

## Marketing of Shrimp Feeds in Kerala- Marketing Mix Analysis

### Abstract

India is considered as one of the world leaders in shrimp production and exports. Considering the requirement of precious foreign exchange, the government has identified the marine products as a trust area for developments. In order to supplement the depleting source of catch shrimps and to meet the high demand, the new Techno-Science of shrimp farming has been developed. A highly profitable industry due to the short gestation period and high export value of the products. Shrimp Feed is one of the important and essential inputs in shrimp farming. The role of artificial feed in shrimp farming is greatly dependant on the culture system or cropping density employed.

### Dr. A.Sabari Rajan

Associate Professor  
MSN Institute of Management  
and Technology  
Chavara  
Kerala

### Dr.K.S.Chandrasekar

Professor and Head  
Institute of Management in Kerala  
University of Kerala  
Trivandrum

## Introduction

Feed is one of the important and essential inputs in shrimp farming. In scientific shrimp culture where the cultured organisms are stocked at a high density, the amount of natural food available in the pond is not sufficient to support good growth even with fertilization. As the shrimp grows, the food requirements will increase substantially and if they do not get sufficient food, growth will retard leading to poor survival and production. Hence it is necessarily to increase the production by supplementary nutritionally balanced artificial feed. The role of artificial feed in shrimp farming is greatly dependant on the culture system or cropping density employed. Clearly the nutritional and feeding of shrimp with in each culture system must be considered as being unique and should be evaluated according to the merits of each type.

Three major factors governing the choice of feed ingredients are

- a. Suitability for shrimp feed.
- b. Consistent availability
- c. Cost



**Srusti Management Review**  
Vol.- IV, Issue-III, April-2011  
pp. 27-36  
ISSN 0974 - 4274

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The feed ingredients can be broadly classified into three as protein supplements, energy feeds, and roughages. In our country materials like shrimp waste, mantis shrimp, clam meat, wheat flour, tapioca, etc, are also used as feed ingredients.

### **Objectives**

1. The marketing mix strategies that are needed for effective marketing of shrimp feeds
2. Suggest marketing strategies for the successful marketing of shrimp feeds in Kerala
3. To assess the current marketing undertaken with respect to shrimp feeds
4. The market segmentation, positioning and other strategies followed by them

### **Methodology**

The present study is based on the survey conducted among the shrimp feeds using farmers in the state of Kerala, the dealers of shrimp feeds in Kerala and those of the experts in this area. The secondary data relating to shrimp feeds industry, marketing issues have been collected from various journals, bulletins, magazines, books, periodicals.

### **Types of Shrimp Feed**

1. Natural feed – Natural feed grows in shrimp pond after application of predator control chemicals and fertilizers. These are mainly blue green algae which form a complex with the associated zoo plankton. The natural feed thus developed are called “Lab Lab” and “Lumut”.
2. Wet feed – This type of feed can support a production up to 300 kgs/hector in traditional farms. This comprises of fresh fish, mussels, etc and are traditionally fed to the shrimps. These feeds are suitable in extensive farming but not in semi-intensive because water quality is affected due to disintegration of feed and thereby creating unhealthy environment.
3. Pellet feed – Having understood the feeding habits of shrimp and role of feed in growth of shrimp and the economics of culture, nutritionally balanced feed in the form of pellets is used in semi-intensive and intensive farming system. The advantages of palletized feed are
  - Slow leaching of nutrients helps in maintenance of water quality.
  - Can be well balanced with amino acids, vitamins, minerals, and trace elements for better growth.
  - Three to four hour water stability enables the animals to eat the feed well.
  - Available in different shapes and sizes to suit different stages of shrimp.
  - The feed with consistent nutritional level can be purchased at a time and stored for a fairly long period.

### **Feed Quality**

A good quality prawn feed should show the following characteristics each of which play a vital role in shrimp production.

