

Promotion of compound feeds

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Introduction

The human population is growing rapidly and so is their demand for consumption of animal products. The rise in the standards of living has necessitated that India expands its market in the areas of animal feed and livestock production. The increasing commercialization of livestock production and compulsions to improve productivity in face of intense competition in the liberalized and globalized economy has resulted in massive increase in derived demand of animal feed in the country-side.

Animal feed industry is broadly classified in two main categories viz.

1. Cattle feed industry and
2. Poultry feed industry.

While the former has not yet developed to any sizeable extent the latter has expanded in an organised fashion. Only some sporadic efforts have been made to undertake cattle feed industry on commercial lines and with limited success. However, there is a growing realisation on the part of all concerned to develop this industry so that composite nutritious feed may be made available at reasonable prices to cattle farmers.

Compound feed industry

The compound feed industry plays a prominent role in the production of consumer food, and by supplying feed for wide range of animals like cattle, poultry, pig, buffalo, aquaculture industry.

The compound feed industry in India is closely linked to primary agricultural production and its composition is determined by four main criteria:

- a. The price of available raw materials
- b. Their nutritional value
- c. The specific requirement of the livestock in question.
- d. Government /States rules and regulations.

There are two major factors, which determine demand for compound feed industry in India. Firstly size of livestock population and secondly feed requirement per animal, which is in turn, governed by demand for livestock products.

Market potential of Indian feed industry:

India has a very large population of livestock both of productive and unproductive animals. Total bovine population in India (2007 census) is 304.4 million, in that adult female cattle population is 73 million and adult buffalo population is 54.5 million animals, while total livestock population is 529.7 million and poultry population is 648.8 million birds.

The total estimate requirement of balanced feed is about 70 MMT. The availability potential of concentrates like oilseed cakes, bran, cereal grains for livestock and by products of pulses is about 39.51 MMT indicating the gap between requirement and availability. Out of 70 MMT, 52 MMT is consumed by dairy sector. The remaining quantity of 18 MMT is consumed by poultry sector. Goat and Pigs consume very little concentrate feed. The organized and semi organized sector produce around 5 MMT of feed (most of it is broiler feed). Layer farmers mostly mix feed at their own farms.

Dairying in India has emerged as an important sub-sector accounting for nearly two-thirds of the total livestock contribution to GDP with an encouraging growth rate of almost 8-9 per cent. A very large population of dairy animals is either grazed or stall-fed on dry roughage of uncertain quality. Availability of sufficient feed resources both in quantitative and qualitative terms is the key factor for the growth and sustenance of the livestock and poultry sector in India.

Unlike many developed dairying countries where large mechanized farms predominant, more than 70 million rural families are engaged in milk production in India. Landless, small and marginal farmers with limited resources account for 65 percent of the total milk production in the country.

The feed manufacturing on a commercial and scientific basis in India started around 1965 with the setting up of medium-sized feed plants in northern and western India. Feed was produced mainly to cater to the needs of dairy cattle as the poultry sector was not developed to that extent at that time and it was restricted mainly to backyard production, with the desi (or native bird) kept mainly for the production of eggs. However, the scenario has changed altogether now, with the growth of poultry industry as well as progress made by dairy and meat industry.

The Indian livestock feed industry is quite old; it is still in a very primitive stage, supplying only about 8.33 percent of cattle feed and 40 percent of poultry feeds for the country. According to the association,

the bulk of that feed is being produced in large part by home and custom mixers. It sees feeding animals with compound feeds as a route to improve efficient use of the ingredients available

Reason for low usage of compound feed:

The share of compound cattle feed manufactured by the industry, in relation to the overall potential, is low in India for the following reasons:

The cattle population is fragmented and spread over large parts of the country. Farmers' low level of education and strong traditional beliefs mean that there is generally little awareness of compound cattle feed.

More than 50 percent of the country's total milk production comes from a very large number of low-yielding cows and buffaloes. A further 25 percent of milk production comes from buffaloes and only the remaining 25 percent of the total is produced by cross-bred and improved cows.

Industrially manufactured compound cattle feed has proved its value for cross-bred cows and buffaloes but not for low-yielding cattle because of their genetic limitations. Home-mixed feed is very frequently used for buffaloes and low-yielding cattle.

Key drivers of animal feed industry:

India has the largest livestock population in the world. The real challenge is convert the unorganised traditional raw material feed users to compound animal feeds and here lies a tremendous growth potential. Given that India is the largest producer of milk globally and also the fifth largest poultry and shrimp producing nation, the opportunity to grow in the animal feeds market is huge. The present animal feeds capacity looks puny when compared with the latent market that exists. The demand for feed additives is related to animal feed production which in turn is dependent on the steady demand for milk, meat and poultry, this is a welcome statistics.

