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Current status, challenges and improvement strategies of livestock and poultry production in Odisha and achievements of development schemes

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Abstract
Livestock and poultry production form a cornerstone of Odisha's rural economy, contributing significantly to household nutrition, employment, and income generation. The present study was undertaken to assess the current status, challenges, and improvement strategies of livestock and poultry farming in the state while highlighting the achievements of various government schemes. Data from the 20th Livestock Census (2019), Basic Animal Husbandry Statistics (2024), and other secondary sources were used to analyze trends in animal population, milk, meat, and egg production. Odisha accounts for 4.05% of India's total livestock population and contributes 7.25% to its Net State Domestic Product (NSDP). The state houses approximately 9.9 million cattle, 6.39 million goats, and 27.4 million poultry birds. In 2023-24, Odisha produced 2635.99 thousand tonnes of milk, 242.30 thousand tonnes of meat, and 37,229.33 lakh eggs. Despite these achievements, per capita availability of milk, meat, and eggs remains lower than national averages. The sector faces major constraints such as low productivity of indigenous breeds, inadequate veterinary infrastructure, fodder shortages, frequent disease outbreaks, and vulnerability to natural disasters. Socio-economic challenges including poverty, poor market access, and limited participation of women further limit progress. Improvement strategies emphasize genetic enhancement through crossbreeding and conservation, feed and fodder development, vaccination and biosecurity measures, and adoption of dual-purpose poultry varieties. Several schemes, including the Dairy Entrepreneur Development Scheme, Integrated Livestock Development Programme, and backyard poultry initiatives, have contributed to productivity gains and inclusive livelihood opportunities, particularly for women and marginalized groups. Future strategies call for climate-resilient practices, expanded veterinary outreach, improved market infrastructure, and enhanced community participation. Overall, strengthening livestock and poultry production in Odisha is vital for ensuring food security, income stability, and rural development.

Keywords: Livestock, poultry, Odisha, milk production, meat production, egg production

Introduction
Livestock and poultry farming play an essential role in Odisha's rural economy. More than eighty percent of rural households rear at least one species of animal, which provides milk, meat, eggs, manure, and draft power while also serving as a source of cash income and social security. Despite their importance, the sector is affected by many challenges such as low productivity, disease risks, poor infrastructure, and frequent natural disasters. At the same time, the government has launched various projects and schemes to address these issues, focusing on breed improvement, disease control, feed development, and farmer support. Together, these challenges and responses shape the present and future of livestock and poultry farming in Odisha.

Current status of Livestock and Poultry Production in India
Livestock & Poultry rearing is the second most important economic activity in the eastern India state after crop farming. In terms of area, Odisha is the 8th largest state of India and has a rich source of natural resources with biodiversity. The State has an estimated human population of about 41.97 million which consist of 3.47% of the population of India (As per 2011 Census). Approximately 83% of the whole population the state is rural based. Among the rural population, more than 80% own livestock, which generates up to 30% of the income

of small-scale, marginal and landless farmers. Thus, livestock and poultry farming has been an integral part of the rural livelihood system in whole Odisha. Like agriculture, the livestock production is the endeavour of small and marginal farmers. More than 80% of the rural household's own livestock and poultry to get milk, meat, egg, skin, bone, manure and draught power and employment for their own purpose or to maintain their livelihood. About 85% of the population of this state are non-vegetarian. The livestock and poultry farming in Odisha is a crucial component of the rural economy, being both livelihood-oriented and intensive. It plays a significant role in improving household income, ensuring nutritional security, and generating employment, especially in rural and tribal regions.

According to the 20th Livestock Census (2019) [1], Odisha has witnessed a substantial growth in its livestock population, with cattle, buffaloes, goats, sheep, and poultry forming the backbone of this sector. The state contributes approximately 4.05% of India's total livestock population as per the 20th Livestock Census (2019) [1]. The sector accounts for 7.25% of Odisha's Net State Domestic Product (NSDP), reflecting its economic importance. The state houses approximately 9.9 million cattle, 0.46 million buffaloes, 6.39 million goats, and 1.28 million sheep. Poultry farming has shown a remarkable surge, crossing 27.4 million birds in recent years, reflecting growing opportunities for farmers and entrepreneurs alike. As per the Basic Animal Husbandry Statistics 2024, Odisha ranks 10th in egg production 12th in meat production, and 15th in milk production among Indian states.

