

ECONOMIC VIABILITY OF NILE TILAPIA IN A BIOFLOC TECHNOLOGY SYSTEM IN SOUTHERN BRAZIL

Gabriel A. Bezerra¹, Dara C. Pires¹, André L. Watanabe², Celso C. Buglione Neto², Alex J. da Silva Cardoso¹, Hamilton Hisano^{1*}

¹Embrapa Meio Ambiente

²Itaipu Binacional

*hamilton.hisano@embrapa.br

The growing demand for sustainable aquaculture has driven the adoption of biofloc technology (BFT) system, which offers high productivity and reduced environmental impact. However, economic feasibility studies for Nile tilapia (*Oreochromis niloticus*) production in BFT systems remain scarce. This study evaluates the economic viability of Nile tilapia juvenile production in a BFT system. Economic viability indicators were calculated using commercial data provided by Itaipu Binacional (Foz do Iguaçu, Paraná, Brazil) on capital investment, operational costs, and zootechnical performance from a production cycle (60 days). Economic indicators and evaluation are shown in Table 1.

Nile tilapia juvenile production in BFT is economically viable, with a high likelihood of profitability. Success depends on optimizing survival rates, controlling input costs, and adapting to market conditions.

Table 1. Economic evaluation of Nile tilapia juvenile cultured in a BFT system in Southern Brazil.

	Unit	Quantity	Value (USD)	(%)
Fingerlings	Fish	60,000	2,242.99	33.24
Feed	kg	1,124	1,512.67	22.42
Energy	kWh	1.49	100.63	1.49
Agricultural Lime	kg	112.40	18.91	0.28
Labor	Employee	1	478.44	7.09
Source of Carbon (Sugar)	kg	56.2	25.31	0.38
Sea salt	kg	240	50.22	0.74
Water analysis	Kit	1	50.45	0.75
Technical assistance	Month	2	299.07	4.43
Interest (working capital)			28.97	0.43
EOC			4,807.67	-
Depreciation			190.90	2.83
Pro-labore	Month	2	1,702.54	25.23
TOC			6,701.11	-
Opportunity cost			47.12	0.70
TC			6,748.24	100.00
Final production	kg		241.94	-
Sale price	US\$/kg		6.58	-
Total revenue	US\$/cycle		8,512.71	-
Gross margin (GM)			3,705.04	-
Net margin (NM)			1,811.60	-
Profit (P)			1,764.47	-

EOC, Effective Operating Cost; TOC, Total Operating Cost; TC, Total Cost. Currency conversion: 1 USD = 5.35 BRL.