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1. Water stability – Feeds which are not water stable and disintegrate rapidly will resulting feed waste and water pollution. Feed needs to be water stable because shrimps are slow and continuous feeders.
  2. Feed pellets size – The feed pellet needs to be small enough to be carried to the mouth and to enable the shrimp to carry the pellet while swimming. Smaller the feed size, more feed particles per unit weight will be available, there by feeding a greater number of shrimp.
  3. Attract ability and palatability – When shrimps are fed, the attractants leach from the feed pellets. These attractants (amino acids) are detected by shrimp with chemo receptors distributed through out their body. Hence, shrimp feeds by smell and not by sight. The feed with good attract ability will bring the shrimp to the feed. When shrimp begin to eat, the feed must be palatable, so shrimp will continue to eat with out interruption.
  4. Appearance – As shrimp feed by smell, the color of feed is irrelevant. Shrimp feeds should be uniform in colour. Colour variations of a pellet indicate inadequate mixing which will result in non-homogenous distribution of the nutrients in the field.

### **Feed Conversion Ratio (FCR)**

Feed Conversion Ratio (FCR) is an expression denoting the quantity of feed required to get 1 kg of flesh. The FCR is calculated by applying the following formulae.

$$\text{FCR} = \text{Quantity of feed consumed} / \text{Total weight gain}$$

If FCR is higher, poor the feed quality and high the cost of production.

### **Selection of Good Quality Feed**

Pellets / Crumbles should be uniform size, shape and colour. Feed should not contain powder. Powder shows poor quality of pelleting. The feed should be free from fungus and insects and free flowing without cake formation. A good feed will have a fish meal smell. Water stability of feed is another important factor to be considered for production.

### **Criteria to be Considered for Selection of Feed Brand**

The following criteria need to be considered for selection of feed brand:

1. Having the capacity to produce sufficient quantity of feed to supplying time.
2. The reputation of the manufacturer/dealer in the trade or their previous trade.
3. The quality control procedure practiced by the manufacturer.
4. The raw material and the quality of raw material used by the manufacturer.
5. Storage facility available with the dealers and the type of storage so as to keep the quality of feed.

In the report of the workshop on shrimp and finfish feed development the introduction of large-scale and intensive farming system that are both (coastal and open water) and shore-based, the trend in feed development is towards nutritionally adequate and economically feasible in Singapore.

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## Indian Shrimp Feed Industry

The developments in India's shrimp feed industry can be divided into several phases. The pioneering feed producers in India were subsidiaries of foreign companies or local companies working in collaboration with Taiwanese or Japanese companies which were experts in black tiger shrimp culture and feed production in the 1980's. In 1992, Higashimaru Feeds (India) started its shrimp feed factory in Cochin collaborating with Higashimaru of Japan. Local animal feed producer Hindustan Lever divested into shrimp and fish feeds in 1991-92. Later corporate India entered the industry. The Waterbase Ltd started a factory in 1993 working with Luxe International of Taiwan. Avanti started in 1994 with Pingtai Enterprises of Taiwan. Godrej Agrovet entered with a feed mill in Vijayawada in 1995. By 1995, shrimp production peaked to 85,000 tonnes with an expansion of culture area and the estimate of feeds used was 120,000 tonnes. CP Aquaculture (India) started a factory in Chennai in mid 1996. During this growth phase, some 50 feed mills were poultry and rice millers diversifying to shrimp feed. After 1996, only 20 survived after consolidation. From 1999, new mills continued to be built and joint ventures and strategic alliances formed. Godrej Agrovet expanded capacity with another feed mill in Chennai in 2000. Grobest Corporation (India) started local production in 2002. Avanti Feeds Ltd formed a joint venture with Thai Union Feedmill Ltd of Thailand in 2003 to produce the latter's flagship feeds in India. In 2004, Cargill started a technology service agreement with Matrix Sciences India to produce 20,000 tonnes of feeds through Cargill Matrix Pvt Ltd. By 2006, CP Aquaculture (India) has an additional factory and a new company Bharat Luxindo of Indonesia entered the market with a mill in Vijayawada. In 2006, the JV Godrej Gold Coin Aquafeed Limited (GGCAL), with 51% shareholding by Gold Coin Group, Hong Kong and 49% by Godrej Agrovet Ltd consolidated the aquafeed business of both companies. Earlier in 2005, the acquisition of the shrimp feed marketing business of Higashimaru Feeds through a subsidiary made Godrej Agrovet, number 2 in Indian's shrimp business, according to the company's financial report. The market leader is CP Aquaculture India with more than 50% of market share (pers comm.). Currently, the total capacity of the top 7 shrimp feed producers is estimated at 300,000 tpy with the largest total installed capacity at 100,000 tpy and the smallest at 20,000 tpy.

