POULTRY INDUSTRY IN INDIA: AN OVERVIEW ON CURRENT TREND AND PRACTICES.

ABSTRACT

The poultry sector in India has undergone major shift in structure and operation during last two decades transforming from a mere backyard activity into a major commercial activity with presence of large integrated players with successful implementation of contract poultry farming on a large scale.

This transformation involved sizeable investments in breeding, hatching, rearing and processing activities. Farmers in India have moved from rearing country birds in the past to rearing hybrids such as is Hyaline, Shaver, Babcock, Ross, etc which ensure faster growth of chicks, low mortality rates, excellent feed conversion and sustainable profits to the poultry farmers.

The industry has been supported by indigenous advancements in genetic capabilities, veterinary health, poultry feed, poultry equipment, and poultry processing sectors. India also leads in producing specialized products like Specific Pathogen Free (SPF) eggs in Asia, which act as key inputs for manufacturing poultry vaccines and health products.

This study aims to bring to the fore the current trends & practices which are emerging in the poultry market at the domestic front.

Keywords: poultry sector, poultry farm, integration, regional variation in poultry development, broiler price trend.

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Poultry Industry in India: An Overview

The poultry sector in India has undergone major shift in structure and operation during last two decades transforming from a mere backyard activity into a major commercial activity with presence of large integrated players with successful implementation of contract poultry farming on a large scale.

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The domestic poultry market size is estimated at more than Rs. 47,000 crore and the growth trend is likely to continue for the present decade as demand has been growing steadily on back of favourable socio-economic factors like healthy GDP growth, rising purchasing power, changing food habits, and increasing urbanization.

India is a market with Investment Friendly ambience. Indian Poultry Industry is booming to emerge as the world's 2nd largest market. It is growing at the phenomenal rate of 12 to 15 per cent every year. Poultry Industry in India is constantly on the rise with modern techniques and changing from live bird to fresh chilled and frozen product market.

India is also the third largest egg-producer in the world, at over 180 million eggs being produced every day or 65.7 billion eggs for the year 2011-12, and the world’s sixth largest producer of poultry meat. While the majority of India’s animal products are consumed domestically, exports are growing. India is the top global exporter of buffalo meat, and is also the fourth largest exporter of soybean meal, an important ingredient in commercial feed for farmed animals.

In addition, India’s leading poultry producers, including Suguna, Venky’s, and the Amrit Group, are increasing sales to countries in other parts of Asia and the Middle East. International investment is also expanding. In 2008, U.S.-based Tyson Foods acquired a 51 per cent stake in Godrej, an Indian conglomerate that is a major producer of animal feeds and poultry, and the International Finance Corporation (IFC) has an equity stake in Suguna.
An estimated 200 million egg-laying hens are kept in battery cages, and more than half of the 2-billion-plus “meat” chickens produced each year are factory-farmed. **Vertical integration and contract farming for poultry and eggs is also widespread.**

**Transformation from a Backyard Activity to a Major Commercial Activity**

A significant feature of India's poultry industry has been its transformation from a mere backyard activity into a major commercial activity in just about four decades. This transformation has involved sizeable investments in breeding, hatching, rearing and processing. Farmers in India have moved from rearing non-descript birds to today rearing hybrids, which ensure faster growth, good livability, excellent feed conversion and high profits to the rearers.

The industry has grown largely due to the initiative of private enterprise, minimal government intervention, considerable indigenous poultry genetics capabilities, and support from the complementary veterinary health, poultry feed, poultry equipment, and poultry processing sectors. India is one of the few countries in the world that has put into place a sustained Specific Pathogen Free (SPF) egg production project.

**Regional Variation in Poultry Development**

Another important aspect of poultry development in India is the significant variation in the industry across regions. The four southern states - Andhra Pradesh, Karnataka, Kerala and Tamil Nadu - account for about 45 per cent of the country's egg production, with a per capita consumption of 57 eggs and 0.5 kg. of broiler meat.

