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A review on impact dimension of notable centrally sponsored schemes in animal husbandry: Strategies and future directions

¹Kajal Preet Kaur and ²Nallapati Sai Anjana

¹M.V.Sc. Scholar, Department of Veterinary and Animal Husbandry Extension Education, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

²Ph.D. Scholar, Department of Veterinary and Animal Husbandry Extension Education, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India

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Corresponding Author: Kajal Preet Kaur

Abstract

India's livestock sector plays a vital role in the rural economy, contributing over 4% to the national GDP and supporting the livelihoods of more than two-thirds of the rural population. To promote sustainable development, enhance productivity, and uplift rural communities, the Government of India has launched numerous Centrally Sponsored Schemes (CSS) focused on animal husbandry. The notable schemes in present review included the National Livestock Mission (NLM), Rashtriya Gokul Mission (RGM), National Animal Disease Control Programme (NADCP), and various initiatives under NABARD and MANAGE. Each program targets specific areas such as breed improvement, disease control, infrastructure development, insurance coverage, capacity building, and financial inclusion.

This review critically examines the objectives, implementation mechanisms, and impacts of these schemes, highlighting both their successes and challenges. The findings are interpreted following the various critical studies, articles and reviews concerning the schemes as the methodology. Evidence suggests these initiatives have significantly boosted milk production, improved disease surveillance, created employment opportunities, and fostered entrepreneurship, particularly among youth and women. Schemes like NLM and RGM have enhanced genetic resources and indigenous breed conservation, while disease control programs have reduced outbreak frequencies. Financial support schemes, such as the Pashu Kisan Credit Card and Stand-Up India, have enabled farmers to access credit and scale their enterprises. However, the adoption of these schemes is hindered by challenges such as low awareness, limited outreach, administrative bottlenecks, and regional disparities. The livestock insurance scheme, in particular, suffers from low uptake due to complex procedures and inadequate compensation. Despite these issues, centrally sponsored schemes remain a cornerstone of India's strategy to modernize its livestock sector, alleviate poverty, and ensure food and nutritional security. This review underscores the need for improved policy execution, streamlined processes, enhanced farmer education, and robust monitoring systems to fully realize the potential of these schemes and create a resilient, inclusive, and sustainable animal husbandry sector in India.

Keywords: Animal husbandry, centrally sponsored schemes, dairy, insurance, livestock, rural development, sustainability

1. Introduction

India is home to the world's largest livestock population, with over 535.78 million animals, as per the 20th Livestock Census (Department of Animal Husbandry and Dairying, 2019) [15]. The livestock sector plays a vital role in the Indian agrarian economy, contributing approximately 4.11% to the national GDP and supporting more than two-thirds of the rural population. It significantly enhances food and nutritional security, provides employment, and generates income for millions of small and marginal farmers. However, this sector continues to face a multitude of challenges, including low productivity, recurring disease outbreaks, inadequate veterinary infrastructure, insufficient access to credit, and lack of technical knowledge (Kumbhani *et al.*, 2023; Singh & Chandel, 2019) [24, 34].

To address these systemic gaps, the Government of India has launched various Centrally Sponsored Schemes (CSS), aimed at revitalizing the livestock sector through technological innovation, institutional support, and

sustainable practices (Rajak *et al.*, 2020) [32]. These schemes operate on a co-funding model between the central and state governments, ensuring flexibility in implementation while maintaining national oversight and strategic alignment.

Notable among these initiatives are the Rashtriya Gokul Mission (RGM) for breed conservation and genetic improvement, the National Animal Disease Control Programme (NADCP) for FMD and brucellosis eradication, and the National Livestock Mission (NLM) which promotes feed and fodder development, entrepreneurship, and employment generation. Additionally, financial instruments like the Pashu Kisan Credit Card Scheme and livestock insurance programs provide credit access and risk mitigation (Prabu *et al.*, 2023; Anonymous, 2024) [26, 3-10]. Institutions like NABARD and MANAGE further support these efforts through infrastructure development, capacity building, and extension services (Naik & Patel, 2022) [28].

