

Household food security and poultry disease control in rural Burkina Faso: understanding and strengthening Newcastle disease vaccine supply chains

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Introduction

Effective vaccination strategy against Newcastle disease (ND) is crucial for the sustainable development of traditional poultry farming in Burkina Faso.

- Poultry farming is a vital activity for 1.6 million households, primarily in rural areas. It serves as a major source of income and animal-source food, contributing to food security and economic empowerment, especially for women (Ayssiwede et al., 2013; FAO, 2018).
- ND, a major concern to poultry farming is endemic in the country, causing significant economic losses for small-scale farmers (Ouedraogo et al., 2017). It is also a key differential diagnosis for high pathogenicity avian influenza.
- Vaccination is recognized as the most effective tool for controlling ND (Alders & Spradbrow, 2001). However, its implementation faces many challenges that hinder adequate vaccination coverage and disease eradication.

This study aims to understand bottlenecks in the ND vaccine supply chain, aiming to identify barriers to effective vaccination coverage and disease control.

Methods

Qualitative Methods

- In-depth interviews were conducted with eight key informants (from central to local levels) involved in the poultry vaccine supply chain to understand the mechanism for importation, distribution and use of vaccines.
- Eight gender disaggregated focus group discussions were held with a total of 62 chicken producers in Boussouma commune (rural area) to explore farmer's awareness, practices, perceptions and challenges related to ND vaccination. Data were transcribed and analyzed using thematic analysis (Thomas, 2006).

Quantitative Methods

- A questionnaire was administered to 483 households in 23 villages of Boussouma commune to assess current chicken production practices, economic indicators, including ND vaccination on household and flock characteristics. Data were analyzed using Excel and R statistical software.



