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LIVESTOCK SECTOR

SYLLABUS:

GS 3 > Economic Development >> Agriculture

REFERENCE NEWS:

The Department of Animal Husbandry & Dairying (DAHD), Government of India, under the Entrepreneurship Development component of the National Livestock Mission (NLM), provides **50% capital subsidy (up to ₹50 lakh)** for establishing rural livestock-based enterprises such as poultry, small ruminant, pig, camel/horse/donkey breeding farms, and fodder value-addition units. The entire scheme is fully digitalized.

Overall Progress under NLM Entrepreneurship Development

Category	Projects	Project Cost (₹ Cr.)	Subsidy (₹ Cr.)	Capacity Created
Feed & Fodder	129	120.62	52.86	4.65 lakh MTPA
Small Ruminants (Sheep & Goat)	3169	2240.40	1050.34	11.43 lakh animals
Piggery	338	200.13	80.63	0.32 lakh pigs
Rural Poultry	207	111.50	49.86	2.31 lakh birds

- **Feed & Fodder Sub-Mission:** Under NLM's Sub-Mission on Feed and Fodder Development, realigned in 2021 and modified in 2024, **50% capital subsidy (up to ₹50 lakh)** is provided for private establishment of fodder seed processing, grading, and storage infrastructure.
- **Animal Husbandry Infrastructure Development Fund (AHIDF)** promotes private investment through **interest subvention** for Dairy and meat processing/value-addition, Animal feed plants, Breed improvement and multiplication farms, Veterinary vaccines/drugs, Animal waste-to-wealth projects, Wool processing.

LIVESTOCK SECTOR OF INDIA:

- The livestock sector accounts for approximately **30% of India's agricultural GDP** and **4.1% of the overall GDP** as of 2021-22, making it a major contributor to rural economies.

- In states like **Punjab, Haryana, and Rajasthan**, livestock contributes significantly to agricultural output, especially through dairy farming.
- The livestock sector has grown at a rate of **8.2%** annually, outperforming other agricultural subsectors. This growth is largely driven by increased demand for **milk, meat, and eggs** due to rising incomes and population.
- The livestock sector provides employment to **8.8%** of the country's workforce, particularly benefiting **marginal and small farmers** who depend on livestock for supplementary income.
- Nearly **70 million rural households** engage in dairy activities, generating a stable income even during non-cropping seasons.
- Women constitute over **69%** of the workforce in livestock rearing, particularly in dairy, poultry, and small ruminant farming.
 - Women's involvement is especially high in **states like Rajasthan and Uttar Pradesh**, where livestock rearing is often the primary income source for many households.
- India is the largest milk producer globally, with an output of **221 million tonnes** in 2022-23, accounting for **23%** of world milk production.
 - The **National Dairy Development Board (NDDB)**, through initiatives like **Operation Flood**, has helped India achieve self-sufficiency in milk production, ensuring affordable milk supply.
- Meat and egg production have increased, contributing to affordable protein sources in Indian diets.
 - Poultry production, growing at an annual rate of **6-8%**, provides over **100 billion eggs** annually, supporting dietary needs and contributing to the poultry industry's growth.
- Livestock offers a reliable source of income for farmers, helping mitigate the impact of **crop failures due to climate variability**.
 - In drought-prone areas like **Rajasthan and Maharashtra**, livestock rearing provides a steady income during low rainfall periods, reducing vulnerability for rural households.
- **Dairy cooperatives** like **Amul** have enabled stable pricing and a secure market for milk, benefiting millions of small farmers.
 - Over **1.7 crore** dairy farmers are part of India's cooperative network, which ensures income stability and market access.
- India is a leading exporter of **buffalo meat** and **animal by-products** like leather, adding to foreign exchange earnings.
 - In 2021-22, India's livestock product exports, primarily buffalo meat, were valued at approximately **\$3.6 billion**. The **leather industry**, centered in states like **Tamil Nadu and Uttar Pradesh**, heavily relies on livestock for raw materials, contributing to India's manufacturing and export sector.
- The dairy sector supports allied industries like **processing, packaging, and logistics**, which generate additional employment and income.
 - The **milk processing industry** in India is worth about **₹10 lakh crore**, supporting various small-scale and large-scale dairy processors and creating significant job opportunities.
- Poultry production drives demand for **animal feed and veterinary services**, supporting sectors like feed manufacturing and pharmaceuticals.
 - The Indian animal feed market, projected to grow at **5-6% annually**, serves the expanding livestock sector by providing nutritionally balanced feed.
- Animal manure is a valuable resource for **organic farming**, improving soil fertility and reducing dependence on chemical fertilizers.