Despite substantial achievements, these schemes face critical limitations, including low awareness among farmers,

poor adoption rates, implementation delays, and inequitable distribution of benefits (Kumar *et al.*, 2022; Verma *et al.*, 2020) ^[21, 35]. Therefore, a comprehensive review of these programs is necessary to understand their structure, effectiveness, and socio-economic impact.

This article provides a detailed analysis of the major centrally sponsored schemes in animal husbandry, highlighting their impacts, contributions, challenges, and potential pathways for inclusive and sustainable development.

Understanding the impact of Centrally Sponsored Schemes in Animal Husbandry

CSS are joint efforts by central and state governments, allowing localized implementation within a central framework. These schemes address regional disparities and aim for inclusive development (Anonymous, 2024) ^[3-10].

Key Centrally Sponsored Schemes and their Impacts

1. National Livestock Mission (NLM)

NLM focuses on productivity, employment, and entrepreneurship. It supports diverse activities from feed units to poultry farms with 50% capital subsidies (Ministry of Fisheries, Animal Husbandry & Dairying, 2024).

Impact: Enhanced rural income and employment; however, faced limitations like low claim rates in insurance and technical barriers (Prabhu *et al.*, 2023).

2. Rashtriya Gokul Mission (RGM)

Launched in 2014, RGM promotes indigenous breed conservation, enhanced AI services, and milk productivity (dahd.nic.in).

Impact: Boosted women participation (70% of livestock work is done by women), improved genetic quality (Allen, 2016) ^[2].

3. National Animal Disease Control Programme (NADCP)

Launched in 2019 to eradicate FMD and brucellosis via mass vaccination.

Impact: 50% decline in FMD outbreaks (Gunasekera *et al.*, 2022) ^[18]; yet, challenges remain in economic impact evaluation (Lindahl *et al.*, 2019) ^[25].

4. Livestock Health and Disease Control

Focuses on prophylactic vaccinations and mobile veterinary units.

Impact: Prevents disease outbreaks and improves productivity, though disease surveillance remains underfunded (Kumbhani *et al.*, 2023) ^[24].

5. Dairy Sector Schemes: NPDD, DIDF, and AHIDF

5.1 National Programme for Dairy Development (NPDD)

Aim: The NPDD is designed to enhance the quality and quantity of milk production by improving dairy infrastructure, promoting clean milk production practices, and providing support for smallholder dairy farmers. The scheme also focuses on strengthening the cold chain, training farmers in hygienic practices, and improving milk

testing facilities (NDDDB, 2024).

Impact: As a result of the NPDD, India has maintained its position as the world's leading milk producer, recording 230.58 million tonnes in 2022–23, marking a 3.83% increase from the previous year (Pandey *et al.*, 2024) ^[29]. The program has also improved awareness among dairy farmers about clean milk production, contributing to better food safety and consumer confidence.

5.2 Dairy Processing and Infrastructure Development Fund (DIDF)

Aim: The DIDF provides subsidized loans through NABARD to modernize milk processing plants, expand chilling infrastructure, and introduce advanced testing technologies. It targets milk cooperatives and state federations to build scalable, quality-driven dairy operations (NABARD, 2024).

Impact: The fund has enabled significant upgrades in dairy processing capacity, contributing to higher operational efficiency and reduced post-harvest losses. This infrastructure expansion has helped strengthen rural supply chains and increased the competitiveness of Indian dairy products in domestic and international markets (Chaudhary & Malhotra 2022) ^[13].

5.3 Animal Husbandry Infrastructure Development Fund (AHIDF)

Aim: Launched under the Atma Nirbhar Bharat Abhiyan, the AHIDF seeks to encourage private sector investment in dairy and meat processing, animal feed plants, and cold storage units. It supports entrepreneurs, MSMEs, cooperatives, and Farmer Producer Organizations (FPOs) through credit-linked subsidies (APEDA, 2024).

