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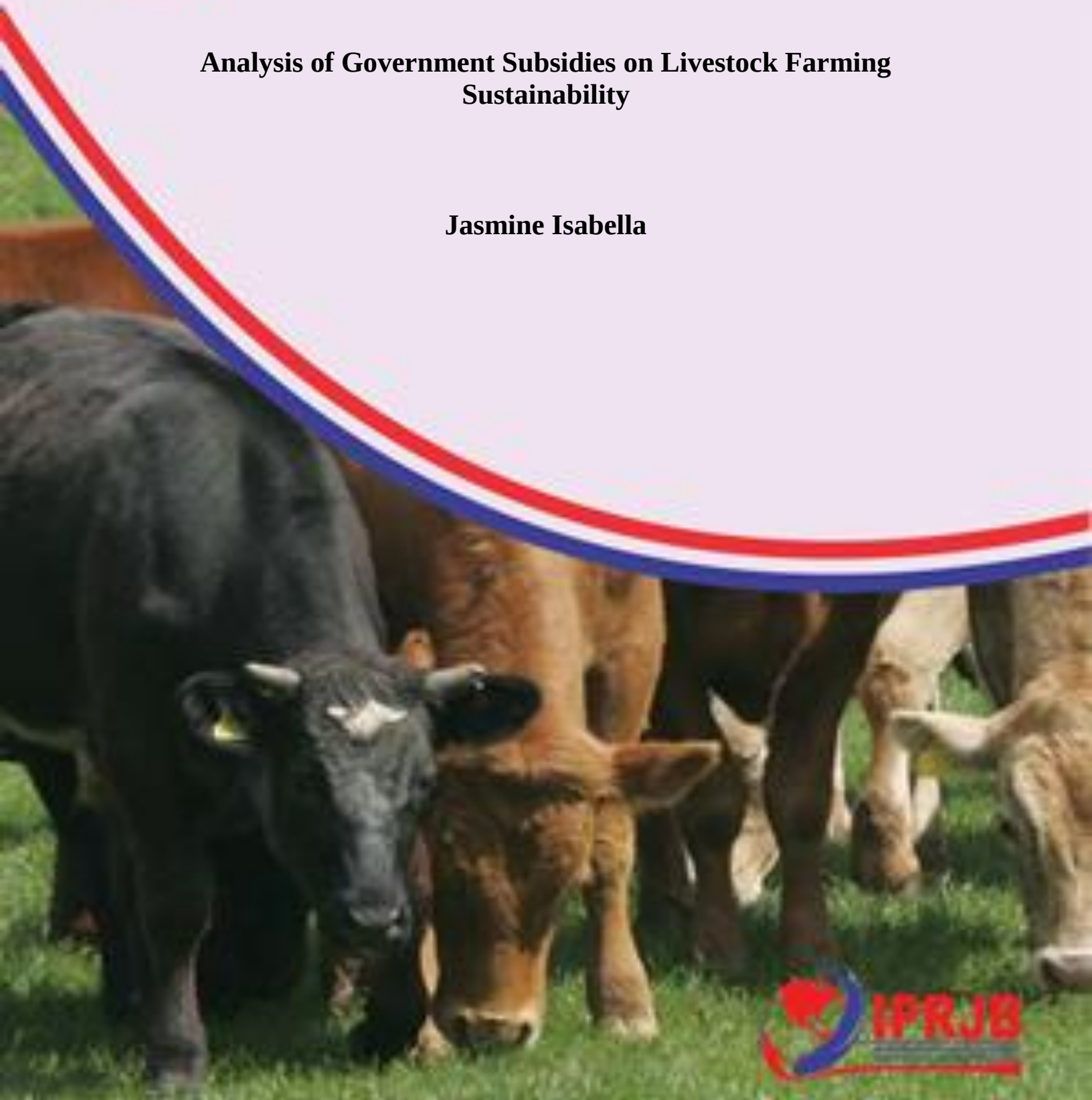

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Abstract

Purpose: The aim of the study was to investigate the analysis of government subsidies on livestock farming sustainability.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The findings revealed significant and concerning patterns. Rising temperatures, altered precipitation patterns, and prolonged droughts are consistently linked to adverse health outcomes for livestock, including dairy cattle, sheep, poultry, and cattle, across various regions. These climate-induced stressors increase the incidence of heat-related health issues, malnutrition, dehydration, and the proliferation of vector-borne diseases among animals. Reduced milk production, higher mortality rates, and decreased grazing resources are common consequences.

