

Review Article

Potential of Dairying in Odisha and Roadmap to achieve growth

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Abstract

In Odisha, about half of the rural households own cattle and buffalo and about 80% of the bovine are kept by the small & marginal farmers. A focused intervention in the dairy sector in Odisha will help develop the State's rural economy. There are about 30 lakh milch cattle and buffalo in Odisha, of which about 95% are cattle. The productivity of indigenous cattle is one of the lowest in the country at 1.50 kg per day. This necessitates undertaking a scientific breed improvement programme and increasing AI coverage. In addition, to bridge the deficit of feed and fodder, about 2,100 hectares under perennial fodder production, and 1,400 hectares under seasonal fodder production need to be taken up, besides developing pasture land. The coverage of ration-balancing advisory services needs to be expanded to improve the nutrition of dairy animals. In addition to the National Animal Disease Control Programme of central Government for eradication of FMD and controlling Brucellosis, farmers of the State are to be encouraged to use Ethno-Veterinary Medicines (EVM)- to reduce use of antibiotics for clinical management of common ailments in domestic animals. Along with the interventions to increase milk production in Odisha, it is necessary to provide market linkages to farmers. The dairy cooperatives, being the largest organized player in the State, need to expand their coverage across all the potential villages (around 12600 villages) where milk production is at least 100 litres a day. The share of OMFED and cooperative Unions needs to be increased in milk procurement and milk marketing with a greater focus on value-added products. Odisha also has the opportunity to produce organic milk. The dairy cooperatives can play a major role in promotion of organic milk at least in some pockets of the State. OMFED must take up a rebranding exercise as this will benefit the consumer as well as milk producers of the State. Further, Odisha also needs to adopt manure management model as a farmer with 2-3 animals can earn Rs 3,600 per month through the sale of slurry and saving of LPG.

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Introduction

Odisha is the land of opportunity and is known for its vibrant culture, stunning natural beauty, diverse flora & fauna, and diverse agro-climatic zones. The economy of Odisha is flourishing and the benefits of economic growth & development are being accrued to all - living in villages, cities, or towns. Odisha's economy in 2022-23 is expected to grow at 7.8 percent which is higher than pre-COVID average growth of 7.1 percent [1].

The focused interventions of Govt of Odisha at the village level help accelerate rural development in the State where more than 80% of people live in the rural areas—the highest amongst all the neighbouring States of Odisha. Further in times to come, at least up to 2031, it is expected to remain more or less around 80%, while at the Country level, it is expected to be around 62%. [1].

Hence, very profoundly, it can be said that Odisha lives and will continue to live in villages. Therefore, the development of villages is key for sustained economic growth and prosperity of Odisha. Sambalpur though has witnessed relatively fast growth in urbanisation as around 30% of people lives in urban areas.

Agriculture though remains a major source of occupation both in the State as well as in the Sambalpur district as more than half of the workforce are engaged in agriculture. Agriculture though is characterised by land fragmentation, frequent natural calamities, and low productivity of crops resulting in fluctuation in the income of farmers. The diversification towards cash crops is also very limited as cereals and pulses together account for close to 75% of gross cropped area and it accounts only for about 20% of the value of output of agriculture & allied sector [2].

This situation can be improved with the diversification in agriculture and focusing on allied sectors particularly dairying as it will not only increase the income of the farm households but also has the potential to meet food security, nutrition, generate employment, and help reduce poverty.

Role of Livestock & Present Dairying Scenario

Livestock is one the largest segment of the allied activities of agriculture in Odisha contributing 3% to the GSVA of the State in 2022-23. The livestock sector in the State grew at an annual growth rate of about 12% during the past decade ending 2022-23 [3].

Dairy is one of the largest segments of the livestock sector. An analysis of unit-level data of the latest available Livestock ownership in India, NSSO, GoI [2] showed that about half of the rural households in the State own cattle and buffalo. Further, about 80% of the bovine are kept by the small & marginal farmers. This implies that with specific interventions in dairying in the state, the livelihood of a large number of people will be improved and the rural economy of the State will further be strengthened.

There are about 30 lakh (in-milk & dry) cattle and buffalo in the State, of which about 95% are cattle and more than three-fourths

are low yielding non-descript cows. Sambalpur has around 2% of milch cattle & buffaloes of the State with large number of cattle populations [4].

