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## Shrimp aqua-chemical market scenario in Gujarat: A survey report

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### Abstract

The study was carried out to assess the market share, use pattern of various aquaculture chemicals in shrimp culture in Gujarat, to understand the expectations of aquaculture chemical distributors and shrimp farmers and to examine the market feasibility of launching shrimp aquaculture chemicals in selected areas. The study is mainly focused on customers who purchase aqua-chemicals and distributor. Sampling unit consisted of 66 farmers and 11 distributors respondent from Gujarat. Purposive sampling technique was used for the study. The market share of aquaculture chemicals has been varied from 2.2 to 22cr for different categories. Frequently bought aquaculture chemical products were water probiotic, mineral, vitamin C followed by binder, soil probiotic, immuno-stimulant, disinfectant, adsorbents, biofertilizer and others. Distributors had kept top companies' brand like Neospark, Tablets India, Kenko, Poseidon, Avanti, Growel, Virbac, Biostadt, APC, Virbac and Bayer. Distributors' major expectation from the aquaculture chemical companies are good quality product with discount, lower pricing and delivery on time along with ongoing support continuing in many forms like field support through on-site visits, advertising assistance and backroom services (billing, collections, etc.). The *Litopenaeus vannamei* culture is going to increase in near future and this will certainly increase the shrimp aquaculture chemical demand.

**Keywords:** aquaculture; chemicals; shrimp; *Litopenaeus vannamei*; Gujarat

### Introduction

Shrimp aquaculture industry in Gujarat is gaining immense in terms of area, production as well as socio- economics. Presently, this massive brackish water aquaculture industry is one of the important agro-industry in the state. Its rapid development has attracted considerable attention in recent years. (Sharma et. al., 2018) [8]. However, the escalation of aquaculture practices requires cultivation at high densities, under these conditions of intensive production, aquatic species are subjected to high-stress conditions, increasing the incidence of diseases and causing a decrease in productivity (Bondad et al., 2005) [3]. Outbreaks of viral, bacterial, and fungal infections have caused devastating economic losses worldwide (Kautsky et al., 2000) [4]. This has led to enhancement in application of a wide range of aqua-chemicals in order to control production loss (Pathak et al., 2000, Ali et al., 2014) [5, 2]. Besides their use in shrimp health management, aquaculture drugs and chemicals play key role in various other aquaculture activities like in pond construction, soil and water management, enhancement of natural aquatic productivity, feed formulation and growth (Subasinghe et al., 1996, Alam et al., 2015) [3, 1]. A large number of so-called aquaculture consultants and representatives of pharmaceuticals and feed companies and chemical sellers are involved in marketing chain, for delivery of such products to end users (Sharker et

al., 2014) [7]. However, so far, no appropriate research or systematic survey have been carried out in Gujarat, to understand the marketing and availability of various aqua-chemicals for application in shrimp-culture. Therefore, the present survey was carried out to assess the market share, use pattern of various aqua-chemicals in shrimp culture in Gujarat, to understand the expectations of aqua-chemical producers and shrimp farmers and to examine the market feasibility of launching shrimp aqua-chemicals in selected areas.

### Materials and Method

Data for the present survey were collected in year 2019 from aquaculture dominant districts of Gujarat viz., Surat, Olpad, Navsari, Gir Somnath, Bharuch and Vadodara. The details of surveyed area is provided in Table 1. Both primary and secondary data were used in the study. Primary data were assembled from 66 aqua-farmers and 11 and tool for asking questions was structured questionnaire. Secondary data were collected from published reports, government organizations and review papers. Research design was conclusive design and descriptive method was used. Purposive sampling technique was used with non- probability sampling method. Tabular analysis, graphical analysis, Garrett's ranking technique and weighted average were used to satisfy the given objectives of the study.