One of the key drivers of feed additives is consumer demand for guaranteed safe foods. This forces the industry to comply with industry standards and produce quality foods, since animals reared for their meat require superior feed with optimum balance of different nutrients. The increased demand for naturally reared meat often results in the expansion of livestock production, which would, in turn, increase production of intermediate products such as animal feed and feed additives. This requirement for meat is likely to improve sale of feed grains and protein meals.

Although animal population has increased only marginally, the key driver for growth is the willingness of owners to spend more on the health of their animals and the ability of veterinarians to meet that need.

The human-cattle bond has a high economic ceiling and the animal feed industry has recognised the potential of this market segment.

The professionalism of poultry industry, growth of organised dairy production and changing focus of farmers from treating to preventing diseases are other factors driving growth in the animal feed market. Increasing interest of the government in the health conditions of animals due to the outbreak of bird flu and foot-and-mouth disease has boosted demand for high-quality ingredients in animal feed. This demand is driving the growth of the animal feed additives industry.

Feeding practices and the use of compound feed:

Cattle feeding practices in India are very traditional. Farmers choose their own ingredients and prepare their own formulations, believing that by these means they are able to pay more individual attention to their cattle. The productivity of the cattle is limited because of their poor genetic make-up, so high-quality compound feed (industry feed) may not necessarily generate a significant improvement in productivity and this has hampered growth of the cattle feed industry.

Most farmers are reluctant to use compound feed fully, instead they compromise by using such feed in proportions of 5 to 60 percent, making up the balance with their own formulations. It is only in the case of highly productive animals that compound feed has been able to show its real potential and the importance of technology has been demonstrated.

Quality management in compound feed:

The Indian feed industry employs the services of qualified nutritionists who are knowledgeable about the nutrition requirements of cattle, buffaloes, layers and broilers. Members of the industry have their own analytical laboratories and either have their own research and development facilities or have access to the research laboratories of agricultural universities or government institutions.

Various analyses are regularly carried out, such as tests for amino acids, aflatoxin, ochratoxin, castor, tannins and urease activity. There is a high degree of awareness of feed microbiology among the millers of feed.

The feed millers have acquired the latest technologies and modern equipment such as high-pressure liquid chromatography (HPLC) and near-infrared (NIR) analysers. All vitamins, minerals and other feed additives are regularly analysed using modern analytical techniques.

The quality of Indian feed in organised industry can be compared with that of any Western feed. Today it is common to achieve a chicken house average of 310 eggs in 52 weeks, in layers, and body weights of 2.0 kg in less than six weeks, with a feed conversion ratio of between 1.5 and 1.6, in broilers. Dairy feed

can use the genetic potential of Indian cattle at its maximum. The quality of Indian feed is satisfactory and innovation will continue.

Challenges:

The growth in animal feed industry faces numerous challenges since it is not a well developed and modernized industry except poultry. The biggest challenge which the industry faces is marketing and supply chain related issues. There are problems of low awareness among the livestock farmers regarding the importance of animal feed, supply side related issues such as the shortfall of stock of raw materials due to irregular supply of feedstuffs and its ingredients, rising inflation, lack of standardization, regulation of quality and unhealthy competition.

Marketing challenges:

1. Small livestock farmers: Smallholder livestock production supports the livelihoods of majority of the poor livestock keepers in mixed livestock-crop system. Thus majority of farmers have 1-2 cows or buffaloes for dairy farming and very few birds in poultry farming, this results in inability of farmer to follow scientific feeding practices for their animals.

2. Poor management of animals: Livestock are managed unscientifically including improper nutrition and health care, which results in nullification of any quality of compound feed given to them. Since nutrition can only be effective when all other aspects related to livestock production and management are taken care well.

3. Traditional feeding practices: Cattle feeding practices are very traditional. Generally farmers prepare their own formulations at home and home-mixed feed is very frequently used for buffaloes and low-yielding cattle. They believe that by these means they are able to pay more individual attention to their cattle as well as it is cost-effective. The challenge before the animal feed marketer is to remove this misconception in the farmer's mind and educate him about the advantages of providing compound feed to the livestock. They must understand how it ensures proper and complete supply of all the required nutrients in right proportions.

4. Lack of farmer awareness: Farmers low level of education coupled with strong traditional beliefs means that there is generally little awareness of compound cattle feed. The lack of awareness is crippling the feed industry since it poses a great challenge to the industry. Companies are forced to spend disproportionate time, energy and money in concept selling to ensure that the farmer appreciates the importance of compound feed.

