Some factors affecting on growth of nile Tilapia

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Two experiments were conducted in the present study. The first experiment aimed to study the effect of using organic fertilization incorporation of some untraditional feedstuffs as well as some feed additives such as biogen in tilapia diets for reducing feeding costs, also the effect of organic fertilization on water quality parameters growth rate and survival rates in Nile Tilapia culture in tilapia culture. Therefore 12 earthen ponds (2 feddan for each) were stocked with Nile tilapia which represented 6 treatments. In the first treatment, ponds were fertilized by 25 kg/day poultry litter only during the entire experimental period (6 months) while organic fertilization was used in the second treatment for 3 months followed by artificial feed (25% crude protein) during the second period (3 months). For the third treatment, organic fertilization only was used during the first three months followed by organic fertilization beside artificial feed (2% of the total biomass) during the last three months. In the other three treatments blue green algae, Azolla and biogen were incorporated to the artificial feed at 10, 10 and 2%, respectively and fed to the experimental fish groups at feeding rate of 2% of the total biomass.The second experiment of the present study aimed to study the effect of some management regimes feeding rates and water tempertaure on reducing tilapia fry mortality during cold months (over-wintering) under the Egyptian conditions. Therefore eight earthen ponds (50 x 42 m) and eight concrete ponds (2.5 x 25 m) represented two culture methods (earthen andiconcrete ponds), within each, tilapia mono or mixed sex were tested using the two different feeding regimes 5 to 1% or 10 to 2% of total fish biomass according to water temperature.Results of the two experiments could be summarized as follows:First experiment:Average values of water temperature ranged from 26.55 to 27.81°C for the different Ireatments with differences in water temperature.The averages values of dissolved oxygen contents of water in the different experimental treatments were 4.48, 3.40, 4.91, 4.91, 4.89 and 5.58 mg/1 for the different treatments, Tl, T2, T3, T4, T5 and T6, respectively.Secchi disk readings gradually decreased from the beginning of the season for most experimental treatments (T2, T3, T4 and T5). Averages of Secchi disk readings were slightly lower for T2 and T5.Average values of pH ranged between 8.19-8.64 with insignificant differences between the different treatments. The highest values of pH (8.64 and 8.63) were recorded for treatments that fertilized by the poultry litter (T1 and T3 respectively) while the lowest pH values were recorded for treatments received the artificial feed.The overall mean for phytoplankton (organism/1) for poultry litter (T1) showed the greatest DROP in phytoplankton count compared to the other experimental treatments.Fertilization by poultry litter (T1) caused the greatest decrease in the total number of zooplankton count (organism/1). The average number of zooplankton for the entire experimental period were 245, 249, 254, 257, 262 and 295 organism/1 for the different treatments, T1, T2, T3, T4, T5 and T6, respectively .The initial body weight for fish received the different treatments ranged between 19.86 and 20.46 g with insignificant differences in BW. At the experiment termination, Tl(poultry litter) released the lower BW and T6(artificial feed+Biogen) gained the higher BW and the differences in BW between the different treatments were significant.Averages fish body length at the beginning of the experiment was found to be 10.53, 10.77, 10.70, 10.43, 10.53 and 10.40 cm for T1, T2, T3, T4, T5 and T6, respectively with insignificant differences between the different experimental treatments. During the last three experimental periods (After 120, 150 and 180 days from the experimental start) the highest body length was obtained with T6(Artificial feed+Biogen, 2 kg/ton) and the lowest one recorded for Tl(fertilization by poultry litter).At experimental start average K values were 1.71, 1.62, 1.67, 1.71,

