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RESEARCH ARTICLE

AN INNOVATIVE MARKETING STRATEGY FOR MILK IN INDIA

Ramesh L and Poornima S

Bharathiar University Arts and Science College-Gudalur

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ABSTRACT

India is the world's largest dairy producer. India ranks first in milk production, accounting for 18.5 % of world production, achieving an annual output of 146.3 million tonnes during 2014-15 as compared to 137.69 million tonnes during 2013-14 recording a growth of 6.26 %. India's economy is largely based on agriculture and animal husbandry in which milk production plays important role. It is also the largest buffalo milk producer in the world. Among all states in India, Uttar Pradesh is the leader in milk production in the country with an annual production of more than 20 Million Tonnes. Tamil Nadu is milk producing state and ranked 9th in the list of top 10 highest milk producing states in India. The increasing demand for convenient and hygienic foods at both, domestic and global level and availability of technology for processing of by-products, offer immense investment opportunities in the Indian dairy sector. The NEWTON software model shows that one of the most effective rumen modifiers works by supplementing the naturally produced organic acids needed by microbes as intermediates in the digestion process. VIVALTO supplies the enzyme cofactors to make the system work as quickly as possible, so that more of the nutrients from the gut are being converted into substrates. It resulted in a 2.7 kg increase in milk production in 200 days.

INTRODUCTION

India's economy is largely based on agriculture and animal husbandry in which milk production plays important role. Milk is whitish liquid containing proteins, fats, lactose and various vitamins and minerals that is produced by mammary glands of all mature female mammals after they have giving birth and serves as nourishment for their young **.** Cow milk generally contains between 3 and 4 g of fat/100 g, although values as high as 5.5 g/100 g have been reported in raw milk. Milk and dairy product contain many nutrients and provide a quick and easy way of supplying these nutrients to the diet within relatively few calories

Milk, cheese and yogurt all provide the following beneficial nutrients in varying quantities.

1. Calcium- for healthy bones and teeth
2. Phosphorous- for energy release
3. Magnesium- for muscle function
4. Protein- for growth and repair
5. Vitamin B12- for production of healthy cells
6. Vitamin A-for good eyesight and immune function
7. Zinc-for immune function
8. Ribo flavin – for healthy skin
9. Folate- for production of healthy cells
10. Vitamin C- for formation of healthy connective tissues
11. Iodine- for regulation of the body rate of metabolism (How quickly the body burns energy and the rates of growth)

As an agricultural product, milk is extracted from non-human mammals during or soon after pregnancy. India's economy is largely based on agriculture and animal husbandry in which milk production plays important role. It is also the largest buffalo milk producer in the world.

Contribution of state in milk production in India

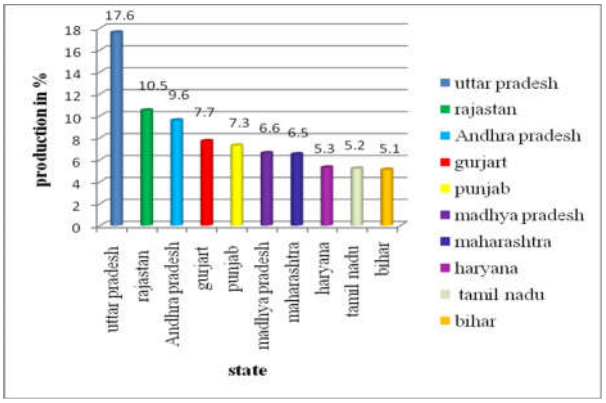
Interpretation Sources

Secondary data

Among all states in India, Uttar Pradesh is the leader in milk production in the country with an annual production of more than 20 Million Tonnes. Apart from being the largest milk producer, Uttar Pradesh also has the largest number of cows and buffaloes, which is more than **1.8 Crores**. Kherigarh, Ponwar,

*✉ ***Corresponding author:*** **Ramesh L**
Bharathiar University Arts and Science College-Gudalur

Gangatiri and Kenkatha are some of the cow breeds found in Uttar Pradesh. These cow breeds are mainly found in Uttar Pradesh and known for producing milk in high quantity. Uttar Pradesh has more than 40 dairy cooperatives, which supply milk to many states in the country.



Rajasthan is ranked 2nd in the list of top 10 highest milk producing states in India and produces more than 13 Million Tonnes of milk every year. It has more than 15 dairy cooperatives,Bikaner Zila Dugdh Utpadak Sahakari Sangh Ltd has the highest average milk procurement of 90,000 litres per day. Nagori, Rathi, Tharparkar and Kankrej are some of the cow breeds found in Rajasthan. Among all cow breeds in Rajasthan, Tharparkar has the highest yield of 1800 to 2600 kilograms of milk per lactation. Tharparkar breed is originated from Tharparkar district in Pakistan and white or grey in colour.

