D-11: Production of common carp *Cyprinus carpio* fingerlings in irrigated rice fields with community participation

M H S Ariyaratne
(*National Aquatic Resources Research and Development Agency, Colombo 15*)

Fish culture in rice fields is a recent development in Sri Lanka. Paddy cultivation lasts only four months and is not sufficient for food fish culture. Paddy fields with irrigated water supply could be used in fingerling production to cater for fish seed requirement for seasonal and perennial reservoirs.

Rice fields, 90 (A), 100 (B) and 260m^2 (C) at three locations fed with one irrigation canal were selected for *Cyprinus carpio* fingerling rearing in Thunkama, Embilipitiya, A trench, 0.5m deep and 0.8m wide having 3-5% of total field area was excavated along one side of the field and covered with a protective net. The inlet and outlet of the trench were covered with a mesh. Fields were fertilized with 110kg urea and 145kg phosphate/ha, while being

prepared for broadcasting rice seedlings and with organic manure cowdung, at 200kg/ha/week. Urea was applied once before and once after stocking fish. *C. carpio* fry 4.4±0.69, 3.28±0.36 and 3.16±0.44cm length, were stocked in A,B,C, respectively, at 60,000 fry/ha, 15 days after broadcasting.

Pesticides (3,4 DPA and Ronsta-PL (effective time of 7-12 days) were used 15 days prior to stocking fish. Fish were fed with rice bran twice daily at 5% body weight and reared for 51 days depending on paddy havesting. Four families were engaged in these activities as community participation exercise.

Survival rates were 10%, 10%, and 38.5% in A,B and C, respectively. Final mean lengths were 8.1±1.67, 5.04±1.35 and 7.41±3.84 cm, respectively. Specific growth rate at final length (SGR-L_{final}) were 0.0119, 0.0084 and 0.0167, respectively. pH ranged from 7.6-8.1, 7.2 - 7.8 and 7.8 - 8.2 respectively, dissolved oxygen from 5.0 - 6.1 mg l^{-1} and temperature from 32 - 36°C. Predation by otters was observed in A and B resulting in low survival.

The experiment showed that rice-fish culture technique could be used for carp fingerling production to overcome the problem of insufficient seed for stocking. Engaging farmers in this venture for stocking close-by village tanks or reservoirs would serve to bring additional income. Farmers need to be educated in future Rice-fish integration programmes, through farming societies. Predation by otters needs to be minimized through fencing.