

## FARMING BLACK SOLDIER FLY FOR CATFISH FEED IN NIGERIA TO REDUCE FEED COSTS

By the No Longer Bugged by Feed Cost team

Otogo Clement is a fish farmer in Cross River State, Nigeria, but he recently considered abandoning his aquaculture enterprise in search of a new livelihood due to the high costs of fish production. The increasing cost of fish feed has reduced aquaculture production in Nigeria, particularly in Ebonyi and Cross River States. In these two states, fish farmers are at the mercy of foreign and domestic feed manufacturers because there is no single custom feed mill that can produce locally manufactured fish feed. Some fish farmers like Clement have withdrawn from aquaculture because they cannot cope with the ever-rising cost of fish feed. Clement and his peers were excited to learn about the possibility of a cheaper fish feed alternative through the work of the Feed the Future Innovation Lab for Fish activity.



*Otogo Clement (left) weighs sampled fish from his fish farm in Cross River State during the black soldier fly larvae feed trials. Also in the photo, Bernard Agom stands to the right. (Photo provided by Oyewale Oyegoke, a PhD candidate)*

This activity utilized black soldier fly larvae (BSFL)—rich in protein, fats, and oil—as a replacement for the conventional fish meal found in most fish feed. The team demonstrated to the farmers that the substitution of the fish meal with the BSFL will not lead to a reduction in their yield nor will it lead to the transmission of diseases because the black soldier fly is not a vector of any disease unlike fish offal, which can transmit diseases. With the success of the feed trials, the team introduced cages for rearing BSFL. Farmers can simply wash the BSFL with water and feed them directly to their catfish without having to compound the BSFL into a feed.

"From the activity, I learned how to rear black soldier fly larvae and soon started feeding the larvae to my catfish in the mornings and giving the fish their normal feed in the evenings," said Clement. "This has reduced the cost of feeding substantially, and I see the potential of using the black soldier fly to increase the quantity of catfish I could produce on my farm."

Farmers were trained on the techniques of rearing BSFL and incorporating them into the feeding regimen of catfish. The use of the BSFL by farmers has reduced the quantity of conventional fish feed used in rearing the catfish and, in turn, reduced the cost of production.

A farmer in Oyo State, Zacchaeus Oluwafemi occasionally used fish offal and other waste derived from fish to formulate or compound fish feed pellets to reduce production costs. However, this did not produce the needed results (the expected rate of fish growth) because of the limited supply of fish

## ACTIVITY TEAM

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offal. With the activity's help, Oluwafemi started using BSFL, which he now feeds directly to his fish along with fish feed.

"I hope that my farming cluster and I can, in time, produce black soldier fly larvae in so large a quantity that we can sell to other fish farmers and poultry farmers alike," Oluwafemi said.

Bernard Ogar, from Igoli in Ogoja area of Cross River State, also participated in this activity because of the high cost of fish feed in his area. Additionally, he noted that many feeds on the market have poor animal protein content or even make false claims about their protein contents. Ogar envisions that once this innovation becomes widespread, it will encourage fish farmers who abandoned their ponds due to high production costs to return to farming.

"Participating in this work has reduced the risk of buying fish feeds with lower than declared animal protein content, and this has guaranteed the quality of feed being fed to my fish with the inclusion of the black soldier fly larvae," Ogar said. "This practice will greatly reduce the cost of feed and improve profitability. In addition, I expect the local aquaculture value chains will be better in terms of production, quantity supplied to the market, and unit cost of production, and consumers will also be able to enjoy more affordable fish as a result."

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## ABOUT THE FISH INNOVATION LAB

The Fish Innovation Lab supports the United States Agency for International Development's agricultural research and capacity building work under Feed the Future, the U.S. Government's global hunger and food security initiative. Mississippi State University is the program's management entity. The University of Rhode Island, Texas State University, Washington University in St. Louis, and RTI International serve as management partners.

[www.feedthefuture.gov](http://www.feedthefuture.gov)  
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