SUMMARY

Experimental culture of fish in ponds

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Objectives:

Culture of fish in artificial ponds in inland waters of our country is practically unknown, despite the abundance of water bodies. If the prohibitive cost of the meat which Colombians consume traditionally is taken into account, the importance of promoting fish culture to contribute to an improvement of the nutrition of our people becomes evident. In order to do this, the potentials of both native and exotic species already introduced in Colombia need to be studied.

Methods:

Two native species, **Prochilodus reticulatus** and **Ichthyoelephas longirostris** (Characidae) and two exotics, **Tilapia mossambica** and **T. rendalli** (Cichlidae), were studied in ponds of 30 x 10 x 1 meters, over a period of 18 months near Tuluá, Valle del Cauca, Colombia. The experimental site is at an altitude of 1.000 m. and has an average temperature af 25°C. The range of fluctuations of temperature of the water in the ponds was 23°-29°C.

The project was based on five problems, whose methodology is described in the report. The experimental problems were the following:

1. Determination of the amount of competition between the native species **Prochilodus reticulatus** and the exotic **Tilapia mossambica** with which it has coexisted in standing waters in the Cauca Valley the last twelve years.
2. Determination of the adaptability of **Ichthyoelephas longirostris,** a species thought to be exclusively rheophilic, to the standing waters of the ponds, including observations of its feeding behaviour and growth curves.
3. Determination of which common forage plants near Tuluá and in the valley can serve as food for the herbivorous species **Tilapia rendalli.**
4. Determination of the behaviour of **T. rendalli** when it is raised in small cages in the ponds, including the curve of growth, reproductive behaviour and the optimun number of fish in each cage.
5. Determination of the effects of feeding small and excess individuals of **T. mossambica** to pigs and chickens.

Results:

1. There was strong competition between **P. reticulatus** and **T. mossambica** for both food and habitat, under the experimental condi-

tions. Competition between **P. reticulatus** and **T. rendalli** was less severe under conditions in which the latter was fed with plant leaves.

2. For the first time in Colombia it was demonstrated experimentally that **I. longirostris,** a very valuable species, can adapt to life in ponds when a satisfactory level of dissolved oxigen is maintained. Its pattern of growth and its reproductive behaviour is very similar to that of **P. reticulatus.**

3. Fifteen different species of plants were accepted by **T. rendalli** as food. Three of these were acuatic, and the others included both cultivated and naturally occurring terrestrial species.

4. For the first time it was shown that **T. rendalli** can be cultured in cages in ponds, where they grow well but do not reproduce. The environmental conditions necessary to avoid the suffocation of the fish were determined. Up to 200 tilapias per cage with an average weight of 165 gr. after five months of captivity were maintained in perfect condition. Based on these results, a so called **Peasant's Fish Culture Unit** was designed in which in approximately one half hectare it is possible to obtain harvests **100 times greater** than those from traditional fish culture ponds.

5. A group of pigs fed with food wastes and traditional products, but with a supplement of small tilapia raw and whole showed after four months a weight gain greater 33% than a control group. Chickens accepted small individuals of the same fish as food when they were previously cooked.

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