|       |            |   |                   |    |
|-------|------------|---|-------------------|----|
| 16.   |            |   | Hatisha           | 1  |
| 17.   |            |   | Mor               | 1  |
| 18.   |            |   | Koba              | 1  |
| 19.   |            |   | Kuriyana          | 1  |
| 20.   |            |   | Ambheta           | 2  |
| 21.   | Navsari    | - | Matwad            | 3  |
| 22.   |            |   | Samapur           | 7  |
| 23.   |            |   | Onjal             | 1  |
| 24.   |            |   | Aat               | 1  |
| 25.   |            |   | Krishnapur        | 1  |
| 26.   |            |   | Dandi             | 1  |
| 27.   |            |   | Maroli            | 2  |
| 28.   | GirSomnath | - | Dari, Veraval     | 13 |
| 29.   |            |   | Navapura, Veraval | 1  |
| 30.   | Bharuch    | 1 | Ankleshwar        | 1  |
| 31.   | Vadodara   | - | Dodiya            | 2  |
| Total |            |   |                   | 66 |

**Table 2:** Famer's Awareness about disease

| Factors       | Garrett's score | Rank |
|---------------|-----------------|------|
| Viral         | 66.23           | II   |
| Bacterial     | 76.41           | I    |
| Fungal        | 60.21           | IV   |
| Protozoan     | 53.40           | V    |
| Parasite      | 47.12           | VI   |
| Non infection | 63.25           | III  |

**Table 3:** Types of services preferred by customer that has rendered by company

| Factors                   | Garrett's Score | Rank |
|---------------------------|-----------------|------|
| Field visit services      | 75.47           | I    |
| Online Service            | 58.00           | V    |
| Farmer meet               | 72.73           | II   |
| Field visit + Farmer meet | 64.80           | III  |

**Table 4:** Distributor's Expectation from company

| Factors          | Garrett's score | Rank |
|------------------|-----------------|------|
| Free Sample      | 42.0            | VI   |
| Discount         | 69.8            | II   |
| Good Quality     | 79.2            | I    |
| Delivery on time | 66.0            | IV   |
| Lower pricing    | 58.0            | III  |
| On-going support | 51.6            | V    |
| New product      | 36.5            | VIII |
| Credit facility  | 47.8            | VII  |

## Results and Discussion

It was found that 48% aqua-farmers in study were in the age group of 36-45 years (Fig. 1), may be due to their dependency on the particular sector from a long time as of their family occupation and since last 10 years as Government allotted land to good numbers of farmers in contrast to last 5 years when only a few ha area were allotted. All of the aqua farmers surveyed were male. It was observed that 58% respondents were in the monthly income group of Rupees fifty one thousand to one lakh (Fig. 2), may be due to their dependency on the particular sector from a long time as of their family occupation and 61% (40) farmers only had 1 to 5 number of ponds (Fig. 3), may be due to their affordability. Farmers with more income can maintain more numbers of ponds (Fig. 4). In

surveyed area Government provided easy availability of five-hectare pond on lease for ten years to aqua farmers other than this 50 % farmers have their own ponds and pond area was in proportion to the numbers of ponds. The market share of aqua-chemicals varied from 2to 22cr for different categories of aqua-chemical (Fig. 5) and within them water probiotics have found to be a better one than other aqua-chemicals among the aqua farmers. Frequently bought aqua chemical products were water probiotic, mineral, vitamin C followed by binder, soil probiotic, immunostimulant, disinfectant, adsorbents, biofertilizer and others (Fig. 6).

Farmers are cultivating only *L. vannamei* exotic species known as 'White Leg' in the study area and take only one crop in a year. Reason may be being 5-month culture period. During this period temperature, pond salinity and other climatic factors are most suitable for crop. Farmers witnessed that bacterial, non-infectious, viral, fungal, protozoan and parasitic disease are prevalent in the order of 75, 66, 63, 60, 53 and 47% in the area under study (Table 2). All aqua farmers purchase aqua chemical in consultation with technical consultant who manages their ponds (Fig. 7). It can be found that most of the aqua farmers purchase shrimp chemical from distributor on credit basis or credit as well as cash (Fig. 8) and they had no access to purchase to chemical online. Uses of shrimp chemical are very important for better shrimp culture and procure from disease. Majority of the farmers have said that they have various types of services provided by company but mostly they have field visit and online services (Table 3). It has been discovered From the Fig. 9, that 41% (27) respondents spent money in the range of Rs. Ten thousand to five lakhs on purchase aqua products during year 2018. Probiotic recorded maximum share of purchased aqua chemicals in 2018 (Fig. 10). Use of probiotics in shrimp culture help to avoid incidence of disease in the shrimp ponds. In the study area it was found that all dealers are well experienced in the shrimp chemical dealing business and 36% (04) distributors belonging to age group 36-40 years (Fig.11), may be due to their dependency on the particular sector from a long time as of their family occupation. It has been observed that 36% (4) distributors were wholesalers and 27% (3) distributors were retailers while 36% (4) distributors were both wholesalers as well as retailers (Fig.12). Distributors had

