

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

**EFFECT OF ARTIFICIAL FEED
BESIDES MANURE AND FERTILIZER
ON THE GROWTH OF
MAJOR CARPS OF PUNJAB
PAKISTAN**

by

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INTRODUCTION

INTRODUCTION

In recent decades, the world has witnessed an unprecedented rise in population. As a consequence, there is an ever increasing demand for additional food and fuel. Floods, droughts and frequent crop failures have further deteriorated the condition, especially in the developing countries. No country in the world can claim progress and peace without satisfying the dietary requirements of its masses. A good part of human diet is comprised of animal protein, the essentials for good health. Unfortunately, per capita consumption of animal protein in Pakistan is one of the lowest in the world, i.e., only 7 grams as compared to 75 grams in Newzealand, 61 grams in Australia, 65 grams in U.S.A., and Canada, 18 grams in Japan and 15 grams in Philippines (Economic Survey of Pakistan, 1988). The diet in Pakistan is deficient in quality protein. The fact that fish contains protein of superior nutritional value enhances the importance of fish as regular diet. The wetland resources of the country can be exploited for increasing the animal protein and for bridging the gap between their production and requirement. This is desirable in view of the fact that Pakistan has been endowed with vast expanse of both marine and inland fisheries resources which possess great development potential and can support a rich variety of fish of nutritional significance and economic value.

The growing realization of the potentials of fish as a source of abundant and quality food has given an impetus for conserving and boosting fresh water fish resources. Measures are being taken for increasing fish production in Pakistan. Unfortunately, the constraints in the way of proper management of fisheries are more complex and for this reason, plans to increase fish production often fall short of the targets. Such a situation clearly points towards the need for providing a scientific base to fresh water fisheries so that efficient management techniques may be developed.

The nutritional requirements of local commercial species are not sufficiently known perhaps because till recent the emphasis in fish culture had been on natural food resources. The development of a cheaper and nutritionally rich supplementary feed is a key for success in intensive carp culture (Sneed *et al.*, 1972). Although enriching the biomass productivity of water bodies by using inorganic fertilizer 20:20:5 (N:P:K) and organic fertilizer (farm-yard manure) has been in use since long (Chaudhuri *et al.*, 1974). Yet work on supplementation of diet with artificial feed appears to be scanty. There are reasons for this lack of attention on the use of high contents of naturally intact protein nitrogen. Firstly, the economic feasibility has always stood in the way. Secondly, this consideration has involved the use of feed for direct

utilization by fish, which is not known. Thus, there appears to be a room for introducing feed supplementation, alongwith using inorganic (N:P:K) and organic fertilizer (farm-yard manure), for enhancing the production of fish biomass in pond (Barrackpore, 1977).

The main objective of this investigation is, therefore, to assess the effect of various feed formulae, alongwith fertilizer and manure on the growth of major carps viz:

1. Catla catla (Hamilton, 1822)
2. Labeo rohita (Hamilton, 1822)
3. Cirrhinus mrigala (Hamilton, 1822)

To achieve the objective described above the following aspects of the above three species have been studied in experimental tanks of Government Fish Seed Hatchery, Satiana Road, Faisalabad:

- a) Physical, chemical and biotic characters of tanks.
- b) Food consumption and efficiency
- c) Weight-length relationship
- d) Growth
- e) Economic analysis of feeding tanks