Impact: The AHIDF has catalyzed large-scale investment in dairy infrastructure, resulting in job creation and poverty reduction in rural areas. It has also played a pivotal role in diversifying dairy products and increasing the export potential of Indian animal-based products, thereby contributing to GDP growth.

Supporting Dairy Cooperatives and Farmer Producer Organizations (SDCFPO)

Aim: The aim of the SDCFPO scheme is to assist State Dairy Cooperative Federations by providing soft working capital loans, particularly during times of severely adverse market conditions or natural calamities. The scheme is intended to ensure that these cooperatives are able to continue procuring milk from farmers at remunerative prices, even during flush seasons, and to maintain timely payments to the farmers. This financial support helps safeguard the livelihoods of dairy farmers and promotes a stable dairy economy across the country.

Impact: The SDCFPO scheme has enabled dairy cooperatives to maintain uninterrupted procurement of milk, providing stable market access to farmers during economic stress. By December 2021, ₹303 crore had been released to the National Dairy Development Board to support this initiative. As a result, dairy farmers continued to receive fair

prices and timely payments, helping to buffer rural economies against fluctuations in market demand and weather-related disruptions. This has contributed to sustaining rural incomes and enhancing the resilience of the dairy sector. (Chaudhary & Malhotra 2022)^[13]

Rashtriya Krishi Vikas Yojana (RKVY)

Aim: The Rashtriya Krishi Vikas Yojana (RKVY), launched in 2007 and later restructured as RKVY-RAFTAAR, aims to achieve 4% annual growth in the agriculture sector by giving states the autonomy and flexibility to plan and implement region-specific agricultural development programs. The key objectives of RKVY include promoting risk mitigation, encouraging agribusiness entrepreneurship, increasing agricultural productivity and income, and empowering youth through skill development initiatives.

Impact: The impact of RKVY has been substantial in terms of improving state-level planning and investment in agriculture and allied sectors. The scheme has enhanced productivity and income levels for farmers by enabling targeted interventions and better infrastructure development. It has also played a crucial role in diversifying rural livelihoods through entrepreneurship and innovation, aligning with national goals such as doubling farmers' incomes. The flexibility granted to states has allowed them to address specific local challenges effectively, leading to more sustainable and inclusive agricultural growth. (Singh *et al.*, 2019)^[34]

6. Financial and Entrepreneurial Support

6.1 Kisan Credit Card (KCC) Scheme

Aim: The KCC scheme was introduced to provide timely and affordable credit to farmers for meeting their agricultural and allied expenses, including animal husbandry. It enables easy access to working capital, reduces dependence on informal lenders, and promotes financial inclusion in rural areas (Reserve Bank of India, 2024).

Impact: The scheme has significantly improved access to institutional credit among livestock farmers. Studies show that KCC beneficiaries experience higher net returns, increased productivity, and improved profitability compared to non-beneficiaries (Gopal & Mazhar, 2023)^[17]. Additionally, the availability of low-interest loans has reduced farmer reliance on exploitative moneylenders, thereby enhancing economic resilience (Dwivedi *et al.*, 2015)^[16].

6.2 Stand-Up India Scheme

Aim: Launched in 2016, the Stand-Up India scheme aims to promote entrepreneurship among women and SC/ST communities by offering loans between ₹10 lakh and ₹1 crore for setting up new enterprises, including livestock-based ventures. It encourages inclusive economic growth by supporting first-time entrepreneurs in rural and semi-urban areas (myscheme.gov.in, 2024).

Impact: The scheme has been instrumental in fostering a new generation of women agripreneurs and livestock

entrepreneurs. It provides access to finance, mentorship, and handholding support, which has led to job creation and empowered marginalized communities (Kaur & Arora, 2022)^[19]. Evidence suggests that the scheme has boosted self-employment and enhanced economic independence, especially in states like Punjab and Uttar Pradesh.