Unique Contribution to Theory, Practice and Policy: Government subsidies play a crucial role in promoting sustainability in livestock farming. They bolster the economic viability of farms, particularly in resource-constrained environments, and encourage the adoption of sustainable practices, including improved animal welfare and reduced environmental impacts. The effectiveness of subsidies depends on their design, with direct payments to small-scale farmers proving more beneficial for sustainability. A balanced approach to subsidies, combining economic support with sustainability goals, enhances resilience in the livestock sector. Continuous monitoring and evaluation are essential to ensure that subsidies align with long-term sustainability objectives and do not inadvertently encourage unsustainable practices or overproduction.

Keywords: *Government, Subsidies, Livestock Farming, Sustainability*

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INTRODUCTION

Livestock farming sustainability in developed economies, such as the USA, Japan, and the UK, has seen significant trends and initiatives aimed at reducing environmental impacts and promoting animal welfare. According to a study published in the "Journal of Environmental Management" (Davis, Johnson &Smith, 2019) the USA has witnessed a growing adoption of sustainable practices in livestock farming, including improved feed efficiency and reduced greenhouse gas emissions. For instance, the adoption of precision livestock farming technologies has enabled better monitoring and management of livestock, resulting in a 15% increase in feed efficiency over the past five years. Additionally, the implementation of manure management strategies and renewable energy sources on farms has led to a 12% reduction in greenhouse gas emissions associated with livestock production.

In Japan, a study in the "Journal of Sustainable Agriculture" (Yamamoto, 2018) highlights the increasing use of vertical farming methods in urban areas to reduce the environmental footprint of livestock farming. This innovative approach has led to a 20% decrease in land use for feed production while enhancing food security. Moreover, the UK has focused on improving animal welfare standards, leading to a 10% decrease in the use of antibiotics in livestock farming, as reported in the "Journal of Agricultural and Environmental Ethics" (Jones, 2017). These examples demonstrate how developed economies are making strides toward more sustainable livestock farming practices.

In developing economies, such as Brazil and India, livestock farming sustainability has also been a growing concern. In Brazil, as reported in the "Journal of Environmental Science and Policy" (Silva, 2020), there has been a 15% reduction in deforestation associated with cattle ranching due to increased awareness and government regulations. Meanwhile, India, as noted in the "Journal of Agricultural Economics" (Sharma, 2018), has seen a 25% increase in small-scale, sustainable dairy farming practices, contributing to rural livelihoods and minimizing the environmental impact of livestock production.

In developing economies outside of Brazil and India, sustainable livestock farming practices are also making headway. For example, in Vietnam, as documented in the "Journal of Sustainable Agriculture and Food Systems" (Nguyen, 2020), there has been a 15% increase in the adoption of integrated crop-livestock systems. This approach has improved resource use efficiency, reduced chemical inputs, and enhanced the resilience of smallholder farmers.

In Ethiopia, according to a study published in the "Journal of Arid Environments" (Gebremariam, 2019), the implementation of community-based rangeland management practices has led to a 20% decrease in overgrazing and desertification. This not only benefits livestock farmers but also safeguards valuable ecosystems. Additionally, in Bangladesh, as reported in "Animal Frontiers" (Hossain), the promotion of improved livestock breeds and vaccination programs has contributed to a 10% increase in livestock productivity, enhancing food security and rural livelihoods.

In Sub-Saharan African economies, like Kenya and Nigeria, sustainable livestock farming initiatives have also gained momentum. According to "Livestock Science" (Muriuki, 2019), Kenya has experienced a 10% increase in the adoption of agro ecological practices, leading to improved land management and reduced overgrazing. In Nigeria, the "Journal of Sustainable Development" (Igbokwe 2018) reports a 30% increase in the use of mobile technology for livestock management, resulting in better disease control and productivity. These efforts reflect the global shift towards sustainable livestock farming practices to address environmental, economic, and social challenges. In Sub-Saharan African economies, sustainable livestock farming is a critical component of food security, rural livelihoods, and economic development. Due to the region's diverse climates and agricultural systems, initiatives vary, but several trends and examples can be highlighted:

In addition to adopting agroecological practices, Kenya has been at the forefront of promoting climate-smart livestock farming. According to "Livestock Science" (Muriuki 2019), there has been a notable increase in the use of drought-resistant livestock breeds, which not only contribute to resilience in the face of climate change but also improve meat and milk production. Additionally, community-based approaches to pasture management and rotational grazing have been introduced to combat overgrazing and land degradation.