Population of Livestock and poultry

Name of different Species	India (in millions)	Odisha (in millions)	% share in the Country's population
Cattle	192.49	9.9	5.12
Buffalo	109.85	0.46	0.42
Sheep	74.26	1.28	1.72
Goat	148.88	6.39	4.29
Pig	9.06	0.135	1.49
Total Livestock	536.76	18.17	3.39
Total Poultry	851.51	27.4	3.22

(**Source:** 20th Livestock Census, 2019) [1]

Milk production

Total Milk production of Odisha during 2023-24 was 2635.99 thousand tones. The annual growth of the milk production in the state is 6.44%. As per the Basic Animal Husbandry Statistics 2024, Govt of India, Total numbers of exotic/crossbred milch cattle were 679.08 thousand with the average milk yield of 6.84 kg/animal/day. Total numbers of non-descript/indigenous milch cow were 1548.58 thousand. The average milk yield by the non-descript/indigenous cow was 1.55 kg/day/animal. Total buffaloes in milking were 87.96 thousand numbers with average daily milk yield by the of 1.73 kg/day/animal. Total numbers of goats in milch are 101.53 thousand with average yield of around 0.12 kg/day/animal. Per capita availability of milk in Odisha during 2023-24 was 156 g/day while the ICMR recommendation is 280 g/day/person.

Contribution in the total Milk production by different Livestock Species

Different categories of Milch animals	Exotic/Crossbred cow		Non-descript/Indigenous cow		Buffalo		Goats	
Year	2022-23	2023-2024	2022-23	2023-24	2022-23	2023-24	2022-23	2023-24
Total number of animals (figures in '000 Nos.)	634.38	679.08	1464.72	1548.58	83.80	87.96	98.38	101.53
Average yield per in milk animal (figures in kg/day/animal)	6.86	6.84	1.56	1.55	1.65	1.73	0.12	0.12
Milk production (figures in '000 tonnes)	1587.34	1699	834.26	876.77	50.45	55.73	4.37	4.49

(**Source:** Basic Animal Husbandry Statistics 2024, Govt of India)

Meat Production

In the 2023-24, Total meat production in Odisha was 242.30 thousand tones. Per capita availability of meat in 2023-24 was 5.24 kg/annum while the National per capita availability is 7.39 kg/annum. Contribution of different species in the total meat production in different years are mentioned as follows:

Meat production in Odisha during 2022-23 and 2023-24

Meat production from Different species	Number of animals slaughtered for meat production (figures in 000 Nos)		Meat production (figures in '000 tones)	
	2022-23	2023-2024	2022-23	2023-2024
Sheep	1350.74	1324.63	15.51	15.70
Goat	6669.25	6864.46	81.42	86.59
Pig	98.36	98.36	3.54	3.65
Poultry	81221.58	84811.62	126.40	136.36

(**Source:** Basic Animal Husbandry Statistics 2024, Govt of India)

Egg Production

During the 2023-24, Total egg production in Odisha was 37229.33 lakhs. The per capita availability of eggs during 2023-24 is around 80 eggs/annum/person, while the per capita availability in all India is 103 eggs/person/annum.

Contribution of Backyard poultry in the total egg production

Different categories of poultry	Numbers of layers from backyard poultry (figures in 000 Nos)		The average yield per year per layer of egg from backyard poultry (figures in numbers)		Egg production from backyard poultry (Figures in lakh nos.)	
Year	2022-23	2023-2024	2022-23	2023-2024	2022-23	2023-2024
Desi fowl	4048.73	4158.08	66.41	87.38	2688.77	3633.40
Improved fowl	435.91	491.02	126.39	119.89	550.96	588.67
Desi ducks	122.74	122.26	69.84	67.76	85.72	82.85
Improved ducks	13.24	15.28	154.21	140.72	20.42	21.51

(**Source:** Basic Animal Husbandry Statistics 2024, Govt of India)