During 2005, Godrej Industries Ltd<sup>1</sup> through its sub-subsidiary Golden Feed Products Ltd, has signed an agreement with Cochin-based Higashimaru Feeds India Ltd. In order to take over their shrimp feed marketing business, Golden Feed Products Ltd, a subsidiary of Godrej Agrovet Ltd has signed the agreement with Cochin-based firm. It may be noted that Kerala deals more in this shrimp feeds market.

The choice of feeds was as follows: brand name, price recommendation of farmers or agencies payment terms and ease of availability. The first technical criterion was growth, followed by water stability. The main selling points of the top three brands were feed quality, good network of support services well trained in all technical matters, laboratory support and strong marketing strategy such as top management interacting closely with farmers. There is a common pricing among local feed companies. Shrimp feed prices in early 2007 was INR50/kg whilst premium brands may cost around INR63/kg. Prices for scampi (freshwater prawn) feeds ranged from INR 24-34/kg. Differences in prices are usually due to state taxes and transport costs. Feed is sold through distributors and direct to farms. Generally, feed companies quoted feed conversion ratios from 1.4:1 to 1.7:1.

## Major Shrimp feed brands in India

### Shrimp feed brands in India

The choice of brands from the top shrimp and scampi feed producers in India

Company	Feedmills	Brands				Area of coverage	
		Shrimp Feeds*			Scampi Feeds		
		% CP >42	% CP 40-41	% CP 38-39	% 37 and less		
CP Aquaculture India Ltd	Chennai, TN Visakhapatnam, AP		Bintang	Marine Nova CP	Irawan	Speed Perfect	All maritime states, Sri Lanka, Bangladesh
Godrej Gold Coin Aquafeed Limited (GGCAL)	Chennai, TN Vijayawada, AP		Supreme	New tigris, Super tiger, Hositho, Classic	Essence		WB, OR, TN, KE, KN, GU, MA, Goa & Diu
Cargill Matrix Feeds Pvt	Rajahmundry, East Godavari, AP		Legend	Shrimp Monodon	Ultimax		TN, AP
The Waterbase Ltd	Nellore, AP	Nellore, AP High Gain booster (43%CP)	Tiger Bay Wave, Ultra XL			Magnum, Alpha	KE, KN, TN & AP
Avanti Feed Ltd	Kovvur and Vemuluru, West Godavari, AP		Titan (with Pingtai)	Champ, Classic, Vicktor (with Pingtai)			AP, TN, OR, GU, KE, WB, MA, WB
			Prostar (with TUF)	Profeed, (with TUF)		Scampro	
Grobest Feeds corp. (India) Ltd	Chennai, TN		Grobest, Leader Smart		Ecobest -36%	Scampi	coastal AP, TN, OR, KE, KN, GU & KO, Sri Lanka, Bangladesh, Middle East & Africa.
Bharat Luxindo Agrifeeds Pvt Ltd	Palakol, West Godavari, AP			Gro Max	Pyramid (26-28% CP)		AP

\* %CP for 1st grower pellets, AP- Andhra Pradesh, TN-Tamil Nadu, OR-Orissa, KE-Kerala, KN-Karnataka, GU-Gujarat, KO-Konkan, MA-Maharashtra, WB-West Bengal. Sources: Vasudevan, 2005; industry sources and web sites

Source: Acquaculture Asia pacific, Nov-December 2007.