The eastern and central regions of India account for about 20 percent of egg production, with a per capita consumption of 18 eggs and 0.13 kg. of broiler meat. The northern and western regions of the country record much higher figures than the eastern and central regions with respect to per capita availability of eggs and broiler meat.

<table>
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<th>Important Poultry Facts</th>
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<td>• Indian poultry sector has been growing at around 8-10% annually over the last decade and at more than 15% in last three years. The production capacity has responded with increased integration and increased</td>
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ICRA’s assessment based on industry feedback indicates that the domestic broiler meat demand is expected to grow at around 15-18% while table egg demand is expected to grow at 5-7% over medium to long term.

Key challenges faced by industry include high feed costs combined with supply shortage of corn, inadequate cold chain and transportation infrastructure, high vulnerability to disease outbreaks and highly volatile realizations affecting cash flows. The realization pressures stem from the low entry barriers, which leads to oversupply situation. Further the marginal penetration of processed chicken (less than 5%) in overall poultry market limits the value-add potential and adds to the volatility of cash flows for the key players in the industry.

There have been concerted efforts in recent years from large integrators as well as Government bodies to promote increased processing of poultry products (in form of frozen/chilled chicken) and at the same time increasing acceptability of dressed chicken in domestic market. The processed chicken market is expected to grow at a much stronger pace of more than 25% albeit on a low base. Transition from a predominantly live bird/wet market to a chilled/frozen market is crucial for the future expansion of domestic poultry industry as well as to increase presence in international trade.

Though poultry farming is an age old business in India, modern poultry breeding started in 1970s and large-scale integrators have become prominent in last decade. The modern poultry farm methods are based on total separation between chicken bred for meat production (broilers) and those bred for table egg production (layers).

This is to take advantage of negative genetic correlation in chicken between growth and reproductive traits. For broilers, males are selected for growth and carcass quality while in females emphasis is on egg production and hatchability. For layers, males are bred for high egg weight while females are bred for high rate of egg production.

The commercial poultry farming is based on hybrids that are produced on a selection and multiplication pyramid by crossing male and females of selected breeds which combine desired traits in final commercial bird. The DOC (day old chick) is the final product of cross breeding done starting from Purelines. Purelines are crossed to get Great Grandparent (GGPs) and then Grandparents (GPs).

GPs are further crossed to get parents and the offspring of parents are sold as DOC. The properties of chicken in terms of weight and other attributes depends largely upon the attributes what the Purelines posses and thus, becomes the critical criteria for poultry
A complete cycle from crossing a Pureline to the last product DOC takes around four years, with different Pureline being used for broiler and layer.

A broiler DOC takes six weeks to grow into live bird with average body weight of 1.8-2.0 kg with timeline and body weight varying based on feed quality, weather conditions and general farm management for a given Pureline.

A layer DOC takes 18-20 weeks before it starts laying eggs and egg production usually happens till 72\textsuperscript{nd} week of layer’s life with an average production of 300-320 eggs (250-260 table eggs and rest hatching eggs) during its lifetime.

**Entry of Integrated Players**

Domestic poultry industry has few large scale integrated players like Venkateshwara Hatcheries (VH) group, Suguna Poultry Product Limited, Godrej Agrovet Limited, Charoen Pokphand (India) Private Limited, Arambagh Hatcheries Limited, etc having their own GP and parent breeding farms, hatcheries, feed mills, in house veterinary services, and marketing set up.

The key players have also moved into vertical integration by setting up retail chains, processing, branding and aggressively marketing their products under frozen/chilled and ready to cook categories. While these large players have their own parent breeding farms, DOC breeding is usually done through contract farming model which is spread across country with farm sizes typically ranging in 2,000-10,000 of DOCs though there are few larger farms also.

The strong growth in Indian poultry industry is attributed to the successful implementation of large scale contract poultry farming model. In this model, integrators provide farmers with DOCs, feed, medicines, necessary training and standard growing fee while farmer needs to provide farm space, labour and power.