6.3 Agri-Clinics and Agri-Business Centres (ACABC) Scheme

Aim: Implemented in 2002, the ACABC scheme supports the establishment of agri-clinics and agri-business centers by agricultural graduates. These centers offer technical advisory services, input supply, and support for livestock extension, aiming to enhance agricultural productivity and self-employment (NABARD, 2024).

Impact: The ACABC scheme has led to the creation of over 35,000 agri-based enterprises across India, significantly contributing to rural employment and service delivery (Patel *et al.*, 2020)^[30]. In states like Gujarat and Karnataka, ACABC-trained entrepreneurs have improved local agricultural practices, increased farmer awareness, and promoted sustainable livestock management (Bondre *et al.*, 2017; Bairwa, 2023)^[12, 11].

Livestock Insurance Scheme

Aim: The Livestock Insurance Scheme aims to provide subsidized insurance coverage for crossbred and high-yielding cattle and buffaloes in selected districts across India. It was introduced to protect farmers against the financial losses incurred due to the death of insured animals. The scheme was initially implemented on a pilot basis during the 10th and 11th Five-Year Plans (2005–08) and has been executed on a regular basis since 2008–09. Later, it was integrated into the National Livestock Mission under the Sub-Mission on Innovation and Extension. The core objectives of the scheme include promoting awareness about livestock insurance among farmers and encouraging them to adopt risk management practices to secure their livelihoods against unforeseen events such as disease outbreaks or accidents affecting their animals. (Shah 2024)^[33].

Impact: The Livestock Insurance Scheme has played a significant role in reducing financial risks for farmers, especially during disease outbreaks or natural calamities. According to the presentation, the scheme has contributed to income stability for rural households, especially benefiting women engaged in dairy farming. Studies cited in the document indicate that livestock insurance improves awareness of risk management and enhances livestock care practices. However, the scheme also faces challenges such as low claim settlement rates—highlighted in states like Tamil Nadu—and limited awareness among farmers, which hinders broader adoption. Socio-economic studies referenced in the material underscore the need for better outreach, simplified claim processes, and more demand-driven insurance products to improve effectiveness and coverage. (Prabu *et al.*, 2023)^[26].

Pradhan Mantri Kaushal Kendra (PMKK) Scheme

Aim: The Pradhan Mantri Kaushal Kendra (PMKK) scheme was launched in 2015 by the Government of India with the

primary objective of establishing model training centers for skill development across the country. The aim of the scheme is to provide high-quality skill training to youth and rural populations to enhance their employability and entrepreneurial capabilities. PMKKs are designed to create a standardized and demand-driven skill development ecosystem that addresses sector-specific skill gaps. In the context of animal husbandry and agriculture, the scheme supports the development of technical knowledge and practical skills to improve productivity and income generation. (Kumar 2023) ^[23].

Impact: The PMKK scheme has had a positive impact on knowledge dissemination and income generation in the livestock sector. According to the presentation, PMKK training increased farmers' knowledge of animal husbandry practices by 53.19%, leading to the adoption of more efficient technologies and improved livestock health. This, in turn, has contributed to higher farmer income and enhanced productivity. The scheme also plays a significant role in reducing rural poverty by equipping individuals with market-relevant skills, making them more capable of managing livestock enterprises effectively. These outcomes underscore the importance of skill development in achieving sustainable rural livelihoods. (Khadda *et al.* 2016) ^[20].

Dairy Entrepreneurship Development Scheme (DEDS)

Aim: The Dairy Entrepreneurship Development Scheme (DEDS) was implemented to promote self-employment opportunities in the dairy sector by offering capital subsidies for various dairy-related activities. Managed by the Department of Animal Husbandry, Dairying, and Fisheries in collaboration with NABARD, the scheme aimed to provide structured support to individuals, Self-Help Groups (SHGs), cooperatives, NGOs, and private companies for establishing small dairy farms and modernizing the milk production and marketing chain. The core objectives included creating infrastructure for milk production, promoting breed improvement, encouraging private investment in dairying, and addressing structural inefficiencies in the unorganized dairy sector.