Farmed shrimp is an important export oriented industry and its future growth will be through the expansion of culture areas in the maritime states. Together with an additional production volume of 167,000 tonnes by year 2012, it is envisaged that new shrimp feed mills in the vicinity of culture areas will be required. In the case of scampi, the target additional production is 68,000 tonnes by 2012 and feed volumes of 100,000 tonnes will be required. The technical improvements made in shrimp farming in many parts of the world paved the way to increase our shrimp production through aquaculture by adopting extensive and semi-intensive systems of shrimp farming in the areas where environmental conditions are congenial. India endowed with rich natural resources in the coastal zone in the form of brackishwater /estuaries for taking up shrimp culture. The brackishwater available in the country is estimated to be about 1.2 million hectares which only around 65,100 hectare of shrimp farming, mostly adopting the traditional practice (50,000ha.) and partly by the extensive method of culture.

### Global Shrimp Feed data

Species	1999	2000	2005	2010
Total shrimp production (MT) <sup>1</sup>	1,130,737	1,228,060	1,494,122	1,732,096
IFOMA (2000) (MT) <sup>2</sup>	–	1,034,000	–	1,684,000
Growth (APR, %/year) <sup>3</sup>	5	4	3	–
IFOMA (2000) (APR, %/yr) <sup>4</sup>	–	5	–	5
Percent on feeds (%) <sup>5</sup>	80	82	87	92
IFOMA (2000) (% on feeds) <sup>6</sup>	–	80	–	90
Species Economic FCR <sup>7</sup>	2.0	2.0	1.8	1.6
IFOMA (2000) FCR <sup>8</sup>	–	1.8	–	1.6
Total aquafeeds used (MT) <sup>9</sup>	1,809,179	2,014,018	2,339,795	2,549,645
IFOMA (2000) estimate <sup>10</sup>	–	1,489,000	–	2,425,000

<sup>1</sup>Total reported FAO farmed shrimp production for 1999, and projections for 2000 to 2010. <sup>2</sup>Total farmed shrimp production projected by to IFOMA (2000). <sup>3</sup>Estimated annual percentage of growth of farmed shrimp production (APR, %). <sup>4</sup>Estimated APR according to IFOMA (2000). <sup>5</sup>Estimated percent of total shrimp production on aquafeeds. <sup>6</sup>Estimated percent of shrimp production on aquafeeds according to IFOMA (2000). <sup>7</sup>Estimated average species group food conversion ratio (total feed used/total shrimp biomass increase). <sup>8</sup>Estimated average species group economic food conversion ratio (total feed used/total shrimp biomass increase) according to IFOMA (2000). <sup>9</sup>Estimated total shrimp aquafeed used (total shrimp production x FCR). <sup>10</sup>Estimated total shrimp aquafeed used according to IFOMA (2000).

Source : International Fish meal and Fish Oil Manufacturers Association (IFOMA 2000)

#### Shrimp Feed – World Context

According to FAO<sup>1</sup>, there are 15 commercial feed brands for intensive shrimp culture available on the market, of which 14 are produced locally. Only one shrimp feed brand was imported in 1995 as compared to about twelve during the early 1990s (*i.e.* mainly from Taiwan). Shrimp feed importation in 1994 amounted to only 365 mt as compared to 1,250 mt in 1990 (BAI, unpublished data). All shrimp feeds are produced by pelleting; the only one feed plant in the country that originally utilized extrusion processing already being inactive. Recently, the rampant outbreak of diseases and low survival obtained in shrimp ponds have led feed companies to develop special feed formulations in addition to their regular product lines. Single ingredient feeds have long been in use in extensive milkfish and tilapia culture. These are energy diets and are supplemented only when the natural food is exhausted. Among the most frequently used are rice bran (D1 and D2), bakery waste, and rejects of processed cereals for human food (such as biscuits and extruded snacks). Also used to a limited extent are corn bran, copra meal, and grated coconut meat.

#### Marketing Mix

Fish and shrimp feeds are usually packed in woven polypropylene (PP) bags provided with an inner polyethylene (PE) lining. All feed companies pack grower and finisher fish feeds in 25 kg bags since quite a number of farmers compute their feed inputs in terms of bags rather than kilogrammes. Mash feeds are either packed in 5 or 10 kg PE-lined PP bags while crumbled feeds are packed in 10 or 20 kg PE-lined PP bags. All feed bags are mechanically sealed by stitching; an exception is one company which utilizes 5 kg vacuum packed plastic bags for its

crumble shrimp feeds. Imported shrimp feeds from Taiwan arrive in 20 kg PP laminated paper bags with an inner PE film bag. By contrast, livestock and poultry feeds are usually packed within 50 kg/woven PP bags with no inner lining.

