

EVALUATION OF TILAPIA PRODUCTION IN CAGES FED WITH DIETS BASED ON IDEAL PROTEIN CONCEPT

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Feeding is not only the major issue related to fish production costs. It also may cause negative environmental impacts due inadequate management. Several studies have been conducted based on the concept of ideal protein to formulate balanced fish feeds to assure the use of exact types and amounts of amino acids in order to attend the nutritional requirements of a particular fish species. The objective of this study was to evaluate the zootechnical performance of tilapia production in cages in a rural reservoir fed with different commercial fish feeds provided by Guabi Animal Nutritional. A commercial brand of fish feed - Pirá Ideal Tilapia – based on the concept of ideal protein was evaluated in comparison to a conventional brand of fish feed – Pirá. Both commercial fish feed contained 32% of protein. The experimental design was composed with two feeding managements with a factorial of 2X2, composed with 4 treatments with 4 replicates: 1) Pirá Ideal (RI); 2) Pirá Conventional (RC); 3) 7 days feeding/week; 5 days feeding/week (no feeding during weekends). Fish were stocked (100 fish/m³) in 16 cages of 4m³ installed in a rural reservoir. The initial weight was 12g/fish and fish were maintained in cages for a period of 320 days. The following zootechnical indexes were evaluated: weight gain (WG), apparent food conversion rate (AFCR), specific growth rate (SGR), final biomass (FB) and survival (SUR). All data were submitted to a preliminary analysis of variance to verify the effects of main factors and effects of their interactions (Table 1). The analyses of the physical and chemical parameters of water quality such as temperature (°C), pH, dissolved oxygen (mg/L), have not showed any relevant variation that could be associated to differences on fish performance. The results obtained showed that the best performance was achieved by fish fed with the commercial fish feed brand Pirá Ideal Tilapia for 7 days/week for all zootechnical indexes. The interaction of factors have presented significative differences too for almost all the parameters evaluated with only one exception related to condition factor. Therefore, based on these data the use of ideal protein concept could be consider as a good strategy to achieve better zootechnical indexes for tilapia production in cages in rural reservoirs.

Table 1. Indexes of zootechnical performance

<i>Statistic/Treatments</i>	<i>FB(kgm⁻³)</i>						
	<i>WG(g)</i>	<i>AFCR</i>	<i>SUR(%)</i>	<i>SGR(%)</i>	<i>CF(%)</i>	<i>WG/DAY</i>	
	Effect PB						
RI	643.95 ^a 548.41	1.54 ^b	78.50± ^a	1.23 ^a	50.93 ^a	6.69 ^a	2.01 ^a
RC	^b	1.92 ^a	77.37 ^a	1.21 ^a	43.37 ^b	6.60 ^a	1.71 ^b
	Effect of feeding Frequency						
7 days/ week	671.37 ^a 520.99	1.87 ^a	75.12 ^b	1.26 ^a	51.17 ^a	6.61 ^a	2.09 ^a
5 day/week	^b	1.59 ^b	80.75 ^a	1.18 ^b	43.13 ^b	6.69 ^a	1.62 ^b
± standard error	±160.82	±0.56	±7.23	±0.13	±13.20	±1.43	±0.50
CV%	26.96	32.95	9.28	11.25	27.99	21.51	26.96
	Pr>F						
Protein (P)	0.0001	0.0001	ns	ns	0.0001	ns	0.0001
Week frequency (F)	0.0001	0.0001	0.0001	0.0001	0.0001	ns	0.0001
P*F	0.0025	0.0025	0.0001	0.0085	ns	0.0235	0.0025

^{1/} Averages followed by the same letters in the columns do not differ among themselves by Tukey's test (P>0,05).