



Advisory Services and the Diseases Case Among the Livestock: A Case Study of Muzaffargarh, Punjab Pakistan

Mohsin Raza¹, Muhammad Saleem², Shoukat Ali², Muhammad Asghar²,
Badar Naseem Siddiqui¹

1. Department of Agriculture Extension, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi
2. Institute of Agriculture Extension, Education and Rural Development, University of Agriculture Faisalabad

Abstract:

Livestock plays a significant role in the Pakistani agricultural sector, contributing approximately 56.3% to the agricultural value added. With over 35 million people engaged in this sector, it contributes nearly 11% to the country's GDP. Pakistan boasts a substantial population of livestock and is ranked among the top herd owners globally. Despite this, the country still imports livestock products from various countries. The current study aims to investigate the advisory services provided by the livestock department. The study's sample comprised farmers and Veterinary Field staff. The study results revealed that veterinary field staff provided advisory services through home visits, demonstrations, group meetings, and field tours, as reported by the veterinarians. Additionally, the veterinary staff reported providing various services at the farmers' doorsteps, including animal treatment, capacity building for livestock farmers, as well as insemination and vaccination of animals. However, many farmers expressed dissatisfaction when asked about the services rendered by the field staff at their doorstep. Farmers also reported the occurrence of various diseases in their animals, such as Anthrax, Black Quarter, Milk Fever, Mastitis, and Bovine Babesiosis etc.

Keywords: Advisory, Livestock, Diseases, Services

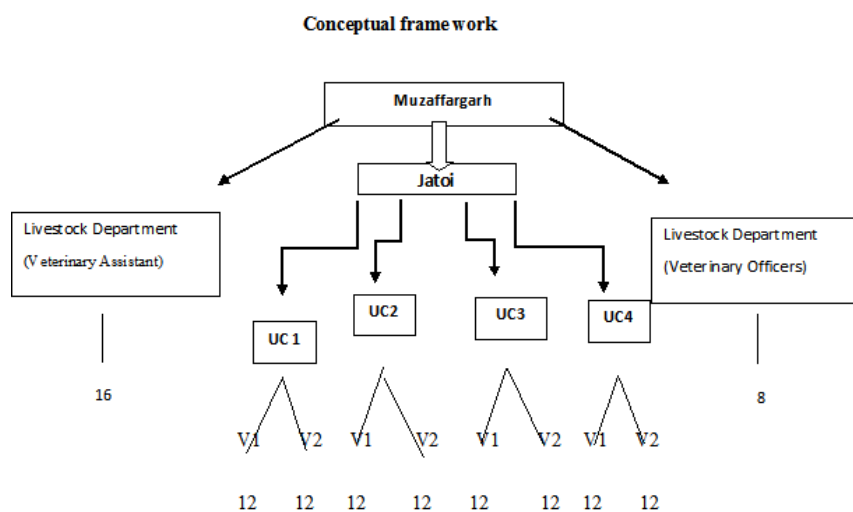
INTRODUCTION

Livestock sector plays a vital role in Pakistan's rural economy, with more than 8 million rural households involved in livestock farming, generating 35 to 40% of their earnings from this sector. The livestock industry has become the dominant force in agriculture, making up around 62.68% of agricultural value added and contributing 14.36% to the overall national GDP in the fiscal year 2023. There is the large herd of animals in the country but the production is less might be due the less efficient breeds, disease attack etc. Losses in livestock sector due to animals' disease such as Lumpy Skin disease attack during 2021, caused a high economic loss of the farming community. The total number of cases in Pakistan were 221,399, with 38,092 animal deaths and the mortality rate was 0.0917 percent (Govt. of Pakistan, 2023). Livestock Extension services encompass education on disease prevention, early detection, and proper diagnostic and treatment protocols. They also emphasize biosecurity measures, vaccination programs, and compliance with regulations to reduce disease risks. Advisors play a crucial role in monitoring disease trends, reporting outbreaks, and disseminating information about the latest research and innovations in livestock health. Additionally, they help livestock owners assess the economic impact of disease outbreaks and provide continuing education to ensure informed decision-making for the well-being of livestock and the sustainability of livestock-related industries (Degu, 2012). But advisory

