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Title: Characterization and comparison of variations in reproductive performance of Chitralada strain Nile tilapia, *Oreochromis niloticus* (L.)

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Abstract: In an attempt to better understand and characterize the variability in the female reproduction of individual Thai-Chitralada strains of Nile tilapia, *Oreochromis niloticus* (L.), tagged mature females (n=68) from a single population were monitored in a hapa-in-pond system over a 12-month experimental period. Spawn female-1, eggs female-1 day-1, eggs kg female-1 day-1, spawn-1 and weight (g) at first spawning of individual females were determined from the regular weekly sampling of weight (g) and eggs per spawn. For analysis, the females were grouped into two, high spawning (HSF) and low spawning frequency (LSF) classes based on their spawning frequency (SF) record. Moreover, nested under these two classes were two groups each based on growth rate, i.e., high frequency - large size (HL), high frequency - small size (HS), low frequency - large size (LL) and low frequency - small size (LS). There was no difference in eggs spawn-1 among all females. The HSF group produced 68% and 361% more eggs female-1 day-1 than the population mean and LSF group respectively. Eggs female-1 day-1 and spawn female-1 remained high in the HSF group and low in the LSF group throughout the 12-month experimental period. This suggests that individual female spawning activity is consistent within a population in a common environment. The inter-spawn interval increased with age in all four groups, and day spawn-1 was shorter by 130% in HSF females compared with day spawn-1 in LSF. The HSF group also spawned more successively (≥ 3), while the LSF group of females had fewer successive spawns (≤ 2). Body weight (g) had no influence on the number of eggs produced. The study indicates that separating frequently spawning females could be used as an important strategy to improve commercial seed production of Nile tilapia.

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