

- It can be fed two times i.e morning and afternoon and amount of supplementary feeding may be reduced as duck are efficient in meeting 60% of their daily feed requirement from well managed fish pond by feeding on insects, tadpoles, juvenile frogs, mosquito larvae, snails, mussels, aquatic weeds like azolla, lemna, etc.

### Health Management

- Ducks are resistant to common avian diseases. However duck plague is the most common viral disease which can be prevented by administering duck plague vaccine at 8-12 weeks of age.
- Other than duck plague, duck cholera is also a common disease which /that causes heavy losses. Hence timely vaccination is always recommended to prevent heavy economic losses.
- Ducks are also highly susceptible to disease called Aflatoxicosis, which they usually acquire from feeds ingredients that are not properly stored.
- Restlessness or inactiveness/lethargic conditions of stock, water discharges from eye and nose is one of the indications of disease.
- Diseased or dead ducks must be immediately isolated far from healthy stocks to prevent further losses.

### Production Potential

The productivity of duck-fish integration has found to be 3000-4000 kgs of fish/ha/year, 15,000-20,000 eggs/250 ducks/year and 250- 300 kgs of duck meat/250 ducks/year.



### Conclusion

The synergistic effects on the good production and growth performance of both the crops due to their complimentary nature makes their integration one of the most suitable livestock-fish integrated system resulting in reduction of production cost and economic loss due to crop diversification, additional income from per unit area.

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## INTEGRATED FISH FARMING

(Fish-Duck Farming)



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## Integrated Fish Farming (Fish-Duck Farming)

Integrated farming system involves multi-commodity farming in appropriate combination such that each component complements each other in a logical approach for maximizing food production through rational utilization of available resources.

### Benefits of Integrated Fish Farming

- Efficient recycling of farm waste or farm by-products.
- Abatement of environment pollution.
- Reduces risk by crop diversification.
- Minimize production cost.
- Effective utilization of available resources and man power.
- Sustainable system.

### Selection of Fish Species

The main objective of integrated fish farming is to produce a good growth of plankton (phytoplankton and zooplankton), unicellular, multicellular and micro-organisms which are protein-rich natural feed for fish. Primarily the fish to be selected should be of most efficient phytoplankton, zooplankton and macrophytic feeder, they should be readily accepted and consumed by the local population. The fish species popularly cultured in an integrated fish farming system are:-

Surface Feeder (30-40%)----- Catla- 20-30%, Silver Carp- 10-15%

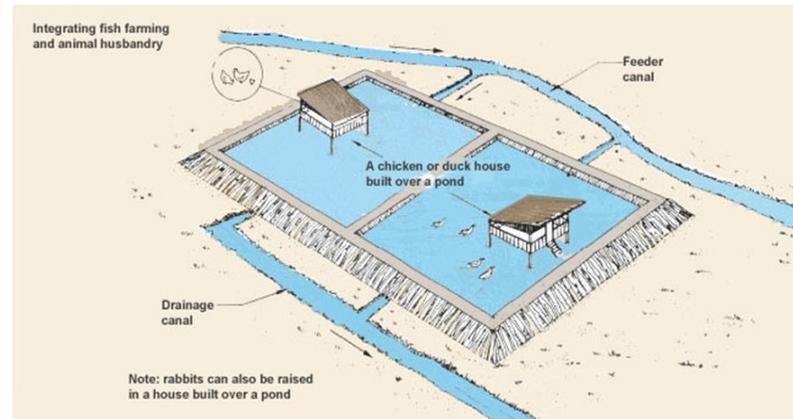
Column Feeder (25-35%)----- Rohu -15-20%, Grass Carp- 5-10%

Bottom Feeder (40-45%)----- Mrigal- 20-25%, Common Carp- 15-20%



### Concept

- One of the classic and most popular module in livestock – fish integration.
- Ducks are very compatible and efficiently exploit pond ecosystem for their daily requirements of food by feeding on aquatic weeds, insects and animals like juvenile frog, tadpoles, mussels, snails etc.
- Duck aerates the pond water by dabbling and their dropping serves as manure for fish pond as it contains nutrients (0.91% N, 0.38% P & 0.36% K).
- About 10-20% of feed/day/duck that is usually wasted is washed into pond and consumed by fishes.
- Rearing ducks along with fish has synergistic effects on the good production of both the crops, giving additional income to farmers in terms of both meat and egg.



### Selection of Ducks

- Two varieties of ducks viz, Indian Runner and Khaki Campbell are generally considered for integration. Although Indian runner is harder but they are not as good layers as Khaki Campbell.
- Khaki Campbell and Indian runner lay up to average of 200 -240 eggs/bird/year.
- Generally ducks starts laying eggs at the age of 6 months.
- Usually ducks tends to lay their eggs during night hours and hence it is advisable to keep some straw or hay in the corner of duck house.



### Duck Housing and Management

- Ducks normally do not need elaborate house as most of the time they remain exploring the pond. However care has to be taken during early duckling stage to provide them with proper drinking and feeding provisions and protection from predators and other home pet animals.
- House can be made from bamboo, woods and can be constructed on pond dykes, however, it is important to keep considerable height i.e at least 1meter above water surface and the height of pond dykes keeping in mind the highest water level during rainy season.
- Duck house should be constructed along the side of pond receiving water inlet so that the nutrient from duck house flows across the whole stretch of fish pond.
- The house should have adequate accommodation with recommended spacing of 2.5-3 sq. ft. / adult bird.
- The house should be well ventilated to keep the floor moist free.



Duck House along the Fish Pond



Intensive care during early duckling stage

### Stocking of Ducks

- 200-300 ducks of 2-3 months aged is sufficient to fertilize 1 ha. of fish pond.
- Ducks should be stocked only when the fish seed attains size of 10 cm.
- Best time for stocking ducks is March-April.

### Feeding Strategy

- First 3 weeks are vital for proper growth.
- The feed should be nutritionally balanced with protein of 17% for ducklings and 15% protein for adults.
- Ducks should be fed with wet mash and should never be fed without water.
- An adult duck consumes about 100 to 120 g feed/bird/day.