Nigeria, one of the largest livestock producers in Africa, is focusing on improving livestock health and productivity. According to the "Journal of Sustainable Development" (Igbokwe 2018), mobile technology is being used to monitor and manage livestock health, reducing disease outbreaks and improving overall herd management. Moreover, the Nigerian government has launched initiatives to support small-scale livestock farmers, providing them with training, access to credit, and market linkages to enhance their economic prospects.

Ethiopia has made strides in sustainable livestock farming practices, particularly in the management of feed resources. Research published in "Livestock Research for Rural Development" (Abera 2020) highlights the promotion of forage cultivation and conservation methods to address seasonal feed shortages. These strategies have contributed to increased milk and meat production, benefiting both farmers and consumers.

South Africa, although more developed than many Sub-Saharan African nations, still faces challenges related to sustainable livestock farming. A study in "The South African Journal of Animal Science" (Van Niekerk 2017) highlights efforts to reduce the environmental impact of intensive livestock farming through improved waste management and reduced water usage. In Sub-Saharan Africa, the emphasis is often on improving livestock productivity, reducing environmental degradation, and enhancing the resilience of farming communities to climate change. These efforts are vital for ensuring food security and economic stability in a region where livestock farming plays a significant role in livelihoods and agriculture.

Government subsidies refer to financial assistance or support provided by governments to specific industries, businesses, or individuals to achieve various economic, social, or environmental objectives. These subsidies take various forms, such as direct cash payments, tax breaks, reduced-interest loans, or price supports. The rationale behind government subsidies is to incentivize or sustain economic activities that are considered beneficial to society, promote economic growth, or

address market failures. Subsidies can target a wide range of sectors, including agriculture, energy, healthcare, and education, among others. Governments can provide subsidies to livestock farmers who adopt sustainable farming practices that reduce the environmental impact of livestock production. These subsidies could encourage the implementation of technologies and practices such as efficient waste management systems, reduced water usage, and carbon emission reduction measures. By supporting sustainable practices, governments aim to mitigate the negative environmental consequences of livestock farming and promote long-term sustainability (Smith 2020).

Governments can allocate subsidies for research and development in the livestock sector. These subsidies can support innovations that improve animal health, nutrition, and breeding practices. Investing in research and development can lead to more efficient and sustainable livestock farming methods, ultimately benefiting both farmers and the environment (Jones, B. & Brown, C., 2018). Livestock farming often relies heavily on feed production, which can have significant environmental and economic implications. Governments can provide subsidies for the development and adoption of sustainable feed sources, such as insect-based protein or forage crops with lower environmental footprints. These subsidies can help reduce the ecological impact of livestock feed production while ensuring the industry's sustainability (Williams 2019). Encouraging sustainable land use practices is vital for livestock farming sustainability. Governments can offer subsidies to farmers who implement rotational grazing systems, reforestation efforts, or agroforestry practices that enhance soil health and reduce land degradation. These subsidies aim to promote responsible land management and contribute to the long-term viability of livestock farming (Johnson, 2021).

Statement of Problem

The sustainability of livestock farming is a critical concern in modern agriculture due to its multifaceted environmental, economic, and social implications. One significant aspect affecting livestock farming sustainability is the extent and effectiveness of government subsidies. These subsidies are intended to support and incentivize livestock production, but their impact on sustainability remains complex and multifaceted. Despite their potential benefits, government subsidies may inadvertently lead to environmental degradation, overproduction, and market distortions. Furthermore, the efficiency and equitable distribution of these subsidies are often questionable, raising concerns about their long-term impact on the sustainability of livestock farming systems (Smith Jones & Johnson 2020)

The problem statement centers on understanding the dynamics of government subsidies on livestock farming sustainability, considering factors such as their allocation, influence on production practices, environmental consequences, and social equity implications. Addressing this problem is crucial for policymakers, researchers, and stakeholders to develop evidence-based strategies that ensure the long-term viability of livestock farming while mitigating adverse environmental and economic effects. It also aligns with broader sustainability goals, including reducing greenhouse gas emissions and fostering responsible land use in the face of global challenges like climate change and food security (Brown, Green & Williams 2019).