Contribution of Commercial Poultry in the total egg production

Different categories of poultry	Numbers of layers from commercial poultry farms (figures in 000 Nos)		The average yield per year per layer from commercial poultry farms (figures in numbers)		Egg production from commercial poultry farms (figures in lakh nos.)	
Year	2022-23	2023-2024	2022-23	2023-2024	2022-23	2023-2024
Desi fowl	0.00	0.00	-	-	0.00	0.00
Improved fowl	9976.46	10368.90	308.35	317.32	30762.30	32902.90
Desi ducks	0.00	0.00	-	0.00	0.00	0.00
Improved ducks	0.01	0.00	224.39	-	0.02	0.00

(**Source:** Basic Animal Husbandry Statistics 2024, Govt of India)

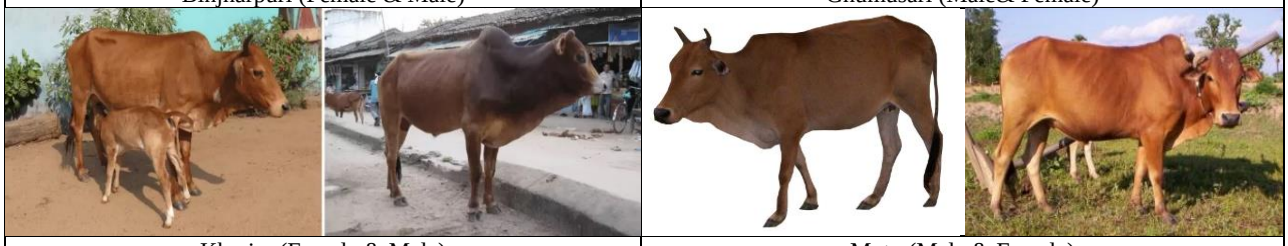
Breeds of Livestock and Poultry of Odisha

Odisha has a robust livestock resource rich in biodiversity. As per NBAGR, Odisha has twelve registered breeds of livestock and poultry that includes cattle (4), buffalo (3), sheep (3), goat (1) and chicken (1). The cattle breeds in Odisha are Ghumusari, Binjharpuri, Khariar & Motu. The buffalo breeds are Manda, Chilika & Kalahandi. The cattle and buffalo breeds which are found in Odisha have good qualities for growth, reproduction and survivability under summer and saline harsh conditions and they are also known for their high disease resistant capability. The registered goat breed from Odisha is Ganjam. Some other goats like Black Bengal, Malkangiri, Raighar, Narayanapatna, Koraput hill goat are also found in Odisha. The Sheep breeds from Odisha are Balangir, kendrapara, and Ganjam. The sheep and goat breeds found in Odisha are known for their resistance to common endoparasites. They are highly prolific and possess the exceptional quality to survive in water logging conditions. The only registered breed of chicken from Odhisa is Hansli. However, some other type of chicken like Kalahandi, Vezaguda, Dhinki, Hazra and Phulbani are also commonly in Odisha. Assel, another important indigenous chicken breeds of India which is well known for its pugnacity, majestic gait, agility, and high stamina is also present in different parts of Orissa.

Registered Livestock and Poultry Breeds of Odisha

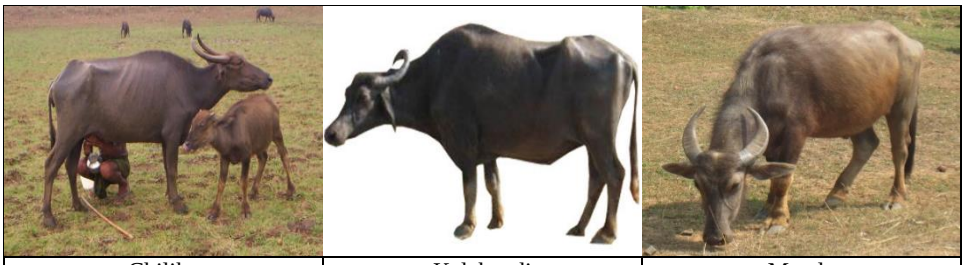
Cattle	Buffalo	Sheep	Goat	Chicken
1. Binjharpuri	1. Chilika	1. Balangir	1. Ganjam	1. Hansli
2. Ghumusari	2. Kalahandi	2. Ganjam		
3. Khariar	3. Manda	3. Kendrapara		
4. Motu				