- In states like **Karnataka** and **Madhya Pradesh**, livestock manure is increasingly used to support sustainable farming practices.
- Dung from livestock is used to produce **biogas**, an environmentally friendly energy source in rural areas.
 - The **National Biogas and Manure Management Programme (NBMMP)** promotes biogas production from cattle dung, providing cooking fuel and reducing dependency on firewood.

CHALLENGES OF LIVESTOCK SECTOR IN INDIA:

- **Low Productivity of Indigenous Breeds:** Indigenous cattle breeds have lower milk yields compared to crossbreeds and exotic varieties.
 - The average milk yield for indigenous cattle is only **3-4 litres per day**, while crossbreeds can yield **10-12 litres per day**. India's average milk yield is **1,774 kg per animal per year**, lower than the global average of 2,310 kg per animal per year.
- **Inadequate Veterinary Healthcare and Infrastructure:** India has a limited number of veterinary professionals and facilities, particularly in rural areas where livestock density is high.
 - India has only **one veterinary doctor for every 5,000 animals**, leading to poor access to timely healthcare.
- **High Disease Incidence:** Diseases like **foot-and-mouth disease (FMD)** and **brucellosis** affect livestock productivity and increase mortality.
 - FMD causes **annual economic losses of around ₹20,000 crore**, primarily in terms of reduced milk yield.
- **Poor Quality of Feed and Fodder:** India faces a shortage of quality feed and fodder, affecting livestock health and productivity.
 - India has a deficit of **36% green fodder** and **11% dry fodder**, which affects milk production and reproductive efficiency.
- **Dependence on Crop Residue:** In rural areas, livestock rely heavily on **crop residue** rather than balanced feed, which lacks essential nutrients.
 - In states like **Uttar Pradesh and Bihar**, cattle diets are often based on paddy or wheat straw, leading to lower productivity and poor health.
- **Lack of Access to Organized Markets:** Farmers often sell livestock products in unorganized markets, where they receive low prices due to middlemen.
 - Small dairy farmers in states like **Rajasthan and Uttar Pradesh** often struggle to secure fair prices for milk due to the absence of cooperative networks.
- **Limited Processing Facilities:** Due to inadequate cold chain and processing infrastructure, a significant quantity of milk and meat is wasted.
 - Only **20-25% of India's milk production** is processed, much lower than developed countries, impacting rural incomes.
- **Climate Change and Environmental Stress:** Rising temperatures and erratic weather patterns affect the productivity and health of livestock, particularly dairy cattle.
 - Heat stress in states like **Rajasthan and Gujarat** has led to decreased milk yields and higher mortality rates during summer.
- **Degradation of Grazing Lands:** Overgrazing, deforestation, and urbanization have led to the degradation of grazing lands, affecting the availability of natural fodder.

- India's grazing land has declined from **10 million hectares in 2000** to **8 million hectares in 2022**, increasing dependency on cultivated fodder.
- **Financial Constraints and Limited Credit Access:** Rising feed, healthcare, and maintenance costs make livestock rearing costly for small and marginal farmers.
 - Small-scale dairy farmers in **Andhra Pradesh** often face difficulties accessing affordable feed and veterinary services.
- **Limited Access to Credit and Insurance:** Many livestock farmers lack access to formal credit and insurance facilities, making it difficult to invest in improved breeds, quality feed, and healthcare.
 - Only **7% of cattle in India** are insured, leaving farmers vulnerable to economic losses from livestock deaths or disease outbreaks.
- **Low Adoption of Modern Technology:** Although Artificial insemination can improve breed quality and productivity, its adoption remains low, especially in remote rural areas.
 - The AI coverage in India is around **30%**, compared to over 60% in developed countries.
- **Inadequate Cold Chain for Milk and Meat Products:** Due to the lack of a robust cold chain infrastructure, milk and meat spoilage rates are high, reducing profits for livestock farmers.
 - Rural dairy farmers in **Bihar** and **West Bengal** report high milk spoilage during the summer due to inadequate cooling facilities.
- **Disease Surveillance and Biosecurity Challenges:** Weak disease surveillance systems increase the risk of outbreaks, impacting livestock health and export potential.
 - The lack of adequate biosecurity measures was evident in the spread of avian influenza in poultry farms in **Maharashtra** and **Haryana**.