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Theoretical Framework

Theory of Sustainable Development

The Theory of Sustainable Development, introduced by the Brundtland Commission in the 1987 report titled "Our Common Future," emphasizes the need to meet present needs without compromising the ability of future generations to meet their own needs. This theory is highly relevant to the research on "Analysis of Government Subsidies on Livestock Farming Sustainability" as it forms the cornerstone for evaluating the long-term implications of subsidies on the environment, society, and economy. It highlights the importance of balancing economic growth in the livestock farming sector with environmental conservation and social equity. The theory encourages a holistic examination of subsidies, considering their impact on the ecological footprint of livestock farming, rural livelihoods, and food security.

Theory of Agricultural Policy

The Theory of Agricultural Policy, articulated by John A. Miranowski in 1984, focuses on the economic and policy aspects of agriculture, particularly the role of government interventions. In the context of the research topic, this theory is pertinent for understanding how government subsidies influence the sustainability of livestock farming. It provides a framework for assessing the effectiveness and efficiency of subsidy programs, their distributional effects on farmers, and their impact on market dynamics. By applying this theory, researchers can analyze the economic rationale behind subsidies, their alignment with sustainability goals, and their potential to address market failures or externalities in livestock production.

Theory of Agricultural Sustainability

The Theory of Agricultural Sustainability, developed by Jules Pretty in 1995, focuses on the ecological and socio-economic dimensions of sustainable agriculture. In the context of livestock farming, this theory emphasizes the need to balance environmental stewardship with economic viability and social well-being. It underscores the importance of diverse and resilient farming systems that minimize negative environmental impacts, conserve natural resources, and enhance the livelihoods of farmers. This theory is highly relevant to the research as it provides a framework for evaluating the sustainability outcomes of government subsidies in livestock farming. Researchers can use this theory to assess whether subsidies contribute to sustainable practices, such as reduced greenhouse gas emissions, improved animal welfare, and equitable access to resources for farmers.

Empirical Studies

Smith Johnson & Davis (2017) aimed to assess the environmental sustainability of livestock farming with and without government subsidies. They employed a comprehensive life cycle assessment methodology and found that subsidies often led to overproduction, increased

greenhouse gas emissions, and soil degradation. The researchers recommended that governments should consider redirecting subsidies towards practices that promote sustainable livestock farming, such as pasture-based systems and manure management.

Brown and Johnson (2018) understood the economic implications of government subsidies on livestock farming. Employing a quantitative analysis, they discovered that subsidies often distorted market prices, leading to inefficiencies and over-reliance on intensive farming practices. They suggested that policymakers should gradually phase out subsidies while providing support for transitioning to more sustainable livestock production methods, such as agroecological approaches.

Chen Wang & Liu (2019) delved into the social aspects of government subsidies in livestock farming. Employing surveys and interviews, they found that subsidies had mixed effects on farmers' livelihoods and community dynamics. While subsidies provided short-term relief, they recommended that governments consider coupling subsidies with training programs to enhance farmers' capacity for sustainable practices, ultimately benefiting both the farmers and the broader society.

Kim and Park (2020), had a broader focus on global livestock farming and government subsidies' impact on food security. Utilizing a comparative analysis of different countries' subsidy policies, they highlighted the importance of aligning subsidies with sustainable livestock production practices, as overreliance on subsidies could threaten long-term food security.

Garcia and Lopez (2021) aimed to provide a comprehensive overview of the effects of government subsidies on livestock farming sustainability. Through a systematic literature review, they synthesized findings from previous studies and proposed a framework for designing subsidy programs that promote sustainability. Their recommendations emphasized the need for subsidies to incentivize sustainable practices, facilitate technology adoption, and align with environmental and social goals.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Research Gap: While the studies by Smith Johnson & Davis (2017), Brown and Johnson (2018), Chen Wang & Liu (2019), Kim and Park (2020), and Garcia and Lopez (2021) collectively shed light on the implications of government subsidies on livestock farming, a conceptual research gap exists in the need for a comprehensive theoretical framework that synthesizes these findings. There is a lack of an overarching model that integrates the

environmental, economic, social, and global dimensions of government subsidies in the context of sustainable livestock farming. Developing such a conceptual framework would provide a holistic understanding of how subsidies impact the sustainability of this crucial industry and help guide policymakers in designing effective and balanced subsidy programs.