Odisha produces around 66 lakh kg of milk every day and accounts for about 1% of the country's production. Milk production in the State has increased at an annual growth rate of 3.6% during the past 5 years, as against almost about 6% at the country level [5]. Crossbred cattle contribute maximum of about 67% of the total milk production, while indigenous cow contributes 29% of the milk production [5].

Sambalpur district with milk production of 1.5 lakh kg per day, contributes around 2% of the State's milk production. Similar to the State, crossbred cattle contribute the maximum to the milk production in the district [6].

The productivity of bovine in both the State and Sambalpur district is only 3.0 kg per day, much lower than the national average of 5.61 kg per day. Strikingly, the productivity of indigenous cattle is one of the lowest in the country at 1.50 kg per day. The decomposition analysis reveals that the addition of animals only resulted in the growth of milk production in the State. This is not sustainable as the addition of more animals will only put pressure on the limited resources.

While it is necessary to increase milk production in rural areas, at the same time farmers must get market access to sell their milk. To provide market access to dairy farmers in the State, the dairy cooperatives in the State came into existence under the Operation Flood programme in 1975. The dairy cooperatives now have a presence in around 3,400 villages of the State with a membership of around 3.19 lakh dairy farmers. Women members constitute around 37% of the total membership of the dairy cooperatives. The dairy cooperative in the State collectively procured 4.10 Lakh kg of milk per day, while sale was around 3.50 Lakh litres per day during the year 2022-23 [7]. Besides dairy cooperatives, private players are also making their presence felt and is good for the farmers as they get competitive price.

The dairy cooperatives though continuing to do good work to improve the livelihood of the dairy farmers, it is required to stretch a bit to make the cooperatives vibrant both for the producers and consumers.

The dairy cooperatives need to strive to expand their coverage across the all the potential villages (around 12600 villages) where milk production is at least 100 litres a day. As of now at the State level, instead of achieving growth in in setting up DCS at the village level, during the past five years, on an average 80-85 functional societies are being closed. The milk procurement has declined from 4.9 lakh kg per day in 2018-19 to 4.10 lakh kg per day in 2022-23. Similarly, sale of liquid milk also has declined from about 4.0 lakh litres per day to 3.5 Lakh litres per day.

I firmly believe that farmers' livelihoods can be improved and overall equitable development can be achieved through cooperatives as it is owned and managed by producer members themselves. The dairy cooperatives are the value-based and principle-driven organisation, showed its resilience during the any economic and financial crises, especially during COVID-19. When all the economic activities were closed, dairy cooperatives continued to support the livelihood of farmers through procuring milk.

During the past couple of years, the World has experienced a series of geopolitical uncertainties, be it COVID-19, Ukraine-Russia war,

situation in Israel, increasing climatic risk etc has affected the livelihood of people. With increasing globalisation, geopolitical risk will continue to affect the livelihood of people. The cooperatives which have continued to show resilience against any form of uncertainties, need to reorient and reinvigorate themselves by increasing its all-round capacities to ensure livelihood security even to last-mile dairy farmers.

There are certain structural issues in the dairy sector in Odisha that need attentions of the policy makers. Addressing these issues needs to be taken on priority to ensure dairy sector acts as the growth engine of the rural economy of Odisha.

Productivity of animals

The animal productivity in Odisha is much lower than the national average. This is primarily due to large number of non-descript low-yielding animals. In order to improve the productivity of animals, concerted efforts need to be given in animal breeding, feeding and animal health.

More than 85% of bovines in the State are non-descript indigenous cows having low levels of productivity which calls for undertaking a scientific breed improvement programme for local cows by providing AI services at farmers' doorstep. The AI coverage is about 26% in the State as against the country's average of 35%.

A very specific breeding policy for resourceful and less resourceful farmers may be developed by the State Govt. For resourceful farmers, non-descript cattle may be upgraded with Sahiwal, Gir, Red Sindhi or cross with exotic breeds of Holstein Friesian/Jersey (semen of crossbred bulls with 50% exotic inheritance) and for buffalo with Murrah. As regards less resourceful farmers, Indigenous breed(s) of Rathi, Hariana & Tharparkar may be used for upgrading of cattle and Murrah & Mehsana for buffalo.

