

7.8 Grading of pearls

Grading of natural cultured pearls according to their quality (Glover et al., 2006) (Table 1).

Table 1 Grading criteria and quality characteristics of cultured pearls

Grading	Properties
AAA	Absolute shine, zero surface irregularities, and a perfect symmetry
AA	Good shine, quality and homogenous in colour with some irregularities on surface
A	Average quality, good shine but poor symmetry, uneven coloration with a few imperfections on surface
B	Good shine with uneven coloration and edgy surface
C	Low shine, weak nacre layer and serious surface flaws, no economic value

7.9 Culture in ponds

India Freshwater mussel is implanted to pearl culture year-round except during the hot months of May-June to reduce post-operative mortality and nucleus rejection. Traditional culture ponds are the most suitable since they are approximately 2.5 meters in depth, have a clay-soil foundation, are slightly alkaline and lack algae blooms and aquatic weeds. Implanted mussels are placed on bamboo rafts of nylon mesh bags (30 × 13 cm, 1.5 cm mesh) at a density of 50 000 mussels/ha (Figure 2).



Figure 2 Pond Culture of Pearl farming in India (Source: The Better India, 2021) .

Pond management is vital in an attempt to maximize the yield of pearl, as well as to maintain the health of mussels. Ferro-cement tanks are fed with algae such as *Chlorella*, *Chlorococcum* and *Scenedesmus* (water green) and fertilized with 10 000 kg/ha cow dung, 100 kg/ha urea and 100 kg/ha single super phosphate (SSP) every year to enhance natural food production. Water is fertilized and pumped to ponds when it is green. Freshwater mussels are able to consume a wide range of particulate organic matter as mucoid filter feeders; however, their preferred food items are diatoms, green algae and blue-green algae (*Spirulina*).

To reduce the cases of death due to parasite infections, inadequate food or internal injuries, frequent health examinations are done after every two weeks. Mussels are removed, checked and washed prior to being repacked in net bags. Physio-chemical factors such as temperature, water level, and nutrient load are all constantly checked; optimum growth occurs at 25 °C~30 °C. Excessive algal growth due to accumulation of nutrients is prevented (Misra et al., 2009).

8 Important Parameters for Pearl Farming

Soil and water quality are critical determinants of successful pearl farming because they directly influence mussel health, nacre secretion, and ultimately pearl quality and yield. Suitable pond soils should maintain a near-neutral pH, adequate organic carbon, and sufficient available nitrogen to support natural productivity, while the absence of hydrogen sulphide is important to avoid toxic stress in bottom conditions (Table 2). In addition, stable water quality is required throughout the culture period; a slightly alkaline pH, appropriate total alkalinity and hardness, and sufficient dissolved calcium provide favorable conditions for shell growth and nacre deposition, since calcium