WAY FORWARD:

- **Improving Productivity through Breeding and Genetic Resources:** **Brazil's Genetic Improvement Program** has achieved remarkable success in beef production through genetic improvement programs focusing on traits like disease resistance and growth rate.
- **Expanding Access to Quality Veterinary Services:** **New Zealand's Integrated Veterinary Services** has an extensive veterinary network, with a focus on preventive care and disease management, reducing livestock mortality rates and improving health outcomes.
- **Enhancing Feed and Fodder Availability:** **Denmark's Efficient Feed Management** has optimized feed efficiency by using balanced diets and nutrient management, reducing reliance on grazing lands and lowering feed costs.
- **Leveraging Technology for Enhanced Productivity and Efficiency:** **Canada's Precision Livestock Farming** uses technologies like sensors and data analytics to monitor livestock health, feeding, and reproduction, optimizing resource use and productivity.
- **Sustainable Livestock and Environmental Management:** **Netherlands' Low-Emission Livestock Systems** implements low-emission livestock practices by promoting manure management, precision feeding, and biogas production from livestock waste.
- **Expanding Market Access and Processing Facilities:** **Ireland's Cooperative Dairy Model** relies on farmer cooperatives that provide market access, processing facilities, and fair pricing, ensuring farmers receive higher returns.
- **Financial and Insurance Support for Risk Mitigation:** **Kenya's Index-Based Livestock Insurance (IBLI)** has developed an **index-based insurance** system for livestock, protecting farmers from losses due to drought and disease.

- **Promoting Research and Development (R&D):** Australia's Research-Driven Livestock Sector has a strong focus on livestock R&D, investing in genetic improvement, climate-resilient breeds, and disease control, which has enhanced productivity and sustainability.

KEY INITIATIVES TO STRENGTHEN THE LIVESTOCK SECTOR IN INDIA:

National Initiatives

- **Livestock Health and Disease Control (LHDC) Programme:** A centrally sponsored programme aimed at improving animal health through:
 - **Prevention, control, and eradication of major livestock diseases** (e.g., foot-and-mouth disease, PPR, brucellosis).
 - **Strengthening of veterinary infrastructure**, including diagnostic labs and mobile units.
 - **Regular vaccination campaigns** to reduce disease burden and mortality.
 - **Surveillance and monitoring systems** to detect outbreaks early.
 - LHDC enhances productivity and ensures safe animal-based food products.
- **National Animal Disease Control Programme (NADCP):** A flagship programme with a budget of **over ₹13,000 crore**, aiming for:
 - **100% vaccination** of cattle, buffalo, sheep, goats, and pigs against **FMD and brucellosis**
 - **Nationwide ear-tagging** of all animals for unique identification.
 - **Zero disease status** for FMD and Brucellosis in the long term.
 - Improved productivity in dairy and meat sectors by reducing disease losses.
- **National Livestock Mission (NLM):** Realigned in 2021 and expanded in 2024, NLM enhances entrepreneurship and productivity through:
 - **50% capital subsidy up to ₹50 lakh** for rural poultry, piggery, goat/sheep farms, feed and fodder units, and seed processing.
 - Promoting **breed improvement**, fodder availability, and scientific management.
 - Supporting **FPOs, SHGs, cooperatives, and individual entrepreneurs**.
 - Creating rural employment and enhancing farmers' income.
 - The mission focuses on **sustainable, technology-driven growth** of the livestock value chain.
- **Animal Health Security Strengthening for Pandemic Preparedness & Response:** A national initiative supported by **FAO, ADB, and the World Bank** to modernize India's veterinary ecosystem. Key components:
 - **Upgrading veterinary labs and diagnostic systems** across states.
 - **Strengthening disease surveillance**, including zoonotic and emerging diseases.
 - Developing early-warning systems and digital reporting tools.
 - **Training frontline veterinarians** in outbreak investigation, biosafety, and epidemiology.
 - Enhancing India's preparedness for pandemics originating from animals
 - This initiative integrates One Health principles for national and global biosecurity.