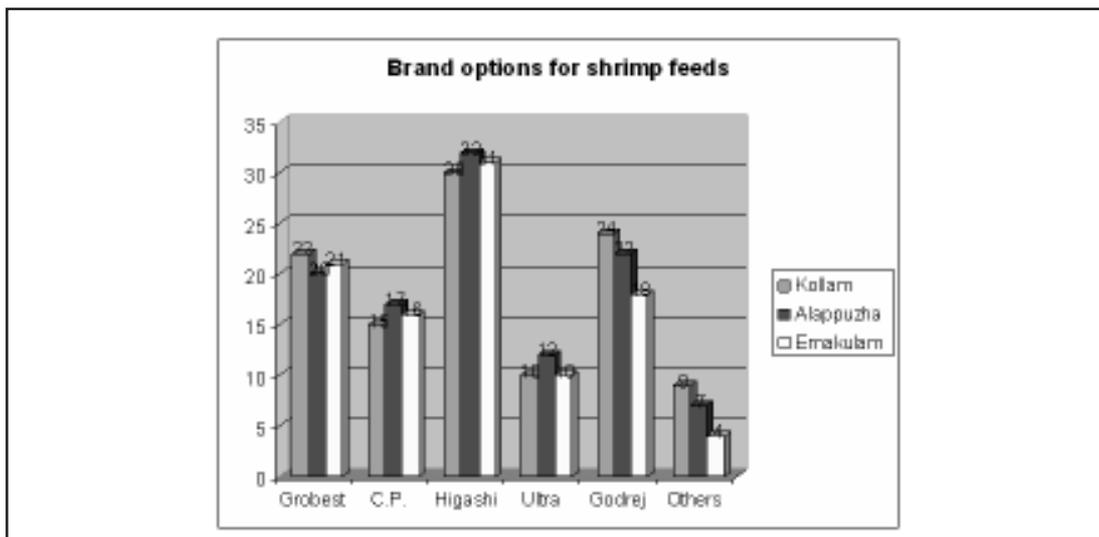
Fish feeds are normally marketed from the manufacturer to a network of distributors, dealers, and even sub-dealers due to the distance and isolation of many fish farms. However, large feed manufacturers like Vitarich, Universal Robina, and San Miguel Foods which have established company-owned distribution channels for poultry and livestock feeds, are usually able to market directly to the sub-dealer level or consumer level. By contrast, other feed companies tap the marketing networks of provincial and municipal traders. For shrimp feeds, the marketing channel is simpler since farms are never too far from a city or major town; from the manufacturer (or importer) the channel passes only through a distributor then directly to the farmer. A listing of aqua-feed distributors and dealers in specific areas can be obtained from the marketing department of the feed company concerned.

CP Prima<sup>2</sup> are the incumbent market leader in fish, and shrimp feed production and we are widely recognized for the high quality of these products. They have established customer relationships due to their role in developing and driving these industries in Indonesia. Their customer relationships are further strengthened by routinely hosting customer visits, attending to sales inquiries, and offering valuable technical support to the customers.

The shrimp feeds are purchased from various sources and various brands are under active consideration. It can be seen from the table that most of the farmers purchase Grobest shrimp feeds followed by Godrej and the rest from nearby dealers. Only a few people decide to purchase from local market where local brands are being considered.

#### Response on the Brand Being Purchased

Brand	Kollam	Alappuzha	Ernakulam	Combined Average
Grobest	22	20	21	63
C.P.	15	17	16	48
Higashi	30	32	31	93
Ultra	10	12	10	32
Godrej	24	22	18	64
Others	9	7	4	20
Total	100	100	100	100



### Marketing Strategies Adopted by the Shrimp Feeds Marketers

The reason why the farmers are buying specific brands. The marketers have to design the appropriate strategy for the relevant market conditions. The acceptance of the brand consists of so many variables in practice. In the present study, the same is confined to fourteen variables. The farmers were asked to rate these 14 variables at five point scale. The mean score of variables and its respective 't' statistics are given in the following table.