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Results

The supply chain pathways for ND vaccines

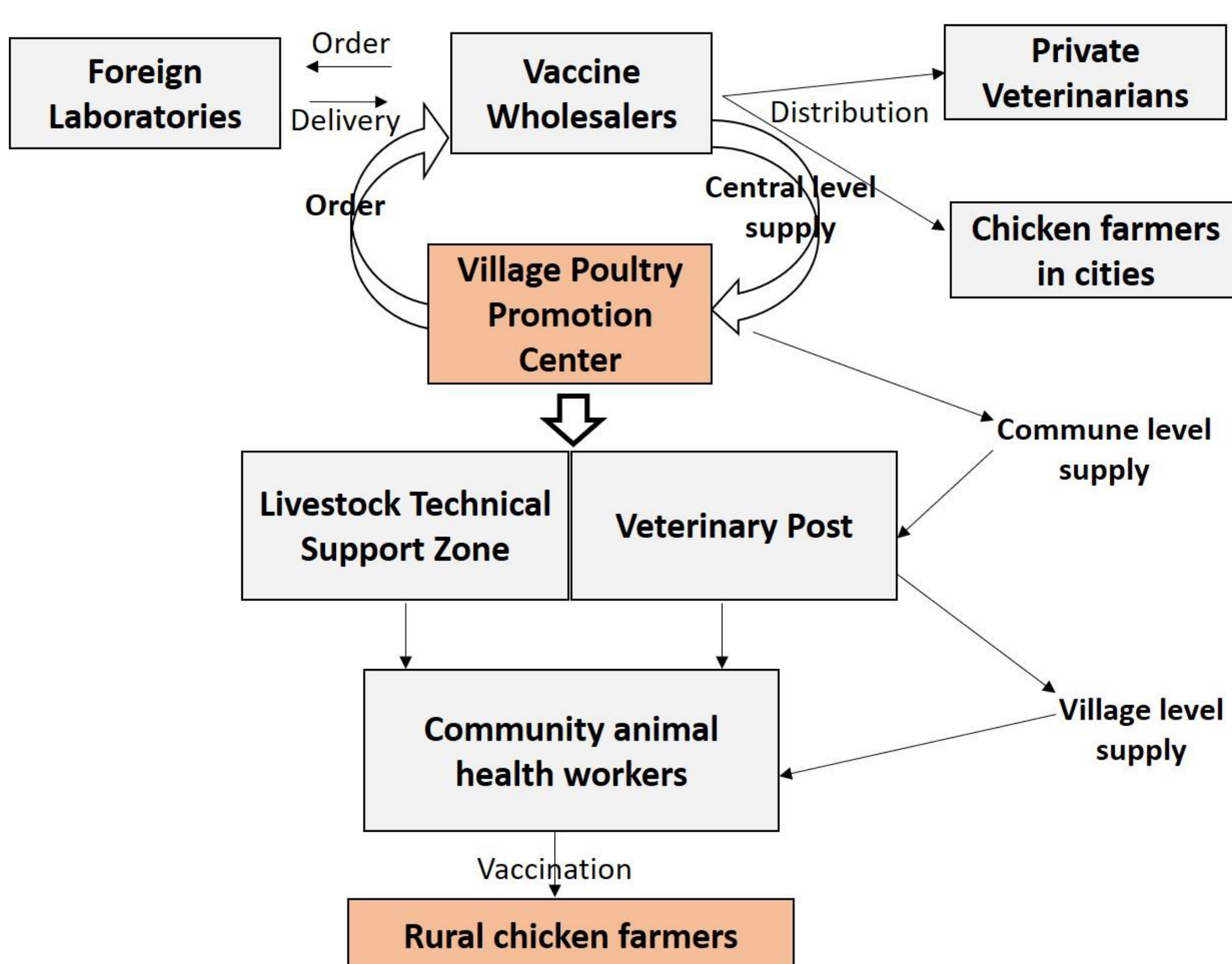


Figure 1: Diagram of the supply circuit for ND vaccines in Boussouma commune

Vaccination in traditional poultry farming

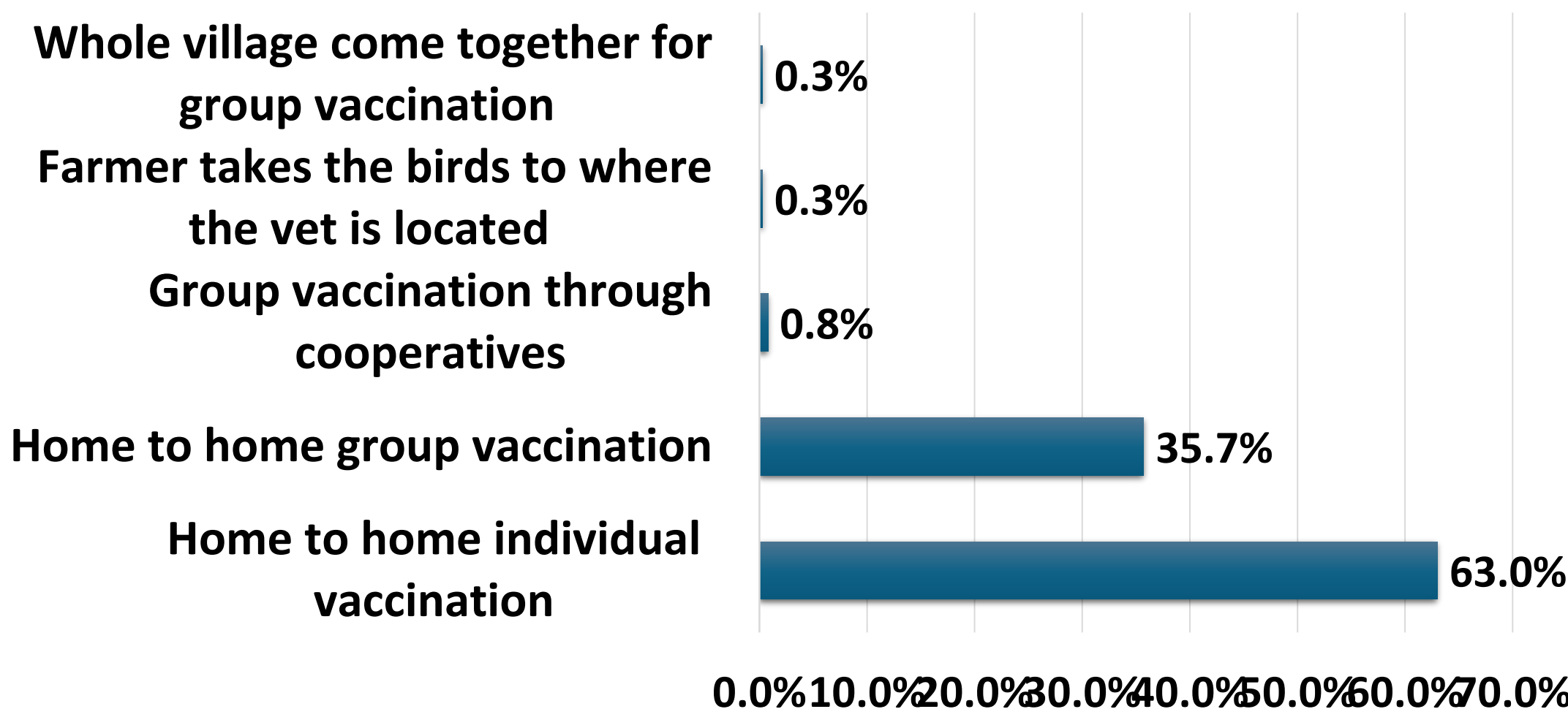


Figure 2: Distribution of Newcastle disease vaccination organization methods in the villages of Boussouma commune (n=387)

- ND awareness is high among farmers, with 80% of them vaccinating their flocks.
- Community animal health workers play a vital role in delivering vaccinations in rural communities.
- Farmers expressed high satisfaction with the vaccination process in their village (95%) and with the vaccine quality (98%).
- The official vaccination fee of 50 FCFA (\$0,085) is often increased by vaccinators to 60 FCFA (\$0,10) due to additional charges caused by logistical challenges such as transport and cold chain.