kept top companies' brand like Neospark, Tablets India, Kenko, Poseidon, Avanti, Growel, Virbac, Biostadt, APC, Virbac and Bayer (Fig.13). It was found that 64% (7) distributors sell aqua products directly to the aqua farmers, 73% (8) distributors were giving discount in the range of 1 to 11 percent on MRP to customer and 45% (5) distributors advice farmers a particular brand while 55% (6) distributors were never giving advice to purchase a particular brand product to customers (Fig 14,15,16). In surveyed area all of the distributors store their products in warehouse, they were using computer system for keeping record of chemical and 73% (8) distributors did not provide any product delivery facility to farmer. Farmer can manage itself. From the Fig. 17, it has been observed that water probiotic recorded maximum sale of 26% followed by gut probiotic (23%), mineral (17%), soil probiotic (12%), vitamin C (10%), Sanitizer (7%), Zoolite (4%) and binder (3%). From the above table 4, it has been observed that, distributors' major expectation from the aqua-chemical companies are good quality product with discount, lower pricing and delivery on time along with ongoing support continuing in many forms like field support through on-site visits, advertising assistance and backroom services (billing, collections, etc.).

### Conclusion

Maximum aqua farmers use probiotics category of aqua chemical than other categories of chemical. Among the aqua-chemicals water probiotic has maximum market share. Good result of the products motivates aqua farmers to purchase the chemicals. Farmers purchase shrimp chemicals from distributors on credit basis mainly. Distributors want ongoing support from company. It can be anticipated that *L. vannamei* culture is going to increase in near future and Government is also supporting the shrimp culture. This will certainly increase the shrimp aqua-chemical demand. Apart from this potential area are still to be mapped an allotted to the farmers by the government, opening a good opportunity for shrimp aqua-chemical industry with providing efficient extension service emphasizing on creating awareness about shrimp health management.

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### References

1. Alam CA, Uddin MS, Vaumi S, Abdulla AA. Aqua drugs and chemicals used in aquaculture of Zakigonjupazilla, Sylhet. *Asian Journal of Medical and Biological Research*. 2015; 1:336-349.
2. Ali MM, Rahman MA, Hossain MB, Rahman MZ. *Aquaculture Drugs Used for Fish and Shellfish Health Management in the Southwestern Bangladesh*. *Asian Journal of Biological Sciences*. 2014; 7:225-232.
3. Bondad MG, Subasinghe RP, Arthur JR, *et al.* Disease and health management in Asian aquaculture. *Veterinary Parasitology*. 2005; 132(3-4):249-272.
4. Kautsky N, Rönnbäck P, Tedengren M, Troell M. Ecosystem perspectives on management of disease in shrimp pond farming. *Aquaculture*. 2000; 191(1-3):145-161.
5. Pathak SC, Ghosh SK, Palanisamy K. *The use of chemicals in aquaculture in India*. Southeast Asian Fisheries Development Center, Iloilo, Philippines, 2000.
6. Shamsuzzaman MM, Biswas TK. Aqua chemicals in shrimp farm: A study from south-west coast of Bangladesh. *The Egyptian Journal of Aquatic Research*. 2012; 38(4):275-285.
7. Sharker MR, Sumi KR, Alam MJ, Rahman MM, Ferdous Z, *et al.* Drugs and chemicals used in aquaculture activities for fish health management in the coastal regions of Bangladesh. *International Journal of Life Sciences Biotechnology and Pharma Research*. 2014; 3:49-58.
8. Sharma H, Swain M, Kalamkar SS. *International Journal of Fisheries and Aquatic Studies Supply chain and market infrastructures for Marine Fishery in Gujarat*. 2018; 6(4):192-198.