5. Low production potential of livestock: More than 50 percent of the country's total milk production comes from a very large number of low-yielding cows and buffaloes. A further 25 percent of milk production comes from buffaloes and only the remaining 25 percent of the total is produced by crossbred and improved cows. The productivity of the cattle is limited because of their poor genetic make-up, so high-quality compound feed (industry feed) may not necessarily generate a significant improvement in productivity. This has hampered growth of the cattle feed industry because most farmers are reluctant to use compound feed fully. Instead they compromise by using such feed in proportions of 5 to 60 percent, making up the balance with their own formulations. It is only in the case of highly productive animals that compound feed has been able to show its real potential and the importance of technology has been demonstrated.

6. Fragmented livestock population: The cattle population is fragmented and spread over large parts of the country. Since India has a huge geographic expanse, the relative density of livestock is quite thin. As such, heavy cost is incurred on distribution and logistics. Underdeveloped drivers of feed industry:

Majority of Indian population is facing the problems related to poverty which results in non-affordability of the livestock products such as dairy products and meat. The demand for the livestock products directly impacts the feed industry.

7. Untapped export potential: India has a lot of opportunities to export commercial animal feed because of the strategic location and availability of human resources. Issues related to quality and safety as well as a presence of very few private players, the export potential remains untapped in animal feed industry.

8. Product Innovation: Due to presence of very few big players there has been a lack of research and resultant poor innovation in commercial feed. Government though has research centres such as NIANP etc. There is still a lot of gap to be covered in the areas of animal nutrition.

Supply chain challenges:

Supply-chain management has become more important as consumers demand product quality and integrity. Hence there needs to be integrated management from farm to retail-shelf and this may have profound implications especially on smallholder producers. The five things which may affect the supply chain include food safety, quality, production circumstances, cost price and information.

Supply chain is of paramount importance in feed industry since it captures various parameters ensuing in availability of the product to the target customers. It addresses various problems such as the

bulkiness of product and subsequent high logistics and warehousing costs thus exploiting the various distribution modes and channels. Some of the key issues are:

Availability of animal feed: Making the feed available to farmers living in small villages is dependent upon many factors such as proper roads and transportation available to reach the rural areas, the elements of distribution system such as distributors, wholesalers and retailers, the channel support and accurate forecasting of the demand. Indian villages still face the problem of infrastructural bottlenecks and improper rural connectivity. This problem is further aggravated by smallholder livestock farmers as well as poor quality livestock holding by the farmers.

1.Location of the manufacturing plant:

The inputs for feed manufacturing plant are not available at one place. Inputs need to be procured from a number of places both from national as well as international locations. The consumption demand of feed may not support such costs.

2.Bulkiness:

Generally lot of backtracking takes place from the inflow of raw material stage to the outflow of the finished goods. Freight costs form anything between 15 to 30 per cent of total cost. Compound animal feed is bulkier and this also results in higher transportation costs if the distance between the feed manufacturing plant and the target customer increases. Moreover, unit transportation cost increases if small orders are received from different locations due to lack of economies of scale. The feed industry is highly price sensitive and operates on wafer- thin margins which results in erosion of profits.

3.Quality and warehousing problem:

Animal feed consist considerably high protein which may result in lower keeping quality or else if the feed is provided to livestock it may result in various diseases and subsequent loss of confidence of farmer in company's product. Thus proper storing of feed is necessary to prolong the keeping quality of feed.

Unhealthy competition within industry: Since the feed sector in India has numerous small and regional players, there exists a high competition and subsequent price wars. The firms supplying a high quality compound feed has to compete with other smaller players producing not so good quality animal feed and compromise on the prices. This results in non-attractiveness of the industry for high quality compound feed manufacturers.

4.Lack of standardization and regulation:

Though BIS has produced guideline feed standards and the feed industry also has its own guidelines, currently there is no compulsion to use BIS standards, but the central government has been advising states to introduce their own regulatory standards. The industry, however, is resisting this move. Another feed standards issue that worries both the government and industry is that any changes to existing standards will be slow and difficult to arrive at because of participative conflicts and various lobbying groups. However, the industry's principal concern about compulsory standards is that they will disturb efforts to innovate and upgrade feed production in order to improve the productivity of the animals. This is because all innovations would have to be passed by BIS and such a process is likely to take several years to complete.