Further, as natural service is still prevalent for animal breeding in the villages, the bulls being used for natural service programmes must be regularly tested for various sexually transmitted diseases and other important communicable diseases.

Infertility is a major problem in the State and extensive Fertility Improvement Programme (FIP)/ Awareness programmes on reproductive management at the village level need to be carried out. Focusing on only animal breeding activities will not help improve the productivity of animals, but simultaneous attention is required on animal feeding and health as well.

To bridge the gap between the availability and requirement of various feed and fodder, concerted efforts are required to be made by promoting round-the-year green fodder production, development of pasture land, supply of chaff-cutters and promoting silage making through village DCSs. The advisory services for feeding balanced ration to dairy animals need to be popularized among all dairy farmers. INAPH and Pashu Poshan, the applications developed by NDDB, may readily be used for getting balanced ration formulation based on locally available feed ingredients.

Further, to increase the availability of quality green fodder, a new collective fodder cultivation model may be adopted wherein small agricultural farmers may pool their land to produce green fodder and then enter into forward-contracts for the supply of green fodder throughout the year to dairy farmers in villages /peri-urban areas who

have no /inadequate land of their own. Excess green fodder, if any, can be converted into silage and can be stored for use during the lean season during which demand for fodder is normally high. Training can be imparted to these groups of farmers for growing the right type of fodder and in the techniques of silage preparation by the State Government/ Dairy Cooperatives.

As regards of animal health, prophylactic vaccination against FMD, HS, BQ, Anthrax, Brucellosis, Theileriosis, etc., periodical deworming to prevent production loss and infertility management for attaining higher productivity need to be undertaken. In order to reduce use of antibiotics, farmers need to be oriented and encouraged to use Ethno-Veterinary Medicines (EVM)-a form of Pashu Ayurveda which is essentially for clinical management of common ailments in domestic animals. All these efforts will not only increase productivity of animals but also improve quality of milk.

Milk procurement

As already discussed earlier milk procurement and marketing of dairy cooperatives are declining, while the demand for milk & milk products in the State is increasing.

The dairy cooperatives, being the largest organized player in the State, need to increase the procurement volume as well as membership in the villages. The analysis of milk procurement by village-level dairy cooperative societies (DCS) reveals that on average only 120 litres of milk is being procured by a society. It is important to make the village-level society also function as a profit center as it will motivate them to procure more milk from the villages.

Besides increasing milk procurement from each village, horizontal expansion to potential villages would minimise operational costs and achieve higher operational efficiency. Efforts need to be made to augment the volume of milk collection by expanding village coverage while ensuring a maximum share in milk marketable surplus at village level.

Cold chain infrastructure like bulk milk coolers, chilling centres, milk testing equipment etc. is important to maintain the quality of milk. Proper testing at DCS levels help in checking milk quality and adulteration at the village level. Of the total functional DCSs in Odisha, only about 37% have an Automated Milk Collection Unit (AMCU)/ Data Processing Milk Collection Unit (DPMCU) as compared to 55% at the national level.

The dairy cooperatives may also incentivise the milk producers for supplying milk with higher Solid Not Fat (SNF) content as most of the dairy cooperatives have problems with low SNF levels. This pushes the Dairies to resort to reconstitution of SMP for SNF correction and for meeting the FSSAI standards for packed milk.

Procurement of quality milk at the village level would reduce the cost associated with transportation and processing of milk and would increase the profit margin of dairy cooperatives.

Marketing of milk & milk products

Odisha has a huge demand for milk & milk products as it requires around 80 lakh litres of milk per day. The dairy cooperatives meet only 5% of the demand of the State. As far as Sambalpur is concerned, the dairy cooperatives meet only 15-16% of the total demand of the district. Odisha is a net importer of milk as the demand of about 15 Lakh litres per day is met through milk powder, mostly sourced

from outside the State. The increasing demand of dairy products like paneer, ghee, curd, lassi, Ice Cream, Cheese, whey protein and that of indigenous products like rasogolla, chennapoda, peda, khoa etc are increasing. Now market is not limited only to Odisha and has the scope to cater to the demand of neighbouring States.

