Culture of GET 2002 EXCEL at Two Different Sites

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Abstract

This study aimed to find out tke growth performance of GET 2002 EXCEL at two different sites – Cabittaogan, Sta. Catalina, Ilocos Sur and Villamar, Caoayan, Ilocos Surfrom September I-November 1, 2003.

GET 2002 EXCEL cultured in Villamar, Caoayan, R? got the nighest mean final weight of 128 gm. The lowest was obtained in RI, with 103.5 grams. In Cabittaogan, Sta. Catalina, fishes in *R3 had the highest mean final weight of 196.9 gm, while those in R4 had the lowest mean final weight of 133.93 gm.*

Result suggests that the freshwater fishpond in Cabittaogan, Sa. Catalina is better for culturing the GET 2002 EXCEL than the riverwater in Villamar, Caoayan. This could be attributed to nutrients accumulated in the area and the average surface water temperature.

On the monthly average level of the. environmental parameters at the culture sites, Cabittaogan had higher salinity readings than Villamar. The pH levels of the waters did not differ much – from an average pH of 7.59-8.08 in Villamar, and from 7.27-7.89 in Cabittaogan.

GET 2002 EXCEL can be cultured in a freshwater fishpond with a salinity range of 1.66%-4.13%, surface water temperature range of 26,99-28.30, and a pH of 7.27-7.89.

Similar studies should be conducted in freshwater fishponds, making use of supplemental feed to reduce the production cost and gain more income. The effect of environmental parameters on the growth of the culture fishes must also be considered, and lastly, results of this study should be disseminated to fish farmers.

Introduction

Background of the Study

In the Philippines, tilapia *(Oreochromis niloticus)* is one of the most important fishes for culture from small to commercial scale due to its short generation time, ease of handling, stress and disease resistance, and palatability. In 1987 up to 1997, the pioneering collaborative national partners, Bureau of Fisheries and Aquatic Resources (BFAR) – CLSU National Freshwater Fisheries Aquaculture Center (CLSU-FAC), Norway Institute for Aquaculture Research, and the University of the Philippines – Marine Science Institute had been working on the Genetically Improved Farmed Tilapia (GIFT) project. The said project was coordinated by the United Nations Development Program (UNDP) and the Asian Development Bank (ADB). The output of the project was a synthetic tilapia composed of Afro/Asian strain known as the GIFT strain. The success of the GIFT led to its institutionalization - the GIFT Foundation International, Inc (GFII). The GFII is devoted to genetic research in tilapia to benefit the resource-poor-fishfarmers of the country in terms of increased productivity, availability and assurance of high quality tilapia fingerlings and more income.

BFAR-NFFTC continued the project. A sustained development of the fast-growing tilapia fishery was envisioned in the Philippine National Tilapia Breeding Program. The resulting additional new genes of *O. niloticus* is the "BFAR Genetically Enhanced Tilapia (GET) 2002 EXCEL," an excellent strain that has comparable advantage with other strains for entrepreneurial livelihood projects in support to aquaculture for rural development in the countryside. This EXCEL tilapia was launched during the "Fish Conservation Week" and "World Food Day" on October 16, 2002.

Objectives

The study evaluated the growth performance of GET 2002 EXCEL at two different sites in terms of the mean final weights and percentage of survivorship. Likewise. environmental parameters such as salinity. surface water temperature, and pH were monitored at the culture sites.

Review of Related Literature

Tilapia is a fish species that has survived the ancient world and continues up to this day to thrive in tropical freshwater bodies. rivers, and lakes. All the species of tilapia are native to tropical freshwaters of Africa but some commercially important larger species have been introduced and cultivated in Israel. and in

several countries including Indonesia, Malaysia, Thailand, and the Philippines (www.fishfanning.com).

In the Philippines, tilapia aquaculture has been tapped to help meet problems related to high population and unemployment. The Philippine National Tilapia Breeding Program, an institution that focuses on tilapia genetic research was established to develop a strain that will benefit fishfarmers of the country in terms of increased productivity and quality. New genetic strains of *O. niloticus* were produced. namely, GIFT, GET, and GET 2002 EXCEL. The GIFT and GET were proven to be excellent strains. The performance of GET 2002 EXCEL which was launched on October 16, 2002 was not yet tested (Fish Information and Services, 2003).

Methodology

This experimental research was conducted at two different sites, namely, a portion of the Mestizo River in Villamar, Caoayan, Ilocos Sur, and a freshwater fishpond in Cabittaogan, Sta. Catalina, Ilocos Sur from October I, 2003 to November I, 2003.