Andhra Pradesh stands at 3rd in the list of top 10 highest milk producing states in India. With a production of 12.762 Million Tonnes Andhra Pradesh accounts for more than 9% share in total milk production in the country and play an important role in meeting demand for milk in the country. Gujarat Stands 4th in the list,

Gujarat stands 4th dairy cooperative is the country's largest dairy cooperative, which came into existence in the year 1946. **Amul** is the organization that initiated and successfully completed the **White Revolution in India** and made the country the leader in the world in milk production. The hugeness of Amul can be traced from the fact that its milk procurement is more than **14 Million Liters** per day from over 18,000 village milk cooperatives. Amul in India is a symbol of purity and quality and offer various high quality dairy products

Punjab the state with most fertile soil is placed at 5th in the list of top 10 highest milk producing states in India. Sahiwal, the best indigenous breed of cow with the highest milk yielding capacity is found in Punjab. **Sahiwal** is a cow breed known across the nation for the highest milk yield and has an average milk yield of 2270 kilograms of milk per lactation

Madhya Pradesh, stands 6th in the list which account for more than 6% share in the total milk production in the country. Nimari, Deoni and Dandi are some of the cattle breeds found in the state Madhya Pradesh has 7 dairy cooperatives that account for maximum amount of milk procurement in the state. These dairy cooperatives work under Madhya Pradesh State Cooperative Dairy Federation Limited, which is involved in procurement, processing and selling of quality dairy products in the state

Maharashtra is 7th list. Rajya Sahakari Dudh Mahasangh Maryadit or MRSDMM is the state milk federation incorporated in the year 1967 and sells dairy products under the brand name **of Mahanand**. MRSDMM comprises of more than 100 member unions with over 24,000 milk societies and has daily milk handling capacity of 8.5 Lakh Litres.

Haryana is 8th in the list it is another leading milk producing state in India and produces more than 7 Million Tonnes of milk every year. Haryana Dairy Development Cooperative Federation Limited is the state milk federation, which owns 6 milk processing plants in different parts of Haryana. These milk processing plants are located in Kurukshetra, Jind, Ambala, Sirsa, Rohtak and Ballabgarh.

Tamil Nadu is milk producing state and ranked 9th in the list of top 10 highest milk producing states in India. Tamil Nadu in the last financial year witnessed a growth of more than **10%** in milk production. Tamil Nadu contributes more than 5% in the total milk production in the country and d There are more than 11,000 Milk Cooperative Societies in the state and 17 Milk Producers' Union that gives employment to more than 4 Lakh milk producers. Aily milk procurement of dairy cooperative societies in the state is more than 24 Lakh Liters.

Bihar State Milk Co-operative Federation is the dairy cooperative in Bihar, which came into existence in the year 1983. It sells its various quality products under the brand name of "Sudha Dairy". Districts covered by the dairy cooperative are more than 25 and has an average milk procurement of more than 10 Lakh Kilograms of milk per day**.**

Top Highest Milk Producing States in India

S.No	States	production in Million Tonnes
1	Uttar Pradesh	23.33
2	Rajasthan	13.94
3	Andra Pradesh	12.762
4	Gujarat	10.315
5	Punjab	9.714
6	Madhya Pradesh	8.838
7	Maharashtra	8.734
8	Haryana	7
9	Tamil Nadu	7
10	Bihar	6.845

Strategic management

Involves developing a game plan to guide a company as it strives to accomplish its vision, goals and objectives, and keep it desired course.

Reasons for Strategic Planning

- Change
- Renewal
- Funding requirement
- Financial forecasting
- Mandate

- Build consensus
- Improve staff and board relations
- Develop ownership
- Build community support
- Other (discussion)

Milk usage by sector wise

Traditional Sector - 40 % ,Rural Sector -45% ,Organized Sector -15%, Only 15% of milk processed in the organized sector out of Plain milk (Fresh pasteurized) -75 % Other Value Added Products - 25 %

Indian Dairy SWOT

Indian dairy sector are its diverse bovine population, increasing availability of milk for value addition and processing, low cost of milk production in comparison to leading milk producing nations in the world, growing .The R&D efforts for overcoming the weakness of the dairy production system (such as, low productivity of animals, lack of commercial orientation among milk producers, low awareness among producers about scientific dairy farming, clean milk production and value chain). The increasing demand for convenient and hygienic foods at both, domestic and global level and availability of technology for processing of by-products, offer immense investment opportunities in the Indian dairy sector. The threats posed by extinction of indigenous breeds, increasing incidence of adulterated milk, climate change have to be intensified for multidimensional growth of dairy sector in the country and linking the smallholder dairy producers to the buoyant domestic and global markets of dairy products.

