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Problems faced by suppliers in procurement process of shrimp by processing units in Prakasam district of Andhra Pradesh

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Abstract

The demand for seafood has been rising steadily over the years, and the shrimp industry in India has experienced significant growth as part of this trend. Among the different types of shrimp, *Litopenaeus vannamei* (white leg shrimp) is the most in-demand species in India. In 2023-2024, India's total fish production reached a record high of 17.445 million tonnes, making it the second-largest fish-producing country globally. Andhra Pradesh is the leading producer of shrimp in India. This paper examines the constraints faced by suppliers in the procurement process of a shrimp by processing units in Prakasam district of Andhra Pradesh. A total of 70 respondents were selected for the study comprising of 60 farmers and 10 middlemen. The study revealed that quality standards set by companies and the rejection of lots are the most important constraints faced by the sample respondents in the shrimp production and supply.

Keywords: Constraints, shrimp, suppliers, processing units, Andhra Pradesh

Introduction

Globally, shrimp are available in numerous species such as *L. vannamei*, *P. monodon*, and *M. rosenbergii*; All these species are sold under the single term - prawns. These are popular in the international market, and many countries are encouraging shrimp production by giving incentives to farmers and offering fiscal reliefs. India, China, Vietnam, Indonesia, Thailand and Ecuador are some major shrimps producing countries. Shrimp is a highly imported seafood from China because of farm-raised shrimp aquaculture (www.businesswire.com › news › home).The worldwide shrimp market size was US$ 18.30 billion in 2020 and is projected to reach US$ 23.4 billion by 2026. Prawns and shrimp are the world's most popular seafood and cooked in multiple ways. Frozen shrimp continpous to hold the top position as the leading seafood export item. Aquaculture is the cultivation of aquatic organisms in controlled conditions. As a source of protein rich food aquaculture plays a crucial role in ensuring food security. Aquaculture is an economic venture which can be successfully reared by family labour. Aquaculture also creates employment in support industries such as shrimp processing farms, hatcheries, feed mills and direct distribution to countries etc. India has shown continuous and sustained growth in aquaculture since independence. India is the world's second largest producer of white leg shrimp *(Litopeneaus vannamei)*, yielding close to one million metric tonnes each year. After China, India exported 13,69,264 metric tonnes of seafood worth US$ 7.76 billion during 2021-22. During 2022-2023, India exported 17,35,286 metric tonnes of sea food valued US$8.09 billion which is the highest in both value and volume terms exhibiting a growth rate of 26.73 percent in quantity terms and 4.31 percent in value terms over 2021-22. USA is the largest importer of Indian seafood followed by China, EU, South East Asia, Japan and Middle East (pib.gov.in 7th, March, 2023).

The state Andhra Pradesh reaps significant economic benefits from the flourishing aquaculture sector. It is the perfect location for aquaculture due to its favorable climatic conditions, abundant water resources and lengthy coastline of about 974 Kilometers. The total area under aquaculture was 2.12 Lakh hectares covering 1.38 million farmers and secured top position in marine exports in 2021-2022.The state has also undertaken further initiatives to support the aquaculture sector such as subsidizing the construction of ponds and tanks, opening hatcheries and arranging training programs for farmers. A facility for aquatic quarantine has also been established to guarantee the quality of exported aquaculture goods (Textile value chain.in, 6th, March, 2023). Prakasam is a costal district of Andhra Pradesh.

It is known as one of the aqua hub as it has 102 KM of costal line and it is well endowed with fishery wealth in marine, inland sources and others. The total production of Andhra Pradesh stood at 8.52 Lakh metric tonnes (Handbook on fisheries statistics, 2022) of which 50 percent of the shrimp production is contributed by the district. Along with aquaculture other activities like processing, packaging and marketing of fish and shrimp are also carried out in this region.

Methodology

Prakasam district of Andhra Pradesh was purposively chosen for the study because it is the leading shrimp-producing region in the state. A total sample of 70 suppliers were choosen for the study. This includes sixty farmers and ten middlemen who are supplying shrimp to processing units in Prakasam district of Andhra Pradesh. Proportionate sampling method is used while collecting data from sample respondents. Primary data was collected using a well-designed and pre-tested questionnaire that included closed-ended questions. The data collection was carried out through in-depth personal interviews and observation methods.

Results and Discussion

Problems faced by the shrimp (*L. vannamei*) suppliers.