Binjharpuri (Female & Male) Ghumusari (Male& Female)



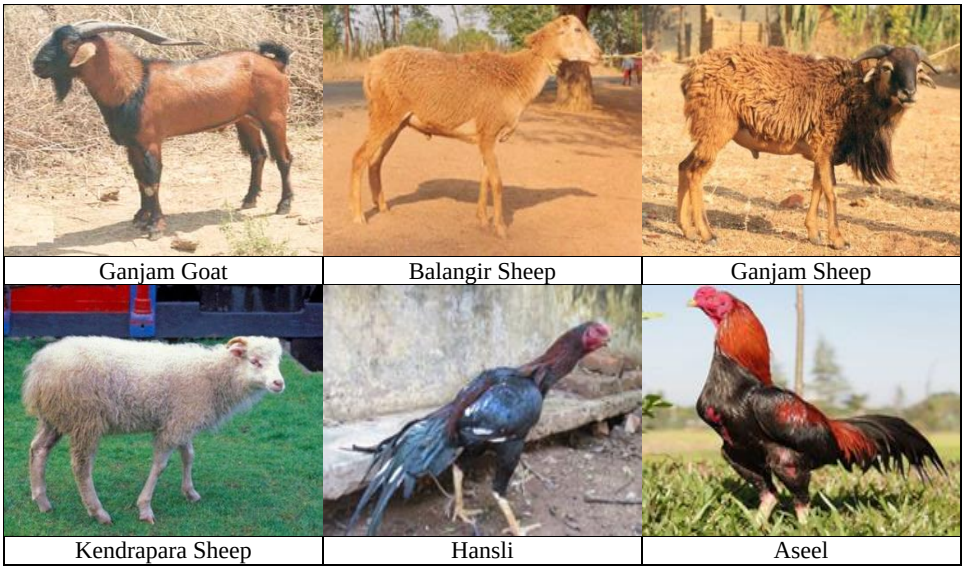
Khariar (Female & Male) Motu (Male & Female)

Cattle Breeds of Odisha



Chilika	Kalahandi	Manda

Registered Buffalo Breeds of Odisha



Ganjam Goat	Balangir Sheep	Ganjam Sheep
Kendrapara Sheep	Hansli	Aseel

(**Source:** https://olrds.nic.in/; https://www.nbagr.in)

Different Goat, Sheep & Chicken breeds of Odisha

Challenges in Livestock Farming

Odisha has a rich biodiversity of indigenous breeds including Binjharpuri, Ghumsuri, Khariar, and Motu cattle, as well as Black Bengal goats and Ganjam sheep. While these animals are hardy and well adapted to local conditions, they have low milk and meat yields compared to crossbred or exotic breeds. Crossbreeding programmes have not yet reached their full potential, and this has limited overall productivity. Odisha has a significant cattle population, but its share in national milk production remains low (Behera *et al*., 2023) [6].

Veterinary infrastructure is another weak point. The state has only one frozen semen bank for cattle and none for small ruminants. Veterinary hospitals and artificial insemination centers are overstretched, and many farmers in remote regions lack timely access to veterinary services and vaccinations. This has made it difficult to control frequent disease outbreaks such as Foot and Mouth Disease, Hemorrhagic Septicemia, Black Quarter, and Peste des Petits Ruminants (Puro & Sen, 2022) [14].

Natural disasters compound these issues. Odisha is prone to cyclones, floods, and droughts, which frequently devastate livestock holdings and destroy infrastructure. Cyclones such as Phailin, Fani, and Amphan caused large-scale losses of animals and housing structures (Government of India, 2000). Furthermore, socio-economic barriers such as poverty, illiteracy, and limited access to credit make it difficult for smallholder and landless farmers to adopt modern practices. Women play a central role in livestock care, but they often face exclusion from training, decision-making, and access to resources (Anil Kumar, 2016) [2].

Challenges in Poultry Farming

The poultry sector in Odisha also faces unique difficulties. Commercial farms dominate the sector and account for nearly 87 percent of egg production, while backyard poultry contributes only 13 percent despite its importance for rural nutrition and income. Feed shortages are a serious problem, with the state facing a deficit of nearly 48 percent in green fodder and 24 percent in dry fodder. Rising feed costs reduce profitability for small poultry farmers (Behera *et al*., 2023) [6].

