



E-ZINE OF BIOLOGICAL SCIENCES

ISSN: 2456-7264 | Issue - 28 | Published On 27/03/2024

INTEGRATED FISH CUM GOAT FARMING SYSTEM

Dr. Prerona Patowary¹ and Dr. Manoj Kr. Kalita²

¹Scientist, Veterinary Clinical Medicine, Ethics & Jurisprudence,
AAU- Goat Research Station, Burnihat, Kamrup(M), Assam, India

²Assistant Professor, Department of ARGO, Lakhimpur College of Veterinary Science, Assam
Agricultural University, Joyhing, North Lakhimpur, Assam, India

preronapatowary@gmail.com

Introduction

Fish culture in combination with animal husbandry and crop farming is known as integrated farming. In this method, fish farming can coexist with the cultivation of vegetables, agricultural products, or livestock such as cattle, sheep, and goats. The floor and the drainage line of the goat house is made in such a way that the shed wash is diverted into the pond directly in the case of small amount or collected into a small tank in the case of large amount. It is a widely recognized and cost-effective technology, especially for developing countries. Of these combinations, the integration of fish and goat husbandry is the most promising for producing human food that is inexpensive, highly protein-rich, and easily digested. In addition to generating opportunities for employment, it improves the socioeconomic status of the majority of rural masses. Using the land and water resources to their fullest potential is another benefit of this farming technique.

In fact, fish provide more nutritional value in terms of protein content than other animals. Additionally, they supply critical amino acids that the human body is unable to produce on its own, such as methionine, lysine, and vital fatty acids of the Omega-3 and Omega-6 types.

Goats are extremely helpful to humans in all aspects. They offer a variety of foods, including meat, milk, skin, fibre, and dung, but they require relatively little maintenance. It is therefore known as the poor man's cow. Goat's milk is more valuable than human milk because of its compositional similarity to human milk, ease digestion, and low cholesterol level. Goat meat is leaner and has much less fat compared to other red meats. Goat breeds like Pashmina, Himalayan etc., produce good quality fibre, which is used for production of woollen garments. Besides, excreta produced by goats can be utilized as fish feed and pond fertilizer. Recycling of organic manure not only solves waste disposal problems but also averts environmental pollution and health hazards.

Practice for managing ponds: Ponds should be permanent, and in order to sustain higher biological output, the water must be 1.5–2.0 meters deep. Before introducing fish culture, renovations such as strengthening bundhs and removing seepage control should be made to existing ponds. Unwanted weeds should be eliminated from water via chemical, biological, or manual methods. Most of the time, netting operations are used to physically remove undesired and predatory fish. If not, 250 ppm (mg/litre) of mahua oil cake is administered. The required amount is spread evenly to the pond water after being soaked in water. This acts as fertilizer for the pond in addition to killing undesired fish. Lime is applied at a rate of 250–300 kg/ha to adjust the pH of the soil and water. It also serves as a disinfectant.

Stocking: Around 8000–8500 fingerlings of exotic and major Indian carps are placed in each pond per hectare. Better results are obtained when fingerlings are stocked with 40% surface feeders (catla and silver carp), 20% column feeders (rohu), 30% bottom feeders (mrigal and common carp), and 10% marginal feeders (grass carp). These six types work well together and make use of the food that is present in the niches. Green roughages as Napier, cabbage leaves, and vegetable wastes are fed to grass carps. Once the fish reach a size that is commercially viable, they are partially harvested, and after a year of raising, they are fully harvested.

Application of manure: A goat's annual production of manure ranges from 1.5 to 2.0 tons. Its composition is 2.7% nitrogen, 1.78% phosphorus, and 2.88% potassium, making it a good source of organic matter. One hectare of pond area requires the rearing of 60–80 goats on average. Manuring serves as a feed source and aids in the production of plankton blooms. The use of goat

manure in fish production can reduce the 40–60% feed expense that typically makes up fish farming.

Breeding practices for goat management: A goat's lifespan is typically 12 years. The months of September through February are the breeding season. Goats should be bred between the ages of 14 and 18 months for the best outcomes. The male is thought to be at his peak between the 2 and 3 ages. On an average, the gestation period is of 145 to 155 days. The weight of newborns varies from 1 to 5 kg, depending on the breed and nutritional condition of the does.

Housing: Special housing is not needed for goats. Under shade trees on pond dykes, one can erect a cheap shed. It is necessary to avoid marshy places and lands while building a shed because it increases the risk of parasitic diseases. Sheds need to have enough drainage and ventilation systems to maintain a dry and clean atmosphere. Per goat, providing a floor area of 15–20 square feet is advised.

Two to three days before kidding, does should be housed apart from the rest of the herd. Large bamboo baskets can be used to hold kids until they are old enough to accompany their mother on her walks. Kids must receive vaccinations against common endemic diseases and sheds must be routinely cleaned and disinfected.

Feeding: Goats are voracious eaters; very few things escape their diet. However, compared to other ruminants, they greatly prefer browsing over grazing and have a higher rate of digestion for fibrous feeds. These small ruminants primarily enjoy eating tender leaves, pods, green roughages such as berseem, cauliflower and cabbage leaves, Napier grass, alfalfa, cowpea, etc. They also enjoy the leaves of mulberries, babool, berries, tamarind, pipal, and other plants. On pond dykes, where pond silt can be utilized as fertilizer, crops and green fodder trees can be planted.

Goats should be fed a well-balanced, high-energy ration when they are in stalls. Feeding concentrates will make up for any nutrients that are deficient in the pasture. Kids should be given a combination of 35 parts ground nut oil cake, 20 parts gramme, 22 parts maize, 20 parts wheat bran, 2.5 parts mineral combinations, and 0.5 parts common salt. One part wheat bran, two parts maize grain, and one part linseed cake should be fed to adults. Ensuring that the food has the proper

amounts of calcium and phosphorus is also crucial. To prevent hypomagnesemia, add magnesium to the ration when feeding lush green grass. It is recommended to combine vitamins A, D, and E to prevent the onset of any vitamin deficiencies.

Two months before selling, a goat should be fed a finishing ration of 0.5 kg of concentrate mixture that contains 20% of linseed meal or ground nut oil cake and 20–25% of grains like maize, wheat, or gramme. This facilitates quick weight gain, both in terms of muscle and fat.

Conclusion –

Integrated farming is especially important for developing nations like India, where meeting the increased need for protein due to population growth is still a big issue. It can raise a significant portion of the rural community's socioeconomic standing. But farmers also require access to water regions, training and demonstration facilities, and financial support. In addition to recycling garbage, this integrated agricultural system may increase animal protein production at a fair price, boost the local economy in the rural areas, and create jobs.

References:

- Satpute, T.; Sriranga, K.R.; Harini, K.R.; Tomar, D.S.; Singh, B. and Ukey, A. (2023). Integrated Goat Farming. *Indian Journal of Livestock and Veterinary Research* **3** (1) : 191-197.
- Kumar, S.; Singh, S.S.; Shivani and Dey, A. (2011). Integrated farming systems for eastern India. *Indian Journal of Agronomy*. **56** (4): 297-304.