

- **Thematic area:** Fish Production & Disease Management
- **Problem definition/Name of OFT:** Assessment of efficacy of chemotherapeutics against prevalent disease in Muzaffarpur district i.e., Argulosis.

1.	Title of On farm Trial	Assessment of effect of nanoparticles based fish feed additive on promoting growth, better feed utilization and disease resistance in fish.
2.	Problem diagnose	Reduced fish production due to improper use of feed and disease occurrence.
3.	Details of technologies selected for assessment/ refinement	Technology Option I (Farmer' Practice): Use of DORB + MOC (1:1)
		Technology Option II:- Use of formulated feed additive Nanoplus @CIFA
		Technology Option III:- Use of commercially available fish feed additive
4.	Source of Technology	ICAR-CIFA, Bhubaneswar, Odisha
5.	No. of Replications	07
6.	Production system and thematic area	Composite fish culture system
7.	Performance of the Technology with performance indicators	Fish yield (ton/ha), net return (rs./ha), Gross return (rs/ha), B:C ratio
8.	Constraints identified and feedback for research	Nanoplus@CIFA shows the best results in IMC fishes it may tested on other fishes and growth parameters may be observed,
9.	Process of farmers participation and their reaction	Through physical visits & Personal interview

**Results:** An On-farm trail was conducted at 07 different locations in Muzaffarpur district of Bihar for 90 days to assess the effect of nano-particle based fish feed additive on growth of fish. The result showed that the fishes fed with nano-particle incorporated feed (TO1) with highest weight gain % i.e., 478.86% in comparison to others 320.75% (FP) and 356.40% (TO2). The fishes in TO1 also showed highest specific growth rate (1.95%) than others 1.59% and 1.68% in FP and TO2 respectively. TO1 with nano-particles incorporated fish feed also conferred the highest fish production and BC ratio i.e., 2.60 as compared to FP using de-oiled rice bran (DORB) and TO2 using other fish feed additive, 1.99 and 2.48 respectively. So, the technology option TO1 (Nanoplus@CIFA) may be the best option to promote the growth of fishes.

**Table 2: Growth parameters of IMC fish fed with different feed additives**

Sl. No.	Treatment	Weight gain (%)	SGR (%)	Fish production (kg/ha)	Cost (Rs/ha)	Gross Return (Rs./ha)	Net Return (Rs./ha)	BC ratio
1	Farmer's practice (FP) Use of DORB + MOC (1:1)	320.75±0.21	1.59	3027.75	220000	454162.50	234162.50	2.06
2	TO1: Use of formulated feed additive Nanoplus @CIFA	478.86±3.5	1.95	4348.47	246000	652270.50	406270.50	2.65
3	TO2: Use of commercially available fish feed additive	356.40±1.65	1.68	3910.65	230000	586597.50	356597.50	2.55



Distribution of Nanoplus@CIFA feed



Sampling for observation & data collection