Disease outbreaks are frequent. Avian Influenza and Newcastle Disease cause high mortality in both commercial and backyard poultry systems. In rural areas, low biosecurity and limited veterinary access increase the risk of disease spread. Farmers also face marketing problems due to poor infrastructure, lack of organized markets, and absence of cold storage facilities. As a result, producers experience price fluctuations, wastage, and low bargaining power. Poultry farms are also highly vulnerable to natural disasters, with cyclones and floods destroying thousands of units and leading to huge economic losses (Behera *et al*., 2023) [6].

Improvement Strategies

To overcome these challenges, several improvement strategies have been identified. Genetic improvement of livestock through selective breeding, artificial insemination, and embryo transfer is being promoted to increase productivity and conserve indigenous breeds. In poultry, improved dual-purpose varieties such as Vanaraja, Gramapriya, and Kalinga Brown are introduced in rural areas to provide both eggs and meat (Padhi, 2013; Bahta *et al*., 2022a) [13, 3].

Feeding and nutrition improvement is another key area. Balanced rations, use of crop residues, silage making, and adoption of unconventional feeds like Azolla are recommended to overcome fodder shortages (Sahoo & Samal, 2013) [17]. In poultry, alternative feed resources such as agro-industrial byproducts and insect protein are being explored to reduce dependence on conventional ingredients (Ramesh *et al*., 2024) [15].

Disease control relies on vaccination campaigns, preventive health care, and strengthening of veterinary infrastructure. Biosecurity measures and reduced use of antibiotics are also emphasized to address resistance and safeguard public health. Clean milk production, better animal housing, and improved handling practices have been encouraged to ensure product safety and quality (Sahoo & Samal, 2013) [17].

Women's empowerment is considered central to livestock development. Women's cooperatives, training, and greater access to resources such as credit, technology, and extension services are seen as essential for improving productivity and livelihoods (Anil Kumar, 2016) [2].

Achievement of Schemes and Projects

Odisha has launched several state and central schemes to address these challenges. The Dairy Entrepreneur Development Scheme (DEDS) provides back-ended subsidies through NABARD to establish modern dairy farms and promote clean milk production. The Integrated Livestock Development Programme (ILDP) focuses on producing improved animals from local breeds through artificial insemination and creating employment opportunities, especially for women (Cattle Development Scheme, 2018-19) [8].

The state has also implemented backyard poultry and duckery schemes that distribute improved low-input birds and ducklings to marginalized groups including SC, ST, and women farmers. These schemes provide 100 percent subsidy support along with training and veterinary backup. Each poultry unit is estimated to generate over Rs. 13,000 net profit per year, while duckery units can provide around Rs. 17,900 annually (Improvement of Livestock and Poultry, 2023).

Small ruminant development schemes have promoted goat and sheep farming, with support for shed construction, breed upgrading, and veterinary services. In the dairy sector, OMFED has played a key role in procurement, processing, and marketing, while central schemes like the National Livestock Mission (NLM) and KALIA scheme have provided financial and technical support for livestock and poultry production.

These projects have resulted in growth in egg, milk, and meat production, with thousands of smallholder farmers benefiting each year. Importantly, they have also targeted women, tribal communities, and landless farmers, thereby promoting inclusiveness and equity (Bahta *et al*., 2022b; Rath *et al*., 2022) [3, 16].

Future Strategies

To ensure sustainable growth of livestock and poultry farming in Odisha, future efforts must focus on climate-resilient practices. Establishing fodder banks and silvipasture systems can help overcome feed shortages during floods and droughts. Breed conservation programmes must be strengthened to preserve indigenous genetic resources. Expanding veterinary services through mobile clinics and trained community workers will help control diseases more effectively.

At the same time, investment in cold chain, processing plants, and organized marketing will reduce losses and improve farmer incomes. Promoting renewable energy, waste management, and environmentally friendly housing systems will address sustainability concerns. Finally, empowering women and youth with training, access to credit, and leadership opportunities in cooperatives will enhance livelihoods and strengthen rural economies.

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