services in Pakistan regarding livestock management are indispensable for mitigating the impact of disease cases. One can this while keeping in view the livestock production of Pakistan is far below than that of developed countries, instead of having a large herd size (Idrees et al., 2007). The major reason behind the low livestock productivity is non availability of livestock extension services. It also leads towards the less adoption of the improved livestock technology. For the economic development it is necessary to develop and sustain the livestock sector and it is only possible through the adoption of latest livestock related technologies. The adoption of the latest information by the farmers depends upon the efficiency of the extension field staff. More efficient the staff is, more will be the adoption (Ali, 2018). Livestock extension services are instrumental in reducing disease prevalence among animals by offering valuable guidance and knowledge to farmers. These services educate farmers about disease prevention, vaccination, and biosecurity measures, enabling them to proactively protect their livestock from illnesses. Extension agents also facilitate early disease detection, prompt treatment, and responsible medication use, which collectively contribute to minimizing the impact of diseases on animal health and agricultural sustainability (Coetzee et al., 2005). In Pakistan different initiatives were taken from time to time by the livestock department and by private organization to facilitate the livestock farmers. As the farmers are illiterate and they have a little bit knowledge about the latest livestock management practices. Therefore, it is the duty of Livestock extension field staff to educate the farmers and to bring the positive change in the behavior of the farmer regarding the adoption of innovative method of livestock farming. Livestock and Dairy Development Department (Punjab) is mandated for rendering the advisory and health services at the door step of the farmers' extension field staff.

METHODOLOGY

The district of Muzaffargarh was purposefully selected for the research study due to its large population of livestock, including cows, buffaloes, sheep, goats, and camels. This district comprises four tehsils: Muzaffargarh, Kotadu, Jatoi, and Ali Pur. Among these tehsils, Jatoi was chosen conveniently. Jatoi consists of 16 Rural Union Councils (RUCs), and from these, four RUCs were randomly selected. Within these four selected RUCs, two villages were also randomly chosen, resulting in a total of eight villages being included in the study. To collect data, twelve livestock farmers (10 males and 2 females) were randomly selected from each of these eight villages, leading to a sample size of 96 farmers. Additionally, 16 veterinary assistants and 8 veterinary officers were randomly selected from the selected Tehsil (Jatoi).



RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

| Socio-economic attributes of veterinary Field Staff | | | Farmers Socio-economic attributes | | |
|---|----|------|---|----|-------|
| Age | f | % | Age | f | % |
| 25-35 years | 5 | 20.8 | 25-35 years | 5 | 20.8 |
| 36-45 years | 17 | 70.8 | 36-45 years | 17 | 70.8 |
| 46 or above | 2 | 8.3 | 46 or above | 2 | 8.3 |
| Education | | | Education | | |
| Diploma | 16 | 66.7 | Illiterate | 16 | 16.6% |
| Degree | 8 | 33.3 | Primary | 30 | 31.2% |
| Gender | | | Middle | 20 | 20.8% |
| Male | 24 | 100 | Matric | 17 | 17.7% |
| Female | 0 | 0 | Up to matric | 13 | 13.5% |
| Working Experience (years) | | | Gender | | |
| 1-10 | 14 | 58.3 | Male | 80 | 83.3% |
| 11-20 | 8 | 33.3 | Female | 16 | 16.7% |
| 21-30 | 2 | 8.3 | Livestock farming Experience (years) | | |
| Background | | | 1-5 years | 7 | 7.2% |
| Urban | 0 | 0 | 6-10 years | 9 | 9.3% |
| Rural | 24 | 100 | 11-15 years | 23 | 23.9% |
| | | | Up to 15 years | 57 | 59.3% |