The growing fee usually have a minimum guaranteed fee plus bonus based on weight gain with typical per kg growing fee in the range of Rs. 3.5 per kg. Poultry farming provides a healthy source of alternative income for large rural population of the country and has been growing strongly across the country especially in Southern India, and in states of Maharashtra, Haryana and Punjab. India primarily imports its grandparent stock, as Pureline breeding is an expensive affair with sizeable R&D involved.
Further global Pureline breeders usually won’t supply their Pureline stock and most of domestic poultry players start from grandparent breeding. VH group is the only domestic entity to have Pureline breeding. The group started with an imported Pureline breed in 1970s (Vencobb for broiler and BV 300 for layer) and has invested significantly over the years to make it suitable for Indian weather conditions.

Other major Purelines used in India are ‘ROSS’, ‘Shaver’, ‘Lohmann’, etc with domestic breeders importing GP stock of these Purelines. Overall domestic poultry market size is estimated at Rs. 47,000 crore with broiler meat and table eggs contributing more than 95% of the market.

Broiler meat market is estimated at Rs. 30,000 crore while table egg market size is Rs. 15,000 crore with products like animal health care, egg powder, SPF (Specific Pathogen free) eggs and other poultry birds forming rest of the market. Globally India ranks fourth in broiler meat production with annual production of 2.9 million metric tons (MMT) of broiler meat. USA and China lead with annual production of 24.0 MMT and 12.3 MMT respectively. Indian is ranked third in table egg production after USA and China with annual production of 57 billion eggs.

**Essentials of a Poultry Farm**

Key performance metrics for a poultry farm include:

- **Feed conversion ratio (FCR)**, i.e., amount of feed consumed to gain per unit weight
- **Time taken to attain desired weight** (for broiler)
- **Rate of laying eggs** (for a layer)
- **Mortality rate and disease resistance**

Feed costs (maize and soya) forms more than 60 per cent of raw material costs for a poultry farm (Annexure D, E and F). The FCR and other performance metric depend on inherent traits of Purelines and kind of feed mix used. Existing FCR in domestic industry is around 1.8-2.0 (i.e. every 2 kg of feed consumed results in 1 kg weight gain) though Companies strive to reduce the same through advances in veterinary science and improved feed mix.

Another important aspect is to increase resistance against various diseases like bird flu (avian influenza) to reduce mortality rates. Typical mortality rates in Indian farms are 8-10% while developed countries have less than 5% mortality rates providing potential for further improvement in domestic industry. For corporate engaged in poultry industry, size of operations and geographic diversity helps in gaining economies of scale and protecting against seasonal variations in consumption across geographies.

The geographic spread of operations also helps in protecting against local outbreak of diseases like bird flu. The growing trend is towards increasing value addition in form of
processed chicken which can be marketed as frozen/chilled product or can be further processed to cater to ready to cook/convenience food market. The processed chicken industry though in its nascent stage provides tremendous growth potential with healthy margins.

**Large Variations in Domestic Market**

Large variations exist within domestic market in terms of production and consumption pattern with Southern India being the leading producer; further considerable seasonal variation exist within each geography; resulting volatility in prices has sizeable impact on profitability for the industry. Though no authentic numbers are available, 20-25% of Indian population is estimated to be vegetarian.

For non-vegetarians, meat option varies between fish (and other sea foods), mutton, poultry, pork and beef with fish, mutton and poultry being the preferred options due to religious connotations associated with pork and beef consumption though they are relatively cheaper alternatives.

On the back of considerable advances in poultry farming as compared to cattle farming, availability and affordability of poultry meat has increased over the years. Production and consumption of poultry (broiler meat and egg) has increased throughout the country, though Southern and Western India are the major beneficiaries of commercial poultry farming developments.

There are large variations in production and consumption of poultry meat and egg in India across various states. The consumption is affected by various factors including taste preferences, religious practices, per capital income, urbanization, etc.

Higher urbanization and relatively stronger presence of organized players has supported rapid gains in commercialization of poultry farming in South and West region. South India produces more than 45% of total domestic poultry output led by state of Andhra Pradesh, while another 20% comes from Western region. Tamil Nadu leads in terms of poultry consumption closely followed by other southern states.