International Collaborations Supporting India

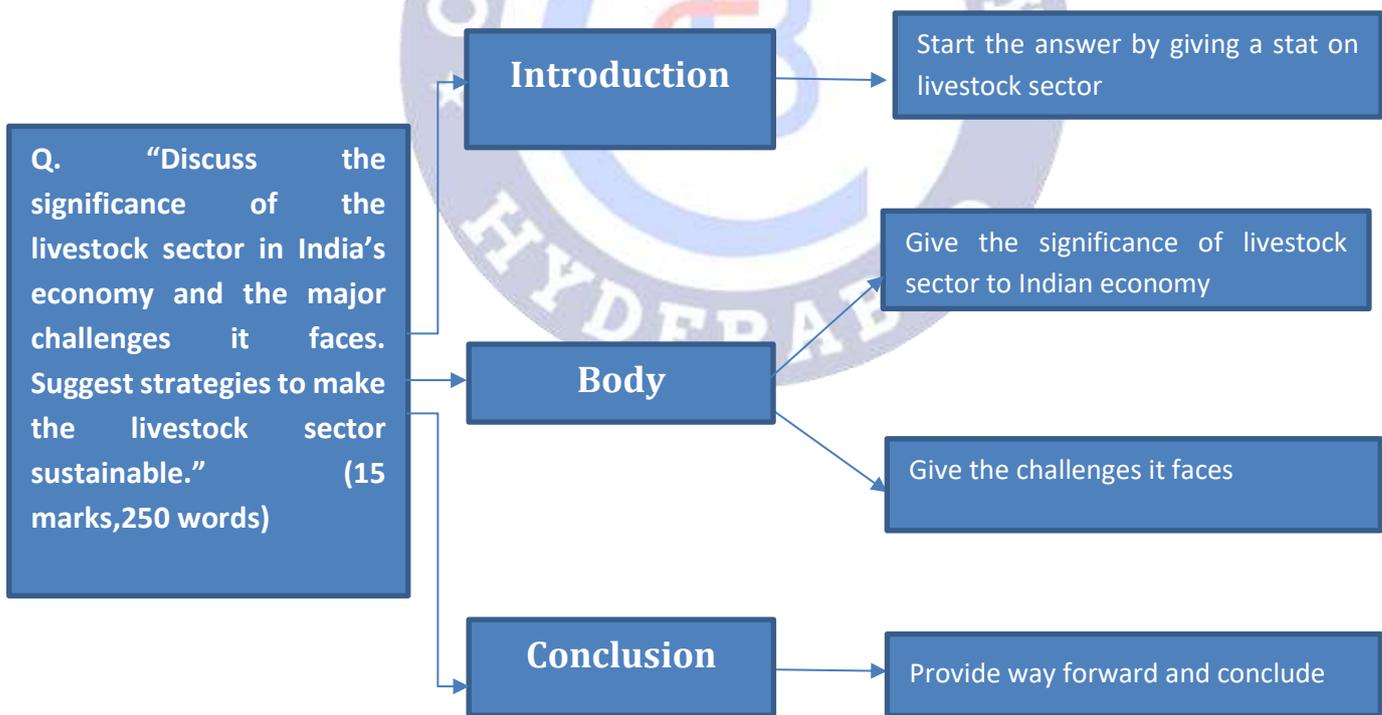
- **Food and Agriculture Organization (FAO):** FAO has significantly strengthened India's animal health systems through:
 - **Standardization of veterinary treatment guidelines (2024)** to ensure evidence-based practices.

- Support for **Antimicrobial Resistance (AMR) management**, including National Action Plan on AMR 2.0
 - INFAAR (Indian Network for Fisheries and Animal Antimicrobial Resistance)
 - **ISAVET training programme** to upskill veterinarians in field epidemiology, surveillance, and rapid disease response.
 - Assistance in improving **biosecurity and food safety standards**.
- **Asian Development Bank (ADB) and World Bank:** Both institutions provide financial and technical support for:
- **Upgrading livestock infrastructure**, including labs, quarantine facilities, and disease testing centers.
 - **Strengthening surveillance systems** for zoonotic diseases.
 - Enhancing training for veterinarians and animal health workers
 - Supporting **One Health implementation**, connecting human, animal, and environmental health.
 - Facilitating **climate-resilient livestock practices** and risk management strategies.

PRACTICE QUESTION:

Q. “Discuss the significance of the livestock sector in India’s economy and the major challenges it faces. Suggest strategies to make the livestock sector sustainable.” (15 marks,250 words)

APPROACH:



MODEL ANSWER:

The livestock sector is a significant part of India’s agrarian economy, contributing approximately **4.7% to the overall GDP** and **30% of agricultural GDP**. It is crucial for **rural employment, food security, and foreign exchange earnings**, as India is a global leader in milk and meat production. However, the sector faces multiple challenges that impact its sustainability and growth.