The table presents a comparison of the socio-economic attributes between the veterinary field staff and the farmers. In terms of age distribution, both groups exhibit a similar pattern, with the majority falling within the age brackets of 36-45 years, indicating an experienced cohort actively engaged in the veterinary and agricultural sectors. However, the distribution of educational backgrounds differs significantly, with the veterinary field staff predominantly holding diplomas or degrees, while the farmers vary widely from being illiterate to having completed education up to the primary or matric level. Gender distribution shows a significant male dominance among both the veterinary field staff and the farming community, with a proportion of 100% and 83.3%, respectively. The working experience of the veterinary staff ranges between 1-30 years, demonstrating a diverse range of expertise within the field, while the farmers' livestock farming experience is concentrated within the 1-15 years range, indicating a relatively newer cohort involved in agricultural practices. Additionally, the background of the veterinary staff appears to be predominantly rural, suggesting a close connection to agricultural communities, whereas the farmers' background does not provide specific urban or rural distinctions. Overall, the data highlights the diverse socio-economic characteristics within both the veterinary and farming sectors, underscoring the need for targeted policies and initiatives to address the varied needs and experiences of these crucial stakeholders in the agricultural landscape.

Extension Teaching Methods Adopted by The Veterinary Staff and Reported by Farmers

| Adopted by Veterinary Field Staff | | | | Extension Method | Reported by Farmers | | | | | |
|-----------------------------------|------|----|------|-------------------|---------------------|------|----|------|---|---|
| Yes | | No | | | 1 | | 2 | | 3 | |
| f | % | f | % | | f | % | f | % | f | % |
| 24 | 100 | 0 | 0 | Home visit | 71 | 73.9 | 25 | 26.0 | 0 | 0 |
| 24 | 100 | 0 | 0 | Cattle farm visit | 59 | 61.4 | 37 | 38.5 | 0 | 0 |
| 20 | 83.3 | 4 | 16.7 | Demonstration | 64 | 66.6 | 32 | 33.3 | 0 | 0 |

| | | | | | | | | | | |
|----|------|----|------|----------------------|----|------|----|------|----|------|
| 24 | 100 | 0 | 0 | Group Meeting | 49 | 51.0 | 47 | 48.9 | 0 | 0 |
| 24 | 100 | 0 | 0 | Field Tour | 80 | 83.3 | 16 | 16.6 | 0 | 0 |
| 12 | 50 | 12 | 50 | Pamphlets | 13 | 13.5 | 32 | 33.3 | 51 | 53.3 |
| 14 | 58.3 | 10 | 41.7 | Radio | 0 | 0 | 0 | 0 | 96 | 100 |
| 13 | 54.1 | 11 | 45.9 | Television | 30 | 31.2 | 32 | 33.3 | 34 | 35.4 |

1= Frequently, 2= Occasionally and 3= Rarely

The table provides an insightful comparison of the various extension methods adopted by Veterinary Field Staff, as well as the corresponding feedback reported by the farmers. The data showcases the distribution of these methods based on the frequency of their adoption, categorized as "Frequently," "Occasionally," and "Rarely," denoted by the numerical values 1, 2, and 3, respectively. A key observation from the data is the prevalence of "Home visit" and "Field Tour" as the most frequently adopted extension methods by the Veterinary Field Staff, both reporting 100% adoption rates. This indicates the significant role of personalized and on-site interactions in effectively delivering veterinary services and advice to the farmers. Additionally, "Cattle farm visit" and "Demonstration" also demonstrate high adoption rates, suggesting their importance in providing hands-on guidance and practical training to farmers. Moreover, the data indicates a relatively lower adoption of traditional methods such as "Pamphlets," "Radio," and "Television" among the Veterinary Field Staff. However, it is noteworthy that these methods seem to have a higher reported impact from the farmers' perspective, particularly the "Radio" and "Television" programs, with 100% adoption for the latter. This implies the potential effectiveness of mass communication channels in disseminating critical information and education to a wider audience within the farming community. In the context of a research paper, this data serves as a crucial point of analysis, highlighting the need for a diversified approach to extension services. It underscores the importance of combining personalized and direct engagement with more widespread and accessible communication channels to effectively reach and educate the farming community. The findings emphasize the significance of leveraging various extension methods in the dissemination of crucial information, thereby enhancing the overall effectiveness of veterinary services and promoting sustainable agricultural practices. Further research could focus on evaluating the impact of these different extension methods on the adoption of best practices and their influence on the overall livestock healthcare and agricultural productivity.