The egg consumption in these states is also benefitted from inclusion of eggs in various Mid Day meal programmes. There is considerable seasonality associated with poultry consumption for each geographic region based on religious beliefs, weather conditions and festivities. For example, Hindu month of ‘Shravan’ (July-August) results in considerable decline in consumption especially in Maharashtra and certain parts of Northern India. Similarly, Tamil month of ‘Puratassi’ in Sep-Oct and ‘Sabarimala Pilgrimage’ in Dec-Jan results in decline in meat consumption in Tamil Nadu and ‘Lent season results in decline in consumption in Kerala in months of March-April.

On the other hand, consumption increases during festive period of October-December (combined with winter season) and during marriage season in various parts of the country. Generally, meat production and consumption is lower in summer season than in winter.
Wide geographic and seasonal variations combined with poor cold storage infrastructure limiting transportation and storage result in wide fluctuations in prices of various poultry products across geographies at a given time and during a year for given geography.

There is considerable seasonality on back of above mentioned factors and same is seen in price trend represented in the above Chart. Further factors like outbreak of ‘bird flu’ in certain regions also affects prices though same has been marginal in last two years. The broiler prices have strengthened considerably in Feb-Mar’11 to reach peak prices of Rs. 70-72/kg at wholesale level on back of high feed prices though have moderated since then with the onset of summer season.

Broiler Price Trend (Rs. / kg) – Representative Wholesale Prices in three major zones
The Broiler Coordination Committee (BCC) at Palladam, Coimbatore, sets the broiler price for different regions and the price moves daily. The BCC rate is considered the benchmark rate for Broiler prices in India.

Poultry Feed

Feed costs form more than 60% of costs for a poultry farm with maize and soybean meal being the key feed ingredient. Adequate feed availability and feed prices are very crucial in sustainable operations of a poultry farm. The feed industry is evolving from being a fragmented sector to an organized one with integrated poultry players having their own feed mills though still sizeable production happens in home mixers and unorganized sector. Maize is the primary source of energy for the Indian poultry industry and constitutes 60% of compound feed, while soybean is the main source of protein and forms 30-35% of the feed.

Maize has remained a relatively small crop in the country, which has led to supply shortages. Maize is primarily rain-fed and competes with crops such as wheat and paddy which has assured prices from the Government. Hence any monsoon failure is a threat for the crop as was evident in drought year 2009-10, when maize production fell by 12-15% although it recovered in crop year 2010-11 with an estimated production of 19 million tones.

Still maize prices are expected to remain high on back of strong demand from poultry and starch sector and limited supply available. Poultry sector consumes 52% of domestic maize production and demand from poultry sector is expected to outstrip supplies in near future. India needs to double its maize production in next ten years to meet the growing domestic demand from the feed industry.

In case of soymeal, India manufactures exportable surplus and hence adequate availability of soymeal is there though prices remain volatile on back of fluctuation in international prices and domestic production.

The maize prices have largely been on an uptrend on back of limited production and increasing demand from poultry and starch sector. With no major forward booking done by poultry industry players, the profitability remains exposed to volatility in feed prices and is largely determined by relative price movement in broiler realization and feed prices.

Price variations in broiler prices and feed prices are not in sync and poultry players are usually not able to fully pass on rise in feed prices. Further with a production cycle of 6-7 weeks for broiler DOC, rise in broiler prices comes with a lag effect.

A broiler farm is typically more sensitive to short term fluctuations in feed price movement compared to layer farm where production cycle is much longer. Relative variations in realization and feed costs have a strong impact on the profitability and cash flows of commercial poultry farms.
Poultry sector integration can offer sizeable benefits for this sector and particularly, consumers of poultry meat. Feed shortages however can have significant adverse effect on producers and consumers of poultry meat and particularly eggs. Development and adoption of technology that can improve the competitiveness of domestic feed production would allow all producers and consumers to benefit from poultry sector expansion.

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