Milk production in India

Year	Production (Million Tonnes)	Per Capita Availability (gms/day)
1991-92	55.6	178
1992-93	58	182
1993-94	60.6	187
1994-95	63.8	194
1995-96	66.2	197
1996-97	69.1	202
1997-98	72.1	207
1998-99	75.4	213
1999-2000	78.3	217
2000-01	80.6	220
2001-02	84.4	225
2002-03	86.2	230
2003-04	88.1	231
2004-05	92.5	233
2005-06	97.1	241
2006-07	102.6	251
2007-08	107.9	260
2008-09	112.2	266
2009-10	116.4	273
2010-11	121.8	281
2011-12	127.9	290
2012-13	132.4	299
2013-14	137.7	307
2014-15	146.3	322

Interpretation

India ranks first in milk production, accounting for 18.5 % of world production, achieving an annual output of 146.3 million tonnes during 2014-15 as compared to 137.69 million tonnes during 2013-14 recording a growth of 6.26 %. Whereas, the Food and Agriculture Organization (FAO) has reported a 3.1 % increase in world milk production from 765 million tonnes in 2013 to 789 million tons in 2014.

The per capita availability of milk in India has increased from 176 grams per day in 1990-91 to 322 grams per day by 2014-15. It is more than the world average of 294 grams per day during 2013. This represents a sustained growth in availability of milk and milk products for the growing population.

The success of the dairy industry has resulted from the integrated co-operative system of milk collection, transportation, processing and distribution, conversion of the same to milk powder and products, to minimize seasonal impact on suppliers and buyers, retail distribution of milk and milk products, sharing of profits with the farmer, which are ploughed back to enhance productivity and needs to be emulated by other farm produce/producers.

In the poultry segment, the Government's focus, besides framing suitable policies for enhancing commercial poultry production, is for strengthening the family poultry system, which addresses livelihood issues.

Both egg and fish production has also registered an increasing trend over the years. Egg production was around 78.48 billion eggs in 2014-15, while poultry meat production was estimated at 3.04 MT.

Fisheries constitute about 1 % of the GDP of the country and 5.08 per cent of agriculture GDP. The total fish production during 2014-15 was 10.16 MT, an production during the last quarters of 2015-16 has also shown an increasing trend and is estimated at 4.79 MT (Provisional). There is increasing significance of poultry and livestock products in the context of diversifying farm and non-farm activities in the agriculture sector to increase livelihood security.

Innovative model and the vast profitability of milk production

The nutrition of dairy cows takes place in two stages – first, the digestion of feed and second, and the use of nutrients for milk production by the cows. Nutritionists have traditionally focused on helping the rumen microbes make the best use of feedstuffs, while enhancing the digestibility of the nutrients that reach the small intestine. The NEWTON software model shows that one of the most effective rumen modifiers works by supplementing the naturally produced organic acids needed by microbes as intermediates in the digestion process. In many cases, the concentration of these acids in the rumen is insufficient for optimal digestion. Providing these acids as a rumen modifier helps optimize the process. The improved efficiency which VIVALTO has shown in experiments appears similar in milk response to rumen modifiers, but is due to the supply of enzyme cofactors to the cow's liver rather than to the rumen.

How does VIVALTO Work?

There are many metabolic pathways in the liver responsible for turning the products of rumen digestion into nutrients required for milk production, and each of these pathways is associated with a number of enzymes. Enzymes are catalysts for metabolic

reactions, with each enzyme being responsible for one step in the process, for example, alcohol dehydrogenises is involved in one of the steps in the detoxification of alcohols in the liver. A shortage of the enzyme or its cofactor will cause this process to be slowed down.

The impact of enzymes and enzyme cofactors on milk production

The cow's body is composed of multiple cells, with chemical reactions occurring in each cell. For optimal efficiency, the cell will self-regulate through the use of enzyme cofactors. Cofactors bind to the enzyme and modify its activity. If there are occasional shortages of cofactors that inhibit or limit the enzyme's ability to self regulate, the cell will be less productive. These cofactors are usually

"The cofactors provided by
VIVALTO Work in the liver
Rather than in the rumen
To increase milk production"

Remarkable milk yield result with VIVALTO

VIVALTO from calving resulted in a 2.7 kg increase in milk production between calving and 200 days in milk (Figure 1). Since there was no change in dry matter intake, this indicates that VIVALTO acted by improving the efficiency of the cows' use of the available nutrients. How did we achieve these improved results? Again, the answer lies in the enzymes and cofactors in the liver. VIVALTO supplies the enzyme cofactors to make the system work as quickly as possible, so that more of the nutrients from the gut are being converted into substrates

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