Livestock Services Rendered by Livestock and Dairy Development Department and Reported by Farmers

| Responses of The Veterinarians | | | | | | | | Services rendered by Veterinary Field staff | Responses of The Farmers | | | | | | | |
|--------------------------------|-----|---|---|---|-----|----|---|--|--------------------------|-----|---|-----|---|-----|----|-----|
| 1 | | 2 | | 3 | | No | | | 1 | | 2 | | 3 | | No | |
| f | % | f | % | f | % | f | % | | F | % | f | % | f | % | f | % |
| 1 | 41. | 3 | 1 | 1 | 45. | - | - | Treatment of animals at the door step | 2 | 24 | 1 | 10. | 2 | 21. | 4 | 43. |
| 0 | 7 | | 2 | 1 | 8 | | | | 3 | | 0 | 4 | 1 | 9 | 2 | 8 |
| 8 | 33. | 1 | 5 | 2 | 8.3 | - | - | Capacity building of livestock farmers | 2 | 24 | 2 | 21. | 1 | 10. | 4 | 43. |
| 3 | 4 | 6 | | | | | | | 3 | | 1 | 9 | 0 | 4 | 2 | 8 |
| 5 | 20. | 8 | 3 | 1 | 45. | - | - | Diagnostic of animals through Mobile Veterinary Labs | 0 | 9.4 | 2 | 21. | 3 | 3.1 | 6 | 65. |
| 8 | 8 | | 2 | 1 | 8 | | | | 9 | | 1 | 9 | | | 3 | 6 |
| 1 | 45. | 2 | 8 | 1 | 45. | - | - | Mass vaccination of animals at door step | 2 | 26 | 3 | 32. | 2 | 22. | 1 | 18. |
| 1 | 8 | | | 1 | 8 | | | | 5 | | 1 | 3 | 2 | 9 | 8 | 8 |
| 1 | 58. | 0 | 0 | 1 | 41. | - | - | Rendering of insemination service | 1 | 11. | 0 | 9.4 | 1 | 17. | 5 | 61. |
| 4 | 3 | | | 0 | 7 | | | | 1 | 5 | 9 | | 7 | 7 | 9 | 2 |

1= low, 2= Medium, 3= High

The presented table provides a comprehensive overview of the responses from both veterinarians and farmers, using a rating scale of 1 to 3, representing low, medium, and high levels of service provision or response. The data reveals various trends in the perceptions and experiences related to different services rendered by the veterinary field staff. Notably, the "Treatment of animals at the door step" and "Rendering of insemination service" received consistently high ratings from both parties, with percentages ranging from 41.7% to 58.3% for veterinarians and 42% to 61.2% for farmers. Conversely, the "Capacity building of livestock farmers" service garnered moderate ratings, ranging from 33.3% to 45.8% for veterinarians and 43.8% to 43.8% for farmers. The "Diagnostic of animals through Mobile Veterinary Labs" received relatively lower ratings, with percentages ranging from 8.3% to 45.8% for veterinarians and 3.1% to 65.6% for farmers. The "Mass vaccination of animals at door step" service demonstrated a mixed response, indicating a medium to high level of engagement, with percentages ranging from 18.8% to 32.3% for farmers and 18% to 45.8% for veterinarians. Overall, the data underscores the importance of tailored strategies to enhance veterinary services, with a specific focus on leveraging technology for diagnostics and ensuring the accessibility of crucial services for livestock farmers. The table presents a comprehensive overview of the prevalence of various diseases among livestock, categorized into four severity levels: Very High, High, Medium, and Low. Upon closer examination, it becomes evident that certain diseases pose a significant health risk to the livestock population. Notably, diarrhea emerges as the most prevalent concern, with 56.2% of cases falling under the "Very High" severity category, indicating a critical and widespread health issue affecting the livestock. Similarly, foot rot and mastitis demonstrate considerable prevalence across all severity levels, with 48.9% and 66.6% falling under the "High" severity category, respectively. Furthermore, diseases such as anthrax, black quarter, and pox exhibit a relatively balanced distribution across severity levels, indicating a consistent presence within the livestock population. On the other hand, diseases such as bovine babesiosis and FMD show a higher prevalence in the "Medium" severity category, suggesting a moderate but persistent challenge for livestock health. Interestingly, certain diseases, including respiratory diseases and wounds, demonstrate a prevalence predominantly in the "Very High" and "High" severity categories, emphasizing the urgent need for effective disease management strategies to safeguard the well-being and productivity of the livestock.