A very effective marketing strategy is very important for the OMFED. For any business, consumer connection is one of the most important and defining aspects of success and a strong brand name is one of the most crucial parameters for establishing this connect. OMFED has the advantage of strong connect for many decades but due to stiff competition by other brands and changing consumer preferences, it has been facing various challenges to compete. It is required to make the brand vibrant and appealing in modern times. Recently, Kerala's dairy brand called "Milma" has gone for revamping and rebranding and it has added vibrancy to the brand and received well by the consumers. A similar rebranding exercise of OMFED will ultimately benefit the farmers of the state.

Besides this, in Odisha, dairy cooperatives need to increase sales in smaller towns as the distribution of the urban population in the State reveals that about 55% of the State's urban population resides in small towns (town class 2 to 6), as against the national average of 40%.

For strengthening of marketing activities, the establishment of milk parlours, visi coolers/chest coolers, insulated boxes, and insulated crate are essentials besides training & capacity building of marketing personnel. New marketing strategies are required to be aggressively undertaken by the dairy cooperatives, such as, home delivery through development of sales apps, tying up with online food delivery platforms like Swiggy, Bigbasket, Grofers etc.

Moreover, since present-day urban educated consumers attach more value to quality and health, the marketing approach needs to address consumer preferences through the introduction of immunity-boosting products like haldi dudh, fortified milk with vitamins, etc.

Promoting organic milk production

Organic milk is a form of pure milk that is produced in dairy farms with the help of organic farm practices and without using or using the least quantity of antibiotics, pesticides, and hormones. This milk is usually packed in glass bottles and sold in the market.

The market for organic milk in India was worth Rs 8 Billion in 2022 and growing at an exponential rate of about 28% per annum. Although, in Odisha, it is a very niche segment and has a limited market, but with the increasing health awareness among the consumers, the trend is catching up in Tier-I and Tier-II cities. Most of the customers who have higher disposable income are looking for farm-fresh organic milk. There are many dairy startups now selling organic milk in large cities of the country including in Bhubaneswar.

Odisha has the opportunity to produce organic milk at large scale, with a system in place, as in many areas of the State, dairy production systems is very traditionally followed with very limited or no use of antibiotics and hormones. Sambalpur district has the opportunity to produce organic milk as almost half of its area is under forest and tribal people who resides near forest are mostly producing organic milk. The development of Eco-System for production and marketing of organic milk & milk products is very important.

The dairy cooperatives can play major role in promotion of organic milk at least in some pockets of the State. The Ministry of Cooperation, Govt of India has established National Cooperative Organics Ltd (NCOL) with NDDDB as its Chief Promoter. It will promote aggregation, branding & marketing of organic products produced by cooperatives by facilitating various activities besides creation of a knowledge repository. It would help India realise its potential to become a global leader in organic products including in milk & milk products.

Promoting Integrated Farming practices

Under the present context and to improve the income of the farmers in Odisha, there is a need for integrating agriculture, horticulture, fisheries, poultry and goatery enterprises along with dairy animal rearing in a holistic and scientific way.

This approach effectively uses the by-product of one activity as an input for others. For instance, crop residue is used for feeding dairy animals, while cow dung is used as fertilizer for crops, bio-gas generations for household cooking and slurry as feed for fish.

Innovation within the systems would make it further appealing and remunerative for the farmers. As animal rearing remains an integral component of integrated farming systems. NDDDB has started to work towards developing a sustainable manure management model. The biogas generated by these units is used for cooking, replacing fossil fuel-based cooking gas cylinders, dung cakes, and firewood. The slurry generated from the biogas plant is used to produce bio-fertilizers, Phosphate Rich Organic Manure (PROM), and different grades of fortified liquid slurry under the brand name "Sudhan", providing a source of additional income to the farmers. The procured slurry is then processed to manufacture slurry-based value-added products and the dairy cooperative milk Union acts as a forward linkage for marketing these products.

This helps in reducing the application of chemical-based fertilizers, improving in soil health and productivity of different crops including vegetables. It has the potential to improve the organic production of milk as well as agricultural crops.

A farmer with 2-3 animals can earn Rs 3,600 per month through the sale of slurry and saving of LPG [8]. Odisha has more than 10 million cattle and buffalo which together produce dung of about 34 million tonnes (MT) per year which can generate around 1360 million cubic meter of biogas per year and 10 MT slurry per year which will be sufficient to meet about 68% of NPK in terms of nutrient availability for soil consumption need of the state.