Problems with the Essential Commodities Act: One of the major reasons for opposition from the private players regarding the standardization is that the government wants to legislate regulation under the Essential Commodities Act 1955 which is considered draconian and totally inappropriate in this context. There is no shortage of compound animal feeds anywhere in the country. In fact, the organized sector of the compound feed industry is facing serious problems resulting from a huge idle capacity, to the extent of 50 percent or more. New capacities are being added by global players in the feed business and by national as well as multinational integrators. The nature of animal feeds and the animal feed industry has completely changed. Increasingly, products, including new products, are being excluded from the purview of the Essential Commodities Act 1955. Major raw materials for compound animal feeds, such as groundnut, soybean, rapeseed and sunflower meals and cottonseed and rice bran extract, which are exported, are not covered by the Act.

There is therefore no reason for it to cover the animal feed manufactured with these raw materials. Furthermore, the industry has several reservations about implementing BIS standards. There is a lack of flexibility in these standards and they lag far behind the industry's products. For cattle, they have not been revised for 30 years, while the BIS standards for poultry are obsolete.

5.Improper supply of animal feed ingredients:

Expenditure on raw material comprises of about 80 to 90% of the total cost of production, hence the industry is highly susceptible to movement in prices of raw materials. Availability of sufficient feed resources both in quantitative and qualitative terms is the key factor for the growth and sustenance of the feed industry in the country. However, due to various climatic and other factors every year there is

an erratic supply of the feed ingredients as well as there is very high fluctuation in their prices. Apart from this some feed ingredients such as feed additives and supplements have to be imported.

6. Local Sales Tax:

Another threat to the industry is posed by local sales taxes. It must be noted that the feed industry is mainly commodity-oriented and, although it is value-added, it cannot support the burden of any kind of taxation. The industry has made several representations to the government and some state governments have accepted its point of view and refrained from levying any tax on animal feeds.

7. Countervailing duty on amino-acids:

The essential amino acids, such as DL-methionine, L-lysine and L-threonine, are not manufactured in India. These products are vital ingredients of compound animal feed for improving the quality of the final feed and making it conversion-efficient. With a view to bringing about the rapid development of animal husbandry in India, the government reduced the import duty on essential amino acids, so that the feed price to livestock farmers would be economic. However, with the imposition of countervailing duty (CVD) and other duties, the objective of helping to promote animal husbandry has been defeated.

8. Public health & safety:

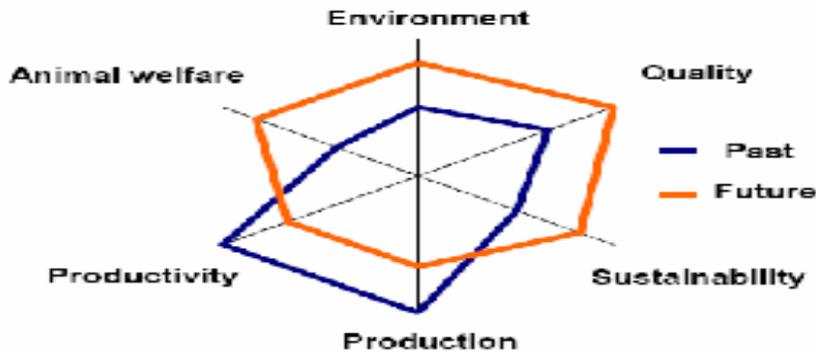
In recent years, livestock output has grown steadily and at the same time, there has been a major increase in production and trade of feeding stuffs. It is suggested that much of the increase in livestock production in developing countries such as India has been based on imported feeds. The intensification of livestock production and the increasing trade in raw materials for the feed industry, as well as livestock products, demands greater attention to risk management by all countries.

Public concern about the safety of foods of animal origin has recently heightened due to problems that have arisen with bovine spongiform encephalopathy (BSE), dioxin contamination, outbreaks of food borne bacterial infections, as well as growing concern about veterinary drug residues and microbial resistance to antibiotics. These problems have drawn attention to feeding practices within the livestock industry and have prompted health professionals and the feed industry to closely scrutinise food quality and safety problems that can arise in foods of animal origin as a result of animal feeding systems.

Recommendations for growth of animal feed industry:

Animal feed industry requires a holistic integration of all the factors so as to emerge as one of the most profitable industries in animal husbandry. Since animal production involves a number of factors including environment, quality, sustainability, production, productivity and animal welfare thus a renewed vision is required to revitalize the animal feed industry.

Animal production – factors of influence



Switch from Productivity focused model to safely and sustainable business model

A number of trends may be discerned in the livestock and feed industries. There is a continuing rise in the demand for animal products and particularly those from poultry and pigs. There is a concomitant rise in the need for animal feeds and particularly oil cakes and meals. At the same time, there is increased public concern about contaminants and health, and demand for safety, regulation and traceability.