Impact: The DEDS scheme has significantly contributed to rural development by generating employment and increasing income for dairy farmers. According to the presentation, the scheme supported around 30 million milk producers, reducing rural unemployment and improving income security. Training provided under the scheme enhanced the productivity and profitability of beneficiaries through entrepreneurship development. Additionally, by expanding milk production and improving per capita milk availability, the scheme also strengthened nutritional security in rural areas. Despite its positive outcomes, DEDS was discontinued after the financial year 2020–21, but its impact continues to be recognized in terms of economic upliftment and livelihood creation in the dairy sector. (Pandey *et al.*, 2024) ^[29]

Attracting and Retaining Youth in Agriculture (ARYA) Scheme

Aim: The Attracting and Retaining Youth in Agriculture (ARYA) scheme was launched in 2014 with the objective of

empowering rural youth through skill development and encouraging them to take up agriculture and allied sector enterprises as viable career options. The scheme seeks to reduce youth migration from rural areas by fostering entrepreneurship and promoting income-generating agricultural activities. It focuses on training and capacity building of rural youth through Krishi Vigyan Kendras (KVKs), helping them establish agri-based micro-enterprises in their own villages. ARYA supports sustainable livelihood development by promoting modern farming practices and entrepreneurship in sectors such as poultry, nursery farming, and goat rearing.

Impact: The ARYA scheme has demonstrated a strong positive impact on rural entrepreneurship and employment generation. According to the presentation, the scheme helped establish 903 enterprises, significantly contributing to the local economy and job creation. Evaluations showed that youth participants who engaged in enterprises like nursery farming and poultry farming achieved higher net incomes compared to other agricultural activities, making these ventures especially attractive. Additionally, a large number of trainees reported running their enterprises sustainably, indicating the long-term viability of ARYA-supported interventions. The program has played a key role in not only improving the economic status of rural youth but also in enhancing their technical skills and entrepreneurial confidence. (Kumar *et al.* 2022) ^[21]

Kisan Call Centre (KCC) Scheme

Aim: The Kisan Call Centre (KCC) scheme was launched on January 21, 2004, by the Department of Agriculture & Cooperation with the aim of providing timely, expert agricultural advice to farmers across India via telephone. The scheme was designed to deliver real-time solutions in the farmers' local languages, addressing queries related to agriculture, animal husbandry, and allied sectors. Each state has its own dedicated call center to ensure regional relevance and accessibility. By bridging the information gap between farmers and agricultural experts, the KCC scheme seeks to enhance decision-making, improve crop and livestock productivity, and promote the adoption of best farming practices.

Impact: The KCC scheme has proven to be an effective platform for improving agricultural productivity and supporting farmers during crises. According to the presentation, KCC interventions have increased crop yields by helping farmers with issues related to seeds, fertilizers, and pest control. During the COVID-19 pandemic, the KCCs played a vital role in reducing economic uncertainty for farmers by providing remote advisory support. Additionally, data collected from farmer queries has offered valuable insights for policymakers to design more targeted agricultural interventions. The scheme has also improved farmer satisfaction and trust in institutional support mechanisms, highlighting its importance as a tool for agricultural extension. (Ajawan *et al.* 2020) ^[1]

Agricultural Technology Management Agency (ATMA) Scheme

Aim: The Agricultural Technology Management Agency

(ATMA) scheme was launched with the aim of creating a farmer-driven and decentralized agricultural extension system. It focuses on integrating various agricultural support services and institutions at the district level to address the diverse needs of farmers. ATMA functions through State Extension Work Plans (SEWPs) and involves local stakeholders, including farmers, line departments, research institutions, and NGOs. The goal is to promote location-specific, demand-driven, and participatory agricultural development by facilitating effective dissemination of agricultural technologies, best practices, and innovations directly to farmers.