Table Variables in brand acceptance

Sl. No.	Variables	Mean score among			T-statistics
		Kollam	Alappuzha	Ernakulam	
1.	Innovative products	3.2184	3.9337	3.8146	-2.1452*
2.	Product design	3.8194	3.9446	3.1445	2.6163*
3.	Maintaining high quality	3.9337	3.3194	3.2442	2.5084*
4.	Brand name	3.9446	3.8664	3.1886	2.7331*
5.	Coverage of range of products	3.3194	3.8544	3.9933	-1.8994
6.	Maintaining unique image	3.8664	3.2666	3.1445	1.9968*
7.	Advertising message	3.8544	3.2444	3.0896	2.0864*
8.	Having lower cost than the competitors	3.2666	3.3345	3.9441	-1.7334
9.	Coverage of various segments	3.2444	3.4563	3.9896	-1.8661
10.	Achieving economies of scale	3.3345	3.8446	3.9661	-1.7083
11.	Product positioning	3.4563	3.9446	3.7138	-1.0868
12.	Differentiating products from competitors	3.8446	3.3194	3.1441	2.3664*
13.	Pricing strategy	3.5166	3.8664	3.6084	-0.2448
14.	Promotional techniques	3.2446	3.1114	3.7348	-1.6542

\* Significant at five per cent level.

Source : Questionnaire

The most considered variables in acceptance of the brand among the farmers are brand name, maintaining high quality and maintaining unique image since their respective mean scores are 3.9446, 3.9337 and 3.8664. Among the Kollam farmers, these are 'coverage of range of produces' having lower cost than the competitors and coverage of various segments since the mean scores are 3.9933, 3.9441 and 3.9896. Regarding the importance given

### Important Acceptance Strategies among the Farmers

Table : Important Brand acceptance Strategies

\*Significant at zero per cent level

Sl. No	Important based acceptance Strategies	Number of Variables	Reliability Co-efficient	Eigen Value	Per Cent of Variation Explained	Cumulative Percentage of Variation Explained
1.	Market standardization	6	0.7503	2.9196	32.08	32.08
2.	Differentiation	3	0.8241	2.0864	22.45	54.53
3.	Product diversification	3	0.7469	1.9919	21.99	76.52
4.	Cost leadership	2	0.7049	1.3462	10.17	86.69
KMO measure of sampling adequacy: 0.7687			Bartlett's test of sphericity: Chi-square value: 89.08*			

- Indians are globally competitive has been well established over the years and the possibility of Brazil- India- Russia-China trade block can affect the prospects of the US and European Union.
- Currently in the Indian companies, professional managers enjoy considerable autonomy in decision making and they are well rewarded and compensated.
- All the respondent companies are resorting to intensive restructuring with a common theme - to be one of the top companies in the marketplace and to generate a positive EVA (economic value added).

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7. The respondents' opinion was for the ICT (information and communication technology) as the dominant sector with core competence for Indian firms, there was strong growth in pharmaceuticals and engineering too.
  8. Many of the respondents were of the opinion that the firms are acquiring the global marketing rights and technical know-how to be competitive in the global market and offer value in the domestic market.
  9. The respondents considered a JV can be used as an entry strategy into a particular market or for purposes of risk mitigation. The crucial factors for the success of a JV as per the respondents are what each partner brings to the table, how complementary their respective skills are, and the understanding that the partners have about each other's needs.

### **Conclusions**

The article clearly shows that the shrimp culture in India is having ample scope, and the feed marketing in India is lacking all its way especially in brand building and developing brand acceptance strategy. The Unorganised shrimp farming Indian sector, rich in productivity can uplift the shrimp feed business which do not have reach and penetration in many pockets. Since the most of the farmers are having an idea to expand the cultivation in future, it constitutes the potential market for shrimp feed.

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