The development of government infrastructure and human resources for the management of livestock production as well as the improvement in the efficiency of utilisation of feed resources for livestock production has to be ensured through proper organisation. There should also be an assurance of the quality and safety of materials entering the human food chain through livestock feeds. The worldwide Code of Practice for the production of proteins for the feed industry should be implemented.

Many governments want to upgrade their legislation and its implementation and put in place a system of feed management which will ensure the safety of raw materials and compound feeds entering the food chain through animal production. The system could provide feeding standards for livestock and implement these through information and training. The need to apply standards is both in terms of feed safety and feed quality. Improved feeding standards, feed quality and feed information will increase confidence in the manufacturing, product quality, marketing and utilisation of commercial animal feeds, and will be the basis of a sustainable development for the livestock sector. This will best be achieved by the adoption and implementation of international standards for testing and manufacture such as those provided by the Hazard Analysis Critical Control Point (HACCP) System and the International Standards Organization (ISO).

The collection of good quality data relating to world and Indian market forces and the availability of proteins for the feed industry should be addressed. Innovative developments in the feed industry should be sought with a view to providing alternative sources of proteins and new amino acid technologies. When the livestock industry is viewed holistically, the issues related to the restructuring of value chain have to be seriously acknowledged. There is tendency in the industry towards modernisation and more scientific orientation.

- The emerging challenges are needed to be given due recognition especially in input supply sector. There is severe competition within and outside the industry, rising costs and emergence of various new by-products.
- Feed industry requires niche players and resource optimisation is the need of the hour to overcome competition and have negotiating power to secure supplies from vendors. Feed safety needs to be ensured.
- Modern livestock farms have to scale up and be managed more professionally. There should be consolidation in the new farming model concept.
- Processing industry has to be highly oriented towards public health safety. The value added livestock products are gaining increased importance to consumers.
- Sophisticated technologies equipped with modern ICT (Information & Communication Technology) need to be adopted in the livestock industry. Integration, both in forward and backward direction is required.
- With “Retail boom” organised retailing in food sector is emerging as a lucrative business. There is orientation in consumers towards health consciousness and organic meat/egg consumption.
- Traceability in livestock products can be an important issue in international markets for Indian players.

The future of the Indian feed industry - Winds of change:

India's economy is on the fulcrum of an ever-increasing growth curve. With positive indicators, such as stable 8 to 9 percent annual growth, rising foreign exchange reserves, a booming capital market and rapidly expanding FDI inflows, India has emerged as the second fastest growing major economy in the world. The domestic Indian and international markets are fast-expanding with a lot of untapped potential in the areas of animal husbandry sector with multitude of opportunities.

The livestock industry in India is the second largest contributor to gross domestic Product (GDP), after agriculture, and accounts for 9 percent of the total. Consumption is projected to increase as: per capita milk from 240 to 450 g per year; per capita eggs from 40 to 100 per year; and per capita broiler meat from 1000 to 2000 g per year. These will act as the drivers for the dependent animal feed industry.

The dairy industry, which is cooperative-based, is growing with the increased capacities of milk processing units. The population of cross-bred cattle and buffaloes is also growing. Milk is very popular in India. The poultry industry is developing towards vertical integration and a few multinational companies have already entered the Indian poultry business. Although the live bird market currently accounts for about 90 percent of the total market, it is expected that the consumption of dressed chicken will grow in the next five years, from the existing 10 percent to 25 percent or more. This would mean establishing very hygienic and scientific processing units. Cold chains, branded chicken, chicken cuts, etc. will be introduced and, depending on the success and consistent quality, consumer preference for dressed meat will grow.

India has entered into an agreement with its trade partners under the World Trade Organization (WTO). The changes brought about by the liberalization process will be slow but certain. Thus India will become a stakeholder and any global factors causing a change in the livestock industry will affect the feed industry as well.

The time has come for investment, expansion, growth, and diversification. The Indian entrepreneur also has its sights fixed on project exports. Intense competition is the keyword of the present day business environment. Therefore, one needs professional expertise to have a cutting edge over competitors. The next decade will see significant changes in restructuring, mergers, acquisitions, amalgamations, joint ventures, diversification, integration and efficient service chains, e-commerce and use of the latest information technology in global tenders, trading, export/import and other commercial activities. At the root of all these developments will be the scientific development of feed manufacturing technology.

The Indian feed industry will increasingly use biotechnology, more scientific formulations, new molecules and natural and herbal products to improve animal productivity. Indian agriculture will also use biotechnology and genetically modified organisms (GMOs) to support the feed industry, which is entering a very exciting phase of growth for the next decade.