Impact: The ATMA scheme has led to significant improvements in farmers' incomes, employment generation, and the adoption of modern agricultural practices. As reported in the presentation, ATMA beneficiaries experienced higher earnings from both crop and livestock sectors, indicating the scheme's comprehensive reach. It also contributed to increased mandays in agriculture, thereby addressing rural underemployment. The scheme played a vital role in improving agricultural productivity by training farmers, enhancing their technical skills, and encouraging innovation in farming practices. These outcomes demonstrate ATMA's effectiveness in strengthening agricultural extension services and empowering farmers to adopt sustainable and profitable agricultural methods. (Walling & Sharma 2018) [36]

Farmer Producer Organisation (FPO) Scheme

Aim: The aim of the Farmer Producer Organisation (FPO) Scheme is to empower small and marginal farmers by encouraging them to come together and form collective groups. These organisations help farmers pool their resources, access better quality inputs, technology, and credit facilities, and gain stronger bargaining power in the market. The scheme focuses on improving farmers' livelihoods by reducing dependence on middlemen and enabling direct access to markets. It also promotes sustainable agricultural practices and provides advisory support, aiming to increase farmers' income and ensure more inclusive growth in the agricultural sector.

Impact: The impact of the FPO Scheme has been significant in enhancing the economic and social conditions of small farmers. By aggregating their produce and selling collectively, farmers have achieved better prices and reduced costs, which has led to increased incomes. FPOs have facilitated improved access to institutional credit, government schemes, and technology adoption, resulting in higher productivity and sustainability. Furthermore, the scheme has strengthened rural communities by fostering cooperation among farmers and providing a platform for collective decision-making. Overall, the FPO Scheme has contributed to more resilient and market-oriented farming systems, positively transforming the rural agricultural landscape. (Kumar *et al.* 2022) [21]

Adoption and Challenges of Centrally Sponsored Schemes in Animal Husbandry

Adoption

1. Limited Farmer Participation: Adoption of CSS is

low in several regions due to lack of awareness, complex procedures, and limited outreach of extension services (Singh *et al.*, 2019) [34].

- 2. Regional Imbalance in Implementation:** States with stronger veterinary infrastructure and administrative capabilities show better adoption, while resource-poor states lag behind (Kumar *et al.*, 2020) [22].
- 3. Gender and Youth Underrepresentation:** Although schemes aim to empower women and youth, their actual participation remains limited due to socio-cultural norms and limited targeted support (Kaur & Arora, 2022) [19].

Challenges

- 1. Low Awareness and Information Gaps:** Many beneficiaries are unaware of the schemes, especially in remote areas, due to poor communication and inadequate dissemination of information (Verma *et al.*, 2020) [35].
- 2. Administrative and Bureaucratic Hurdles:** Complicated paperwork, delays in approvals, and lack of coordination among departments discourage farmer participation (Kumar 2023) [23].
- 3. Socio-Economic Constraints:** Factors like illiteracy, poverty, and lack of digital access prevent smallholder farmers from applying or completing scheme requirements (Rajak *et al.*, 2020) [32].
- 4. Poor Uptake of Livestock Insurance:** Farmers often avoid livestock insurance due to mistrust in the system, complex claim processes, and policies like "No Tag, No Claim" (Prabu *et al.*, 2023; Shah, 2024) [26, 33].
- 5. Inadequate Monitoring and Evaluation:** Absence of robust tracking systems and feedback mechanisms reduces scheme effectiveness and hampers mid-course corrections (Naik & Patel 2022; Singh *et al.*, 2019) [28, 34].
- 6. Lack of Customization and Local Relevance:** Many schemes follow a one-size-fits-all approach, ignoring local needs, which affects their relevance and adoption at the grassroots (Pooja *et al.*, 2024) [31].

