Cooperative Extension Service

Winter Feeding Channel Catfish

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

H. Steven Killian
Extension Fisheries
Assistant Specialist

Feed costs are the most costly expense in raising channel catfish which accounts for between 40 to 50 percent of the annual operational budget. Improvements in feeding, i.e., more efficient feeding techniques, will result in increased profits for the producer. One of the most misunderstood areas in catfish nutrition is winter feeding. A properly managed winter feeding program will result in increased profits for the farmer.

Why Winter Feed?

Many fish farmers will set a date in the fall to stop feeding and set a date in the early spring to resume feeding. This activity results in hundreds or thousands of dollars in losses in fish production. Studies have shown that fish not fed during the winter will lose 10 percent of their body weight, while winter feeding can result in gains from 5 to 20 percent.

For example, assume you are overwintering 1/2 pound channel catfish and these fish are not fed. This will cause an approximate 10 percent decrease in weight of the standing stock and result in about $180 per acre loss (assuming 4,500 head per acre, $0.80 per pound). However, if 1/2 pound fish were fed during the winter and gained only 5 percent of their body weight, then you could expect returns of around $50 per acre (assuming a 3:1 feed conversion, $240 ton feed).

When you compare this to the non-fed situation discussed earlier, a body weight gain of only 5 percent puts you $230 per acre ahead. If winter feeding produced a 20 percent increase in body weight, returns of approximately $200 per acre could be expected and when compared to the non-fed situation you are $380 per acre ahead.

Winter feeding can also produce healthier fish which are more resistant to winter kill and spring diseases. The immune system of channel catfish will be better able to ward off infectious organisms if energy stores are not depleted. Winter feeding can result in hundreds of dollars in savings related to fish diseases.

Winter Feeding Methods

Even during the winter, channel catfish will feed when they are hungry. However, catfish do not become hungry as quickly during colder months because of their slowed metabolism. For this reason, feeding rates and frequencies must be altered to accommodate the fish's metabolism. Winter feeding tables have been developed to maximize winter feeding efficiency (Table 1).

Table 1. Winter Feeding Schedule*

Temperature F at 3 Feet	% of Total Fish Weight to Feed	Feeding Frequency
45-50	0.5	Once a week
51-55	0.5-1	Twice a week
56-60	0.5-1	Every other day
61-65	1-1.5	Every other day
66-70	1.5-2.0	Every day

*Based on Alabama Cooperative Extension Service Pub. ANR-457 and Mississippi Cooperative Extension Service publication, *For Fish Farms*, October 10, 1989.

Research has shown that channel catfish feed better in the winter when the water is warming. To take advantage of this, catfish could be fed during the afternoon for best feeding response. Catfish should be fed on the shallowest end of the pond. The reason for this is that the shallow water will warm much faster than the rest of the pond. Catfish are cold-blooded and any increase in water temperature will result in increased metabolism, feeding activity and growth.

Winter Feeds

Slow sinking extruded feed pellets should be used during the winter. The advantage over floating pellets is that these pellets will not be blown to shore while the channel catfish slowly feeds. Other advantages are that channel catfish don't feed as well from the surface during the winter and also slow sinking feed costs less than floating feed.

Slow sinking pellets also have an advantage over sinking feed. Due to the added heat and pressure during extrusion, slow sinking pellets are much more stable in water. This added stability will allow the sluggish catfish time to find and ingest the intact pellet. A more water stable pellet can improve winter feed conversion rates by ensuring the fish get more of the food that is fed.

Studies have also shown that channel catfish require a lower percent of protein in their diet during the winter for maximum production. Winter feeding studies have shown that channel catfish require only 26 percent protein for maximum growth compared to 32 to 35 percent during the summer. Since protein is the most costly ingredient in fish feeds, winter feeds are less expensive.

Winter Food Conversion

It has been determined that feed conversion values are worse during the winter (3:1, 4:1) as compared to the summer (1.75:1, 2:1). The poor winter feed conversions are probably a result of some feed being wasted and less efficient utilization of feeds in a cold environment. Improvements in winter feed conversion could come from feeding not just for the sake of feeding, but feeding based on fish activity. Also, feed conversion could be improved by producing feeds that are more readily digested and utilized at low temperatures.

Pond size has an effect on winter feed conversion. Smaller ponds should produce better feed conversions than larger ponds. This difference occurs during all times of the year; however, it is probably more evident during the winter. In large ponds over the winter, catfish may not readily search out and find pellets due to their slowed activity and as a result, feed may be wasted.

Conclusion

When properly followed, a winter feeding program can result in significant profits. Winter feeding will decrease the length of time until harvest and, most importantly, will produce healthier and stronger fish that will be less susceptible to diseases. The bottom line is that winter feeding can save you money and increase your profits.

KILLIAN is Extension fisheries assistant specialist, University of Arkansas at Pine Bluff, located at Lake Village.

FSA9053-12-3M-7-91-S218

Issued in furtherance of Extension work, Act of September 29, 1977, in cooperation with the U.S. Department of Agriculture, Dr. Mazo Price, Director, Cooperative Extension Program, University of Arkansas at Pine Bluff. The Arkansas Cooperative Extension Program offers its programs to all eligible persons regardless of race, color, national origin, sex, age, or handicap, and is an Equal Opportunity Employer.