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Shrimp farm quality management in Bangladesh

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Study examines how operators evaluated quality attributes

Most extensive shrimp farms in Bangladesh rely on multiple stocking and harvesting, and periodic exchange of tidal water.

Shrimp production, the second-largest export earner in the Bangladesh economy, largely relies on extensive farming systems, where safety and quality issues were sometimes not fully addressed until recently. In the aftermath of the 1997 European Union ban on shrimp imports from Bangladesh, shrimp farmers adopted a number of measures to maintain hygiene and sanitation to comply with E.U. legislation. These included maintaining temperature control after harvesting, using plastic crates to hold the shrimp and removal of unsanitary hanging toilets from the farming areas.

Farm survey

Through a study, the author examined how shrimp farm operators evaluated quality attributes with regard to input supply, hygiene and sanitation throughout the production period and post-harvest stage. The study was based on stratified random sampling of 150 shrimp farms raising *Penaeus monodon* in three locations – Paikgacha, Dacope and Chokoria – in Bangladesh. Data collection was done through interviews, informal discussion and observation using structured questionnaires.

Production factors

At all three locations, farmers applied various types of fertilizers and lime in variable doses during pond preparation and grow-out stages to improve soil and water quality. Urea was used at 14.40-40.93 kg/ha, while triple super phosphate was applied at 7.53-37.18 kg/ha, and cow dung was used at 782.22-987.19 kg/ha. These were absorbed by pond organisms or sediment and did not pose any threat to the quality of shrimp produced.

The survey also showed that farmers were dissatisfied with the quality of hatchery postlarvae, as they experienced higher mortality rates and were often sold without the required information regarding salinity, quantity and size. The farmers complained that postlarvae traders adulterated their stock, and they found it difficult to determine whether hatcheries were using the latest technology.

Harvest practices

Most farmers (83.3 percent) made a visual evaluation of shrimp by checking size, weight, growth and signs of disease before harvesting. Farmers in Chokoria were more aware of the need to check quality attributes before harvesting than farmers in Dacope and Paikgacha (Fig. 1).

Farmers often ignored icing harvested shrimp at the request of buyers. They took measures when shrimp showed signs of poor quality, such as the presence of spots, soft shells and incidental debris, to minimize losses (Table 1). Farmers addressed spots or petrochemical smells by discarding or burying the affected shrimp. They also cleaned shrimp before selling.

For the most part, farmers did not use chemicals, growth hormones or commercial feed. Nearly all the shrimp farmers raised their quality standards through the use of plastic crates and improved working surfaces to wash, sort and sell the harvested shrimp. About 35 percent improved harvesting areas, and all respondents said they constructed more sanitary toilets a safe distance from farms.

Record keeping was generally poor and below E.U. standards. Some 75 percent of the farmers were largely unaware of their traceability responsibilities, although the registration of shrimp farms is under way.

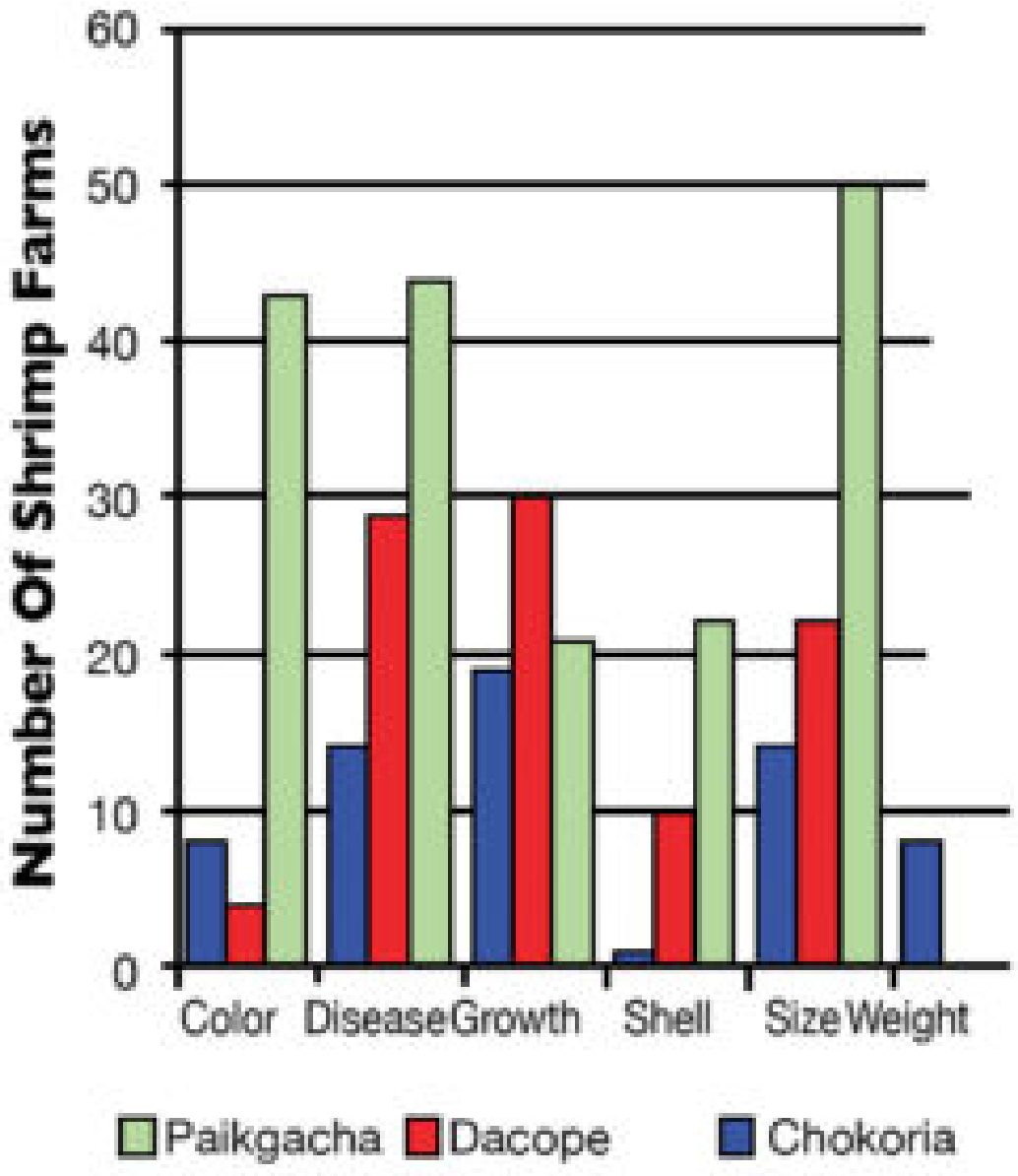

Fig. 1: Monitoring of shrimp quality attributes at farms in three areas of Bangladesh.

Alam, Farmers' actions, Table 1

Quality Concern	Action Taken	Total (%)
Black spots	Discard, burial	43.3
Damaged parts	Discard, burial	61.3
Loose heads	Sold at lower prices	28.7
Petroleum smell	Discard, burial	46.7

Soft shells	Cooked at farm	37.3
Debris and filth	Cleaned and sold	88.7
Soft texture	Cooked at farm	42.0

Table 1. Farmers' actions regarding post-harvest quality concerns.

Perspectives

Overall, while farmers considered that while changing regulations had improved safety, hygiene and sanitation standards, they had also increased their operational costs.

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