Grass Carp (*Ctenopharyngodon idella*)

Grass carp (Ctenopharyngodon idella) is an herbivorous freshwater fish species belonging to the Cyprinidae family. Native to China, it has been introduced to various regions across Asia, Europe, the Americas, and Africa. Grass carp stands as the most widely farmed freshwater aquaculture species globally, accounting for 11.8% of the total global inland finfish aquaculture yield, with a remarkable production volume of 5.79 million metric tons as of 2020. China remains the dominant contributor, producing more than 90% of the global supply (FAO, 2022).

Several production systems are employed for grass carp aquaculture, with semi-intensive and intensive pond culture being the primary methods, followed by open water pen and cage culture. Although natural seed stocks remain accessible in certain Chinese rivers, they are mainly used for maintaining the genetic quality of broodstock. Artificial propagation is now the principal method for seed supply to the industry. Broodstock raised in captivity from wild-caught seeds or kept at breeding stations are introduced into spawning tanks following hormonal induction. The eggs are then transferred to hatching raceways or jars, where water flow rates are carefully regulated to keep them suspended in the water column.

The nursery phase takes place in earthen ponds. In countries like Vietnam, the rearing process is divided into two stages. Fry are first raised to a size of 4–5 cm over 1.5 to 2 months at a stocking density of 200–250 fry per square meter. The fish are then grown for an additional two months until they reach 12–15 cm in size, albeit at lower densities. Fingerlings are then transferred to grow-out systems, which are typically polyculture ponds, pens, or cages in lakes and reservoirs. Grass carp are often stocked alongside other carp species, with culture periods lasting 8 to 10 months and yields ranging from 30 to 50 kg per cubic meter.

Though grass carp can be reared on natural food sources like aquatic weeds and grasses, pelleted feeds have played a significant role in increasing production, enabling higher stocking densities and monoculture practices. Feeds for juvenile grass carp are typically formulated with 33% digestible protein, 6% lipid, and 10.7 kJ/g digestible energy (Köprücü, 2012). Commercial feeds for grow-out stages generally contain 30–32% protein, incorporating raw materials such as soybean cake, rapeseed cake, and wheat bran.

Grass carp is considered an economical commodity, making it accessible to middle- and low-income populations in China and other countries. Significant research has focused on induced breeding to ensure a consistent seed supply for large-scale farming, as well as on determining nutritional requirements, developing cost-effective feeds, and improving disease control.

References:

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