

Live-stock cum fish farming:

1) Poultry-cum-fish farming

This system utilises poultry droppings of fully built- up poultry litter for fish culture. The fish production obtained is about 5000 kg/ha/yr. with 1250 kg chicken meat and 70000 no. of eggs. Approximately 500-600 no. of birds is reared in a 1 ha pond. The Rhode Island or Leghorn variety birds are more preferred over others. They require 0.3-0.4 square meterspace/bird. Hoppers are used to feed them and to minimise feed wastage. The poultry birds (layers) are fed with starter, grower, and brooder feed according to their age. In India it is practised in Andhra Pradesh, Bihar, Haryana, Kerala, West Bengal, Uttar Pradesh, Maharashtra, Orissa, and Tamilnadu.

2) Duck-cum-fish culture

The duck are commonly called as biologicals aerator. They are reared on the dyke of the pond in a low-cost house. This farming is practised in Tamilnadu, Assam, Bihar, Andhra Pradesh, Tripura, Orissa, Karnataka, Kerala and Uttar Pradesh. The 'Indian runner' and 'Khaki campbell' varieties are found more suitable in this culture. About 300 no. of ducklings (some spp. are reared 450-500 in no.) are reared to fertilize the 1 ha. pond. The duck not only act as live aerator by splashing water with their webbed feet but also control the aquatic weed (Lemna, Azolla etc.), aquatic insects, molluscs, tadpoles etc. Each duckling require about 0.3-0.5 square meter area as living space. The total production from such type of culture is about 3500-5000 kg fish, 18000-18500 eggs and 600 kg of duck meat. The duck droppings are used as manure for primary production.

3) Pig-cum Fish culture

This system has certain advantages over others. The 30-35 pig's waste may produce 1 tonn of Ammonium Sulphate and 40-45 pigs are adequate to fertilize 1 ha water area under polyculture. Each pig requires about 3-4 sq.m floor space. This system of integration is very common in China, Taiwan, Vietnam, Thailand, Malaysia, Hungary and some European countries. The White Yorkshire, Hampshire and Landrace are the popular breed of pig for integration with fish. Pigs need clean housing which should provide adequate protection from adverse climates. The pigs are fed on pig mash which is made up of rice bran, rice polish, wheat-bran, broken maize, ground-nut oil cake, fish- meal mineral mixture, salt etc. The spoiled vegetables can also be mixed in it. This system provides about 3000-4000 kg/ha/yr fish, 4500 kg/yr pig meat and 800 no. of piglets every year.

4) Cattle-cum-fish culture

It is a common practice all-over the world. The cow excreta is most abundant in terms of availability and a healthy cow may excrete over 4000-5000kg dung and 3500-4000 litre urine on an annual basis. The BOD of cow manure is lower than other livestock manure. About 5-6 cows can provide adequate manure for 1 ha pond in addition to 9000 kg milk and about 3000-4000 kg of fish annually. Cow-shed should be built close to fish pond to simplify handling of cow-manure.

5) GOAT-cum fish integration

It is considered as poor man's cow and a goat's excreta is considered as a very good organic fertilizer. The goat excreta contains organic carbon-60%, N-2.7%, P-1.78%, K-2.88% and its urine is also equally rich in both N & P. At least 50-60 goats are essential to fertilize 1 ha pond. The goats should be provided with dry, safe, comfortable house protected from excessive heat. The goat breeds are Jamanapari, Beetal, Barbari for milk and Bengal, Sirihi, Deccani are used for meat purpose. Goats are selective feeders and consume Berseem, Napier grass, Cowpea Soybean, Mulberry etc. This integration can provide 3500-4000 kg fish/ha/year without supplementary feeding and fertilizer.

6) Rabbit-fish integration

Rabbit meat is preferred by most of the health conscious consumers owing to its low fat in comparison to other meats. The important meat breeds are Soviet Chinchilla, Grey Giant, and White Giant etc. Rabbits are reared in cage, hutch and floor system (floor should be cemented). Rabbit excreta contain organic carbon-50%, N-2%, P-1.33%, and K-1.2%. The rabbit excreta is high in nitrogen content and low in moisture, thus quality manure for sustained plankton production. It is estimated that excreta from 300 rabbits would be enough for 1 ha pond fertilization.