LIVE WEIGHT GENETIC PARAMETERS IN TWO PRODUCTION ENVIRONMENTS IN THE GIFT STRAIN OF NILE TILAPIA (*OREOCHROMIS NILOTICUS*)

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SUMMARY
A pedigreed population based on the sixth generation of GIFT (Genetically Improved Farmed Tilapia) was established in Malaysia. Progeny were generated in two spawning seasons, 2002 and 2003, a Selection and a Control line were created, and two production environments (cages and ponds) were used to grow them out. Live weight in cages and in ponds was treated as two different traits (LWC and LWP, respectively). The heritabilities were 0.38 (s.e. 0.083) and 0.45 (s.e. 0.103), whereas the maternal and common environment effects estimated from the dam variance component were 0.17 (s.e. 0.038) and 0.22 (s.e. 0.047), for LWC and LWP, respectively. The genetic correlation between LWC and LWP was 0.58 (s.e. 0.135). It was concluded that although the genetic correlation between LWC and LWP was less than 1.0, there was not enough evidence to justify the conduct of separate genetic improvement programs for cage and pond environments.
Key words: Nile Tilapia; Heritability; Genetic correlation.

INTRODUCTION
In Tilapia the focus of selection programs has been almost exclusively restricted to growth rate. Some estimates of phenotypic and genetic parameters are available, but in a strict sense these are only applicable to the population and the environment where they were obtained. Furthermore, individual estimates are subject to sampling problems and the parameters can change over time, particularly in relatively small populations undergoing selection. Hence, the desirability of having parameter estimates that are directly relevant to the population one is working with. Tilapia farming in Malaysia is conducted in two main production systems, namely, cage and pond (Annual Fisheries Statistics 1996). In this paper we present estimates of genetic parameters for harvest weight expressed in cage and pond environments in the GIFT (Genetically Improved Farmed Tilapia) strain (Bentsen *et al.* 1998).

MATERIALS AND METHODS
The environment and the fish. The work was conducted at the Aquaculture Extension Center, Department of Fisheries, Jitra, Kedah State, Malaysia (latitude 6° N, longitude 100° E, altitude 23 m). The daily average temperature is 27° C, with little variation throughout the year. The fish belonged to the sixth generation of selection of GIFT, and were received at Jitra during the end of 2000 and the beginning of 2001. They were mated and produced a seventh generation in the spawning season of 2002, which in turn produced an eighth generation in 2003. No selection took place among the fish transferred from the GIFT Foundation. Animal model breeding values were calculated for all individuals, and two lines were created with the 2002 progeny, one selected on high breeding value for live weight (Selection line), and another one selected for average breeding values (Control line). The number of sires and dams from which progeny was harvested in both spawning seasons and