Benefits of CSS in Animal Husbandry

- **Enhanced Productivity:** AI, health interventions, and feed development raise output. (Berry *et al.*, 2024) [14]
- **Economic Security:** Employment and entrepreneurship support through schemes like ARYA and PMKK (Khadda *et al.*, 2016) [20].
- **Inclusivity and Empowerment:** Women and youth-centric policies improve engagement (Kaur & Arora, 2022) [19].
- **Increased Livestock Productivity:** Schemes like the National Livestock Mission (NLM) and Rashtriya Gokul Mission (RGM) have improved breed quality and feed availability, leading to increased milk and meat productivity (Berry *et al.*, 2016) [14].
- **Improved Animal Health and Disease Control:** Programs like NADCP and Livestock Health and Disease Control Scheme have reduced the incidence of major diseases through mass vaccination and veterinary services (Gunasekera *et al.*, 2022; Kumbhani & Parasana, 2023) [18, 24].
- **Enhanced Farmer Income and Profitability:**

Financial schemes such as Kisan Credit Card (KCC) and Poultry Venture Capital Fund (PVCF) provide credit and subsidies, leading to higher net returns and improved farm profitability (Gopal & Mazhar, 2023) ^[17].

- **Employment Generation and Rural Livelihood Security:** CSS initiatives, including ARYA, ACABC, and dairy sector schemes, have created jobs and self-employment opportunities in livestock-based enterprises (Pandey *et al.*, 2024; Patel *et al.*, 2020; Kumar *et al.*, 2022) ^[29, 30, 21].
- **Promotion of Entrepreneurship:** Programs like Stand-Up India and AHIDF support start-ups, women entrepreneurs, and FPOs in the animal husbandry sector (Kaur & Arora, 2022) ^[19].
- **Support for Women and Marginalized Groups:** Many schemes actively involve women, who perform over 70% of livestock-related work, providing them with income and empowerment (Rashtriya Gokul Mission, 2024).
- **Better Credit Access and Financial Inclusion:** Schemes like Pashu Kisan Credit Card and KCC have improved farmers' access to formal credit and reduced dependence on informal moneylenders (Dwivedi *et al.*, 2015; Mishra & Chaudhary, 2021) ^[16, 27].
- **Food and Nutritional Security:** Increased milk and meat production under schemes such as NPDD and NLM has enhanced the availability of high-protein food sources (Pandey *et al.*, 2024) ^[29].
- **Infrastructure Development:** Schemes like DIDF and AHIDF have modernized dairy processing, storage, and marketing infrastructure (NABARD, 2024).
- **Environmental Sustainability:** CSS initiatives encourage organic feed, sustainable practices, and better waste management, especially in dairy and poultry sectors (Pooja *et al.*, 2024) ^[31].
- **Insurance and Risk Management:** Livestock Insurance Schemes provide financial protection against animal mortality, reducing income shocks from disease or accidents (Khadda *et al.*, 2020) ^[20].
- **Skill Development and Capacity Building:** Training programs under PMKK and ACABC improve technical knowledge, veterinary care skills, and livestock management practices (Khadda *et al.*, 2020; Bondre *et al.*, 2017) ^[20, 12].
- **Market Access and Value Addition:** Schemes like SDCFPO and RKVY improve market linkages, support cooperative development, and enable farmers to earn better prices (Chaudhary & Malhotra, 2022) ^[13].
- **Support During Crises:** During pandemics or natural calamities, schemes such as Stand-Up India and Kisan Call Centres provide support, advice, and financial resilience (Ajawan *et al.*, 2020) ^[11].

7. Conclusion

Centrally Sponsored Schemes in animal husbandry have contributed substantially to rural development, food security, and economic resilience in India. While they offer significant benefits, better implementation, farmer education, and technology integration are crucial for realizing their full potential. Streamlining procedures and

ensuring transparency can further boost adoption and effectiveness.

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