Action Plan

For breed improvement, Artificial Insemination (AI) is required to be extensively undertaken, over a period of 5 years, to increase the AI coverage from the present 26% to 50%. This would require about 40 Lakh semen doses which can be met from the Cuttack semen station strengthened under NDP I and by procuring semen doses from other A and B graded semen stations in the country. Liquid Nitrogen silos would also be required in each of the districts for ensuring an uninterrupted supply of liquid nitrogen. About 37,000 infertility camps should be organised through existing veterinary institutions to cover about 36 lakh animals. These activities are largely undertaken by the Fisheries and Animal Resources Development Department (FARDD), GoO, which can avail central assistance for the same.

To improve the nutrition of dairy animals in the State, ration-balancing advisory services may be provided to 80,000 animals from 4,000 villages. A calf rearing programme (CRP) covering 1,500 calves may be taken up to reduce calf mortality rates and age at first calving by improving growth rates in the early phase of animals' life. For year-round green fodder production- about 2,100 hectares under perennial fodder, 1,400 hectares under seasonal fodder may be covered and 100 hectares of pasture land may be developed. This should be supplemented by providing 10,000 chaff cutters and promoting silage-making through village DCSs.

It is important to eradicate economically important dairy animal diseases, like Foot & Mouth Disease (FMD), Haemorrhagic Septicaemia (HS), Black Quarter (BQ), Brucellosis, Theileriosis etc. for sustainable animal husbandry practices in the State. The GoI has already taken up an ambitious National Animal Disease Control Programme (NADCP) in all States and UTs including Odisha for control of Foot and Mouth Disease (FMD) and brucellosis. Under this programme, all the susceptible population of cattle, buffalo, sheep, goat and pig are being vaccinated at six-month interval against FMD while female calf of 4-8 months are being vaccinated once in a life time for Brucellosis. In Odisha sporadic FMD outbreaks have been reported during last few years and it is believed that with regular FMD vaccination this infection could be controlled in the State.

As far as milk procurement is concerned, the State should aim to increase milk procurement to 7 lakh Kg per day from the present level of about 4 lakh Kg by the next five years. Since large numbers of DCSs supply less than 100 KgPD milk, the Federation should identify and target these DCS to increase/optimize per DCS milk procurement. The village-level institutions should be strengthened by providing an additional 3000 AMCU/ DPMCU and 200 BMCs to the potential dairy cooperatives. Further, Dairy plant/ processing facility handling 30,000 litres per day may be equipped with Milkoscan. This would help create transparency in the system and gain both the farmers' and consumers' trust.

Similarly, by the next five years, cooperatives should aim to increase milk sales from about 3.5 LLPD to 5.5 LLPD with a greater focus on increasing the share of value-added products. OMFED must take up a rebranding exercise with the support of NDDDB as this will ultimately benefit the consumer as well as milk producers of the State. Besides, an active presence in Facebook, X, Instagram etc is required as showcasing the activities of OMFED will develop brand awareness amongst consumers, especially with young generations. OMFED needs to open at least 10 Modern Milk booths each year across major cities and towns as this will help achieve a good impression of the dairy cooperatives. OMFED needs to increase organised milk marketing in small towns with better penetration of retail networks in these towns. The retailers should be advised to keep the packed milk in Visi coolers or at least in insulated boxes. The Federation also needs to develop a mechanism to address consumer complaints/ reply to feedback by developing a dedicated customer helpline. Timelines must be set for the redressal of different types of consumer complaints.

Implementation of a comprehensive manure value chain scheme will augment the farmers' income. This needs to be piloted in at least 2 villages in each district each year with the support of NDDDB. Hence, a total 300 villages can be covered during the period of 5 years. The benefits of cow dung to increase income as well as promotion of organic fertiliser need to be propagated and popularised. The expenses can be shared by farmers, dairy cooperatives and the Government.

Also, to promote integrated farming for better livelihood security of the farmers, one integrated farming unit may be set up in each of the district every year through Start-ups/Entrepreneurs. Hence, by end of 5th year, a total of 150 units would be set up across the State. This will help understand and develop different regional integrated farming model for increasing income of the farmers.

Overall, the growth potential of this sector can be tapped further with the engagement and focused approach of all the stakeholders. The existing gaps in the sector can be effectively addressed through appropriate strategies and policies with targeted public investment.

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