Identifying the key challenges faced by suppliers in selling shrimp to processing units is crucial for efficiency improvement, leading to more efficient operations and reduced costs. The problems faced by the suppliers in shrimp (*L. vannamei*) production and supply were ranked using Garrett's ranking technique and given in Table.

Table 1: Problems faced by the suppliers in shrimp selling to processing units (n=70)

S. No.	Problems	Garette score	Rank
1.	Quality standards of the companies	81.55	1
2.	Rejection of lots by companies	76.62	2
3.	Waiting Period During Peak Season	67.13	3
4.	Grading problems during selling	63.72	4
5.	Price fluctuations	61.25	5
6.	High wage rate	52.25	6
7.	Labour problem during harvesting	51.37	7
8.	Disputes Regarding Weights	47.52	8
9.	Non availability of vehicles	45.73	9
10.	Environmental Issues	44.13	10
11.	Payment issues	31.53	11
12.	Labour problem at companies during peak seasons	30.1	12
13.	Lack of bargaining power	26.38	13
14.	Restricted Time Period of Company	21.98	14

It was inferred from the above table that quality standards fixed by the processing companies (Rank 1, Garrett Score: 81.55) is the highest concern for suppliers and ranked this as first constraint. Rejection of lots by companies had mean score value of 76.62 and it was constraint which had ranked second. The rejection of lots is a major problem for suppliers, indicating that lot rejections are closely tied to quality issues and have a direct impact on supplier income and reputation. Waiting period during peak season is a significant logistical challenge had a mean score of 67.13 with third rank. Delays can affect the freshness and quality of the shrimp, potentially leading to further issues with processing and sales. Issue with shrimp grading had a significant concern (rank 4, Garret score 63.72) as improper grading can result in reduced market value and dispiute with procuring units. Price fluctuations (Rank 5, Garrett Score: 61.25) as fluctuations in shrimp prices are a significant issue, affecting financial stability and planning for suppliers. Price volatility can impact profitability and complicate financial management. High Wage Rates had a garrett Score of 52.25 with 6th rank revealed that high wages are a considerable concern, reflecting the impact of labor costs on the overall cost structure of shrimp farming and harvesting. Labour problem during harvesting (Rank 7, Garrett Score: 51.37) mentioned as the constraint due to labor shortages or problems during harvesting are critical issues that affect the efficiency and timing of shrimp collection. Disputes regarding weights (Rank 8, Garrett Score: 47.52) as disputes over weights can lead to conflicts and mistrust between suppliers and processing units, affecting business relationships and transactions. Non-availability of vehicles (Rank 9, Garrett Score: 45.73) due to the lack of transportation facilities impacts the timely delivery of shrimp, potentially leading to delays and quality issues. Environmental issues (Rank 10, Garrett Score: 44.13) as environmental factors are a concern but are less pressing compared to operational issues. These might include factors such as water quality and climate conditions affecting shrimp farming. Payment issues had made a mean score of 31.53 with the 11th rank indicating that, while payment problem do exist, they have lower impact compared to quality and logistics issues. The majority of suppliers expressed their satisfaction with the payment process of prawn processing companies. Labour problem at companies during peak seasons (Rank 12, Garrett Score: 30.1) at processing units are a concern but rank lower, indicating that they are somewhat managed or less critical compared to other factors. Lack of bargaining power (Rank 13, Garrett Score: 26.38) is the least of their concerns, indicating that they may have limited influence over pricing and contract terms but do not view it as the most critical concern. Restricted operational time period of company (Rank 14, Garrett Score: 21.98) is ranked lowest, indicating minimal impact or effective management of this issue.

The primary challenges for suppliers are related to meeting quality standards, dealing with lot rejections, and managing

waiting times during peak seasons. These issues are critical as they directly impact profitability and operational efficiency. Price fluctuations, high labor costs, and grading problems are also significant concerns. While payment issues and labor problems at processing units are notable, they are less critical compared to quality and logistical problems. Addressing these challenges is essential for improving supplier efficiency and strengthening the shrimp supply chain.

Conclusion

Addressing the critical issues experienced by suppliers requires targeted interventions to improve quality control, streamline logistics, stabilize prices, and manage labor costs through continuous feedback mechanisum. Enhancing support mechanisms for suppliers through transparant communication including better infrastructure and training, can lead to more efficient and sustainable shrimp production, benefiting both suppliers and processing units in the long term.

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