1.72 and 1.77 for the different experimental treatments Tl, T2, T3, T4, T5 and T6, respectively. At experimental termination, Ti showed the highest K value and but did not significantly differ from those recorded for treatments T2,T3, T4 and T5 while the last treatment (T6) showed the lowest value (0.91) for condition factor.-During the first two periods of the experiment (0-30 and 30-60 days) WG of Nile tilapia did not significantly differ from those of the other treatments that received artificial feed. During the period 90 to 120 days, results of WG indicated that, among all experimental groups the highest WG value was recorded by T6(Artificial feed+2kg/ton Biogen), and the lowest WG was recorded by fish group in Ti where the natural food was the unique food source for fish and the same trend was also observed during the last successive experimental periods (120-150, 150-180 and 0-180 days).-Results of SGR during the entire experimental period showed that fish group fed artificial feed supplemented by Biogen showed the best SGR values followed in decreasing order by those of T5, T4, T3, T2 and T1, respectively.-Averages of total fish yield at the end of the present experiment indicated that, the lowest yield was recorded for fish fed the natural food only (Ti). Compared to T1, the other feeding regimes T2, T3, T4, T5 and T6 increased the total fish yield by 54.2, 57.4, 59.5, 67.8 and 87.0%, respectively.-The averages dressing percentages found to be 57.72, 57.75, 58.34, 60.40, 61.36 and 61.50% for Ti, T2, T3, T4, T5 andT6, respectively .-Averages of DM were 22.99, 22.16, 23.01, 23.34, 23.48 and22.63% and the differences between these percentages were not significant. Averages of protein were 67.93, 67.77, 68.19,70.66, 72.84 and 73.74 for the different feeding regimes T1, T2, T3, T4, T5 and T6, respectively and the differences between these percentages were significant. The highest value of protein content of whole fish was recorded with diet T6 followed in a decreasing order by those of T5, T4, T3, Ti and T2, respectively and these results were relatively parallel those of EE while the opposite trend was observed for ash content of whole fish body.- from economic view, the highest net returns/Feddan (4215.96 LE) were recorded for T6 followed in a decreasing order by T5 (2648.99 LE), T4(2139.82 LE), T2(1822.20 LE), T3(1821.74 LE) and T1(930 LE), respectively.Second experiment:Results of water quality parameters indicated that pH values ranged between 8.50 and 9.06. Dissolved oxygen content of the different experimental fish ponds ranged between 5.64 and 6.92 mg/1 and water DO content of earthen ponds slightly decreased compared to the concrete ponds. Average values of total phosphorus for waters of the experimental ponds ranged between 1.21 and 1.30 mg/l.During the entire experimental period, the overall average of toxic ammonia concentration ranged between 0.13 and 0.20 mg/1 and average water temperature of the experimental ponds ranged between 18.5 and 21.88°C during the entire experimental period.The initial BW and BL ranged between 1.01 to 1.02 g and 0.99 to 1.01 cm for BW and BL, respectively withinsignificant differences among the average of different eight experimental fish groups. At the experiment end, fry raised in concrete ponds, achieved significantly ($P<0.001$) the higher BW and BL compared to that stocked in earthen ponds.Feeding rate also had a significant ($P<0.001$) effect on BW and BL whereas the high feeding rate (10-2%) released the higher BW and BL compared to the low feeding rate (5-1%). mixed sex tilapia fry gained the higher final BW and BL and the differences were significant ($P<0.001$).With regard to the interaction between the different factors, pond, feeding rate and sex, results indicated that the higher BW and 13L (65.02 g and 12.18 cm) were recorded for fish in treatment CPxFR2xS2 where tilapia fry (mixed sex) were stocked in concrete ponds and fed the higher feeding rate and the lower BW and BL (25.12 g and 8.52 cm) were recorded by fish stocked in treatment EPxFR1xS1 where tilapia fry (mono sex) were stocked in earthen ponds and fed the low feeding rate (5-1%).Fry stocked in concrete ponds gained the higher WG and SGR compared to earthen ponds. The high feeding rate also showed the highest WG and SGR. Tilapia fry (mixed sex) gained the higher WG and SGR compared to mono sex.With respect to the interaction between the studied factors (pond, feeding rate and sex) results of WG and SGR wereparallel to those obtained for BW and BL where treatment CPxFR2x S2 gained the highest WG and SGR and the lowest ones were recorded by treatment EP x FR 1 x S 1.Results of the second experiment indicated that, survival rate of tilapia fry stocked in concrete ponds was significantly ($P<0.001$) higher than that stocked in earthen ponds. With respect to the effect of feeding rate on survival rate results also indicated that increasing feeding rate from (5-1%) to (10-2%) significantly decreased mortality and increased survival rate of tilapia fry.With respect to the effect of interaction between the studied factors (pond, feeding rate

and sex), resultsindicated that survival rate during the whole experimental period ranged between 64.20% for treatment (EPxFRI x and 85.85% (CPxFR2x S2), which indicated that treatments had remarkable effects on tilapia survival. awmwmilmmin.