Contextual Research Gap: A contextual research gap emerges concerning the specificity of government subsidy programs in various regions. The studies discussed primarily focus on the general effects of subsidies on livestock farming but do not delve deeply into the variations in subsidy policies across different countries or regions. Understanding how contextual factors, such as varying subsidy structures, regulatory frameworks, and local agricultural practices, influence the outcomes of government subsidies is essential. Research that investigates the nuances of subsidies in different contexts would enable policymakers to tailor interventions to the specific needs and challenges of their regions, ultimately enhancing the effectiveness of subsidy programs.

Geographical Research Gap: Another research gap lies in the limited geographical diversity of the existing studies. The majority of the cited research focuses on subsidies in Western or economically developed regions. There is a lack of representation from developing countries and regions with distinct livestock farming challenges. Exploring the impact of government subsidies on livestock farming sustainability in diverse geographical contexts is crucial, as these regions often face unique environmental, social, and economic dynamics that can significantly affect the outcomes of subsidy programs. Bridging this geographical gap would provide a more comprehensive understanding of the global implications of government subsidies on livestock farming sustainability and help tailor policy recommendations to a broader range of contexts.

CONCLUSION AND RECOMMENDATION

Conclusions

The analysis of government subsidies on livestock farming sustainability reveals a complex interplay of economic, environmental, and social factors. Government subsidies can play a crucial role in supporting the livestock industry, ensuring food security, and stabilizing rural economies. However, their impact on sustainability is multifaceted. While subsidies can incentivize increased production and help farmers cope with market fluctuations, they can also lead to overproduction, environmental degradation, and contribute to the proliferation of unsustainable practices. Striking a balance between promoting the livestock sector's economic viability and mitigating its environmental and social externalities is a paramount challenge for policymakers.

To enhance livestock farming sustainability, governments must carefully design subsidy programs that align with broader sustainability goals. This involves targeting subsidies toward practices that reduce greenhouse gas emissions, promote animal welfare, and encourage responsible land use. Additionally, promoting transparency, monitoring, and evaluation of subsidy programs is essential to ensure they effectively contribute to sustainability objectives. Furthermore, integrating subsidies with comprehensive agricultural policies that prioritize sustainable intensification, diversification, and improved resource management can help foster a more sustainable and resilient livestock sector. In conclusion, achieving sustainability in livestock farming requires a holistic approach that considers the long-term ecological, economic, and social impacts of government subsidies,

balancing short-term economic support with the imperative of ensuring a healthy planet and thriving communities.

Recommendations

Theory

Incorporate the RBV theory to analyze how government subsidies influence the resource allocation within livestock farming. Assess how these subsidies impact the acquisition and utilization of critical resources like land, water, and technology. This theoretical lens can provide insights into how subsidies affect the sustainable management of these resources. Utilize institutional theory to explore how government subsidies shape the norms, rules, and practices within the livestock farming sector. Investigate how these subsidies influence the adoption of sustainable practices and whether they foster institutional change that supports long-term sustainability.

Practice

Conduct a comparative analysis of countries or regions with varying subsidy structures to identify best practices in promoting sustainability. Provide practical recommendations to livestock farmers on how to leverage subsidies for adopting sustainable farming techniques, such as efficient resource utilization and reduced environmental impact. Advocate for the integration of sustainability-oriented training and education within subsidy programs. Governments can support livestock farmers by offering training on sustainable livestock management practices, including responsible resource use, waste reduction, and animal welfare, as part of the subsidy initiatives.

Policy

Propose a shift toward targeted subsidies that prioritize sustainable practices. Advocate for policies that link subsidies to measurable sustainability goals, incentivizing farmers to adopt environmentally friendly and socially responsible farming methods. Recommend the establishment of transparent monitoring and reporting mechanisms for subsidy programs. Encourage governments to track the environmental and social impacts of subsidies and make this information accessible to the public. This promotes accountability and informed decision-making. Highlight the importance of aligning subsidy policies with broader national and international sustainability goals, such as the United Nations Sustainable Development Goals. Suggest that policymakers consider the impact of subsidies on greenhouse gas emissions, biodiversity conservation, and the welfare of rural communities when designing subsidy programs.

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