Fingerlings of GET 2002 EXCEL of approximately the same size and weights were solicited from the Bureau of Fisheries and Aquatic Resources – National Freshwater Fisheries Technology Center (BFAR-NFFTC), Science City of Munoz. Nueva Ecija. Upon arrival at the culture sites, the fingerlings contained in oxygenated plastic bags were allowed to float in water for minutes to acclimatize them to their new environment, and for them to recover from stress of capture and transportation. For each site, 200 fingerlings were equally distributed in four (4) nylon suspension nets measuring Im x 2m x Im, representing four replications having 50 fingerlings each.

Commercial feeds was used following standard feeding procedures of BFAR-NFFTC. The tilapia, were fed three times a day for a period of three months using broadcast method. Mean final weights and percentage survivorship were used to determine the fishes' growth performance.

During the course of the study, the salinity level, surface water temperature, and pH of the culture sites were monitored.

Results and Discussion

Table 1. Mean final weight of GET 2002 EXCEL.

REPLICATION	MEAN WEIGIIT (G)			
	Villamar, Caoayan		Cabittaogan, Sta. Catalina	
	initial	final	initial	final
RI	5.75	103.5	5.25	152.04
R2	5.85	128.0	5.00	148/70
R3	5.25	126.4	4.98	196.90
R4	5.50	119.3	5.06	133.93

Among the four replicates of the fishes cultured in Villamar, Caoayan, Ilocos Sur. R2 got the highest mean final weight of 128.0 g, followed by those in R3 with 126.4 g, then R4 with 119.3 g, and finally R1 with 103.5 g.

In Cabittaogan, Sta. Catalina, fishes in R3 had the highest mean final weight of 196.9 g, followed by those in RI with 152.04 g, R2 with 148.7 g, and finally R4 with 133.93 g.

To find out which culture site was better for the culture of GET 2002 EXCEL, the mean final weights of the fishes cultured at the two sites were statistically analyzed using the t-test. Results is presented in Table 2.

Table 2. The t-test on the significant difference between the mean final weights (g) of tilapia harvested from the two different sites.

SITE	N	MEAN	MEAN DIFFERENCE		df	SIGNIFICANCE
Cabittaogan	194	157.89				
			38.59	8.42	392	p<.01
Villamar	200	119.30				

Result indicates that the mean difference of 38.59 is significant at .01 level. This suggests that the freshwater fishpond in Cabittaogan, Sta. Catalina, Ilocos Sur is better fro culturing the GET 2002 EXCEL than the riverwater in Villamar, Caoayan, Ilocos Sur.

During the course of the study, the average level of the following environmental parameters of the culture sites were monitored. Salinity, surface water temperature, and pH. Data gathered are presented in Table 3.

Table 3. Monthly average level of the environmental parameters at the culture sites.

MONTH	SALINITY ("loo)		SURFACE WATER TEMPERATURE "CO		pH	
	A	B	A	B	A	B
September	.90	1.66	29.09	28.30	8.08	7.89
October	1.02	4.05	26.33	27.33	8.00	7.68
November	1.42	4.13	35.75	26.99	7.59	7.27

Note: A– Villamar B– Cabittaogan, Sta. Catalina

In Table 3, Cabittaogan had higher average salinity readings (1.66 *"too,* 4.05 *"loo,* and 4.13 "loo). The average higher readings in the freshwater fishpond site could be attributed to nutrients accumulated in the area.

The average surface water temperature readings of both culture sites fluctuated during the course of the study. From an average of 26.33"C in October to a very high readings average of 35.75°C in November in Cabittaogan. In Villamar, slight variation was noted, from an average of 26.99°C in the month of November to 28.30"C in September.

The pH levels of the waters of both culture sites did not differ much - from an average pH of 7.59 to 8.08 in Villamar, and from and average pH level of 7.27 to 7.89 in Cabittaogan.

Table 4. Percentage survivorship of GET 2002 EXCEL cultured at two different sites.

REPLICATION	PERCENTAGE SURVIVORSHIP					
	Villamar			Cabittaogan		
	initial	final	%	initial	Final	%
RI	50	50	100	50	49	98
R2	50	50	100	50	50	100
R3	50	*50*	JOO	50	50	100
R4	50	50	100	50	45	90

The cultured fishes in Villamar had 100% survivorship in all the four replications. In Cabittaogan, R2 and R3 had 100% survivorship, RI had 98% and R4 had 90% survivorship.

Conclusions and Recommendations

Genetically Enhanced Tilapia (GET) 2002 EXCEL can be cultured and successfully grown in freshwater fishpond with a salinity range of 1.66 "/oo-4.13 "[oo, surface water temperature range 0f 26.99-28.30, and a pH of 7.27-7.89.

It is recommended that a similar study should be conducted utilizing a freshwater fishpond and making use of supplemental feed to reduce the production cost and gain more income. The effect of the environmental parameters on the growth performance of GET 2002 EXCEL must also be considered, and lastly, the result of this study could be disseminated to fishfarmers.

References

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