SIGNIFICANCE OF THE LIVESTOCK SECTOR

- **Employment and Livelihood Security:** Provides livelihood to **about 20 crore Indians**, many of whom are landless or small farmers. Women play a major role in animal rearing, making livestock a sector that **empowers rural women** and supports gender-inclusive development.
- **Income Diversification for Farmers:** Over **70% of Indian farmers** own livestock. Dairy, poultry, and piggery help farmers diversify incomes and reduce dependence on monsoon-based agriculture. Livestock manure supports **integrated farming systems**, improving soil health and reducing input costs.
- **Nutritional Security:** Provides high-quality **animal protein** (milk, eggs, meat) essential for combating malnutrition. Dairy is a major source of **calcium and micronutrients**, particularly important in rural diets.
- **Social and Cultural Importance:** Cattle, buffaloes, goats, and camels are integral to rural traditions and festivals. Draught animals still support tilling, transportation, and carting in many parts of India. Livestock is considered a **living asset**, offering financial security during emergencies.
- **Export and Industrial Significance:** India is among the top exporters of **buffalo meat, leather, and dairy products**. This enhances rural–urban economic linkages and boosts manufacturing under **Make in India**.
- **Role in Climate Resilience:** Livestock is a **climate-resilient asset**, helping farmers withstand crop failures due to climate shocks. Supports **mixed farming systems**, reducing vulnerability and ensuring sustainable livelihoods. Initiatives like cattle insurance and fodder development support climate adaptation.
- **Rural Infrastructure and Entrepreneurship Growth:** Programmes like **NLM, AHIDF, and Dairy Infrastructure Fund** promote rural enterprises such as breeding farms, processing units, fodder value-addition, animal feed plants. Encourages **FPOs, SHGs, cooperatives**, and youth entrepreneurship in rural areas.

CHALLENGES IN THE LIVESTOCK SECTOR

- **Animal Health Issues and Disease Burden:** High prevalence of diseases like FMD, brucellosis, PPR, and zoonotic infections. Inadequate disease surveillance, shortage of vets, and low vaccination coverage in many regions.
- **Shortage of Quality Fodder and Feed:** India faces a **25–30% deficit** in green fodder and **10–12% deficit** in dry fodder. Poor grazing land management and rising feed costs reduce productivity.
- **Low Productivity of Indigenous Breeds:** Many indigenous cattle and buffaloes have **low milk yield** and poor genetic potential. Slow adoption of artificial insemination and scientific breeding practices.
- **Inadequate Infrastructure:** Insufficient cold chains, processing units, animal shelters, and veterinary hospitals. Lack of market linkages and value-addition facilities, especially in rural areas.
- **Fragmented and Informal Market Systems:** Dominance of unorganized markets for milk, meat, and livestock trade. Farmers receive low price realization due to middlemen and weak cooperatives in some states.
- **Climate Vulnerability and Resource Stress:** Heat stress, droughts, and water scarcity reduce fodder availability and animal productivity. Livestock is highly vulnerable to climate-induced diseases and extreme events.

WAY FORWARD: SUSTAINABLE LIVESTOCK STRATEGIES

- **Productivity Enhancement through Breeding (Brazil's Model):** Use **genetic improvement** and crossbreeding programs to boost milk yield and disease resistance.

- **Expanding Veterinary Services (New Zealand's Model):** Introduce **mobile veterinary clinics** and train paraveterinary staff for rural healthcare coverage.
- **Feed and Fodder Availability (Denmark's Model):** Promote **balanced diets and silage** to mitigate fodder shortages, reducing reliance on crop residues.
- **Climate Resilience and Environmental Sustainability (Netherlands' Model):** Encourage **biogas production** from animal waste to reduce emissions and produce renewable energy.
- **Cooperative Models and Market Access (Ireland's Model):** Strengthen **dairy cooperatives** to ensure fair pricing and market access for small farmers.

Adopting a sustainable approach to livestock development is essential for long-term productivity, economic growth, and environmental sustainability. By incorporating **policy reforms, technological advancements, and global best practices**, India can build a resilient livestock sector that supports rural livelihoods, enhances food security, and contributes to sustainable economic growth.

