation while harvests are delayed. This increases crop loss risk to farmers. Off-flavored catfish must be fed and sometimes purged which increases production costs. Processing plants must taste test sample fish from each pond or load two or three times before the fish are slaughtered. Fish that fail the taste test at the processing plant must be returned to the production pond which increases transportation costs.

Agricultural research Service work conducted in Stoneville Mississippi has found the occurrence of off-flavor to be greater in ponds that range from 4 to 15 years of age than in younger ponds. Currently, the occurrence of off-flavor in catfish ponds can only be treated with algaecides. The common algaecide copper sulfate or “bluestone” has been used in an effort to control off-flavor producing algae blooms. Unfortunately, this compound also kills beneficial algae that produce oxygen and help breakdown nitrogenous waste. The herbicide Diuron has received an emergency use exemption from the Environmental Protection Agency and is used in some states as a low concentration algaecide.

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