Livestock Diseases Reported by the Farmers in their Animals

| Diseases | Very High | | High | | Medium | | Low | | Very low | |
|---------------------------|-----------|------|------|------|--------|------|-----|------|----------|---|
| | f | % | f | % | f | % | f | % | f | % |
| Anthrax | 12 | 12.5 | 23 | 23.9 | 40 | 41.6 | 21 | 21.8 | 0 | 0 |
| Black quarter (black leg) | 16 | 16.6 | 21 | 21.8 | 23 | 23.9 | 45 | 46.8 | 0 | 0 |
| Pox | 21 | 21.8 | 42 | 43.7 | 17 | 17.7 | 16 | 16.6 | 0 | 0 |
| Milk fever | 20 | 20.8 | 35 | 36.4 | 19 | 19.7 | 22 | 22.9 | 0 | 0 |
| Foot root | 12 | 12.5 | 47 | 48.9 | 11 | 11.4 | 26 | 27.0 | 0 | 0 |
| Mastitis | 11 | 11.4 | 53 | 55.2 | 17 | 17.7 | 15 | 15.6 | 0 | 0 |
| Bovine babesiosis | 20 | 20.8 | 12 | 12.5 | 59 | 61.4 | 08 | 8.3 | 0 | 0 |
| Ring worm | 31 | 32.2 | 38 | 39.5 | 11 | 11.4 | 26 | 27.0 | 0 | 0 |
| Diarrhea | 54 | 56.2 | 31 | 32.2 | 11 | 11.4 | 0 | 0 | 0 | 0 |
| FMD | 53 | 55.2 | 29 | 30.2 | 14 | 14.5 | 0 | 0 | 0 | 0 |
| Respiratory disease | 54 | 56.2 | 31 | 32.2 | 11 | 11.4 | 0 | 0 | 0 | 0 |
| Wounds | 53 | 55.2 | 29 | 30.2 | 14 | 14.5 | 0 | 0 | 0 | 0 |

1= Very High, 2= High, 3= Medium, 4= Low and 5= Very Low

Overall, the data highlights the complex nature of disease prevalence within the livestock population, underscoring the necessity for robust disease surveillance and proactive health management practices. These findings underscore the critical role of veterinary professionals and stakeholders in implementing targeted disease control measures and preventive strategies to mitigate the impact of these diseases on the livestock industry.

REFERENCE

Ali, A. (2018). Impact of climate-change risk-coping strategies on livestock productivity and household welfare: empirical evidence from Pakistan. *Heliyon*, 4(10).

Coetzee, L., Montshwe, B. D., & Jooste, A. (2005). The marketing of livestock on communal lands in the Eastern Cape Province: constraints, challenges and implications for the extension services. *South African Journal of Agricultural Extension*, 34(1), 81-103.

Degu, G. (2012). Assessment of the livestock extension service in Ethiopia: the case of southern region. *International journal of scientific & technology research*, 1(10), 24-30.

Government of Pakistan (2023). Pakistan Economic Survey. Available at: https://www.finance.gov.pk/survey_2023.html.

Idrees, M., Mahmood, Z., Shafi, M., & Sidique, U. (2007). Performance evaluation of extension services of livestock and dairy development department in district Peshawar (NWFP). *Sarhad Journal of Agriculture*, 23(2), 519.

Rehman, A., Jingdong, L., Chandio, A. A., & Hussain, I. (2017). Livestock production and population census in Pakistan: Determining their relationship with agricultural GDP using econometric analysis. *Information Processing in Agriculture*, 4(2), 168-177.