

technology diffusion programs of ICAR-CIFA, can be considered highly favourable to the farmers, fishery stakeholders, and businessmen who seek to initiate freshwater pearl farms. In its yearly training program, the candidates are taught practically how to practice the various techniques of implantation besides the technology of the culture of the culture which includes the water quality, mussel nutrition and feeding, pre and post care as well as the best conditions to achieve the pearl culture (Alexander and Kumar Verma, 2023).

13 Benefits of Pearl Culture

13.1 Non-perishable output

Production of pearls has benefit that the product is light, non-perishable, and it does not need much processing. Pearl oysters have flourished in isolated tropical atolls where the traditional fisheries are at logistical disadvantage. Pearl farming, with the exception of the grafting process or surgery, is not very complicated and requires no artificial feed, sophisticated infrastructure, or sustained supervision. It is also compatible and is also accessible by people who are adept at boating, diving, and fishing and so on, as an aquaculture occupation (Haws, 2002).

13.2 Revenue generation

The quality of pearls is highly priced hence; pearl farming is a profitable business. Although the prices depend on size and quality, large, round black pearls are priced highly such as an 8 mm good black pearl costing about \$40 in 2000 and a 12 mm pearl of the same quality costing as high as \$120. Even as prices of smaller, poorer quality pearls have dropped over the past years, large high-quality pearls have been comparatively stable (Haws, 2002).

13.3 Overcoming biodiversity loss

Climate change, overfishing, unregulated coastal development are the major threats to marine biodiversity. Conservation can only be effective when the local communities are involved and economic incentives are incorporated together with preservation of the ecosystems. The practice of cultured pearl farming is a good example of this practice, as environmental management has been a crucial aspect to ensure that production is economically successful (Cartier and Saleem, 2012).

14 Challenges and Constraints

Growing pearls has a number of challenges despite the fact that the pearl farming is a highly profitable business. Among the most significant factors is the capability of the mussel to survive after the implantation. It is another challenge to determine the right quality of the pearl once it has been purchased. Breeding technique standardisation is of great importance to freshwater mussels as successful breeding occurs, but mussel larvae survival is one of the greatest challenges. The attachment of Glochidia to secondary host fish is problematic. The mussel larval cycle requires a secondary host, e.g., a fish. Lack of expertise in pearl farming methods is one among the major problems (Saurabh et al., 2022).

14.1 Constraints for commercialization

Due to the low returns, commercial scale pearl growing has proved challenging to the entrepreneurs in India, despite the successes in the introduction of freshwater and sea pearl cultures in 1989 and 1973 respectively. Some of the challenges include unfavourable biological factors, absence of sheltered bays, turbulent waters, sediment, high oyster mortality, low implantation rates of the oysters, and labour-intensive processes. Moreover, the volume and the quality of the pearls produced in India attract decent prices in the outside world. It is important to save on costs, enhance production and make pearl production profitable, *Pinctada maxima* beds, local production of high-quality nuclei and development of steel black pearl of *Pinctada margaritifera* of Andaman and Nicobar Islands are all essential (Sharma, 2005).

15 Conclusion

Farming of pearls is a traditional activity in India that is at the cross road of tradition and modernity. Biological knowledge, technology use and policy reinforcement have led to amplified pearl production, rural wellbeing and provision of cultured pearls with confidence in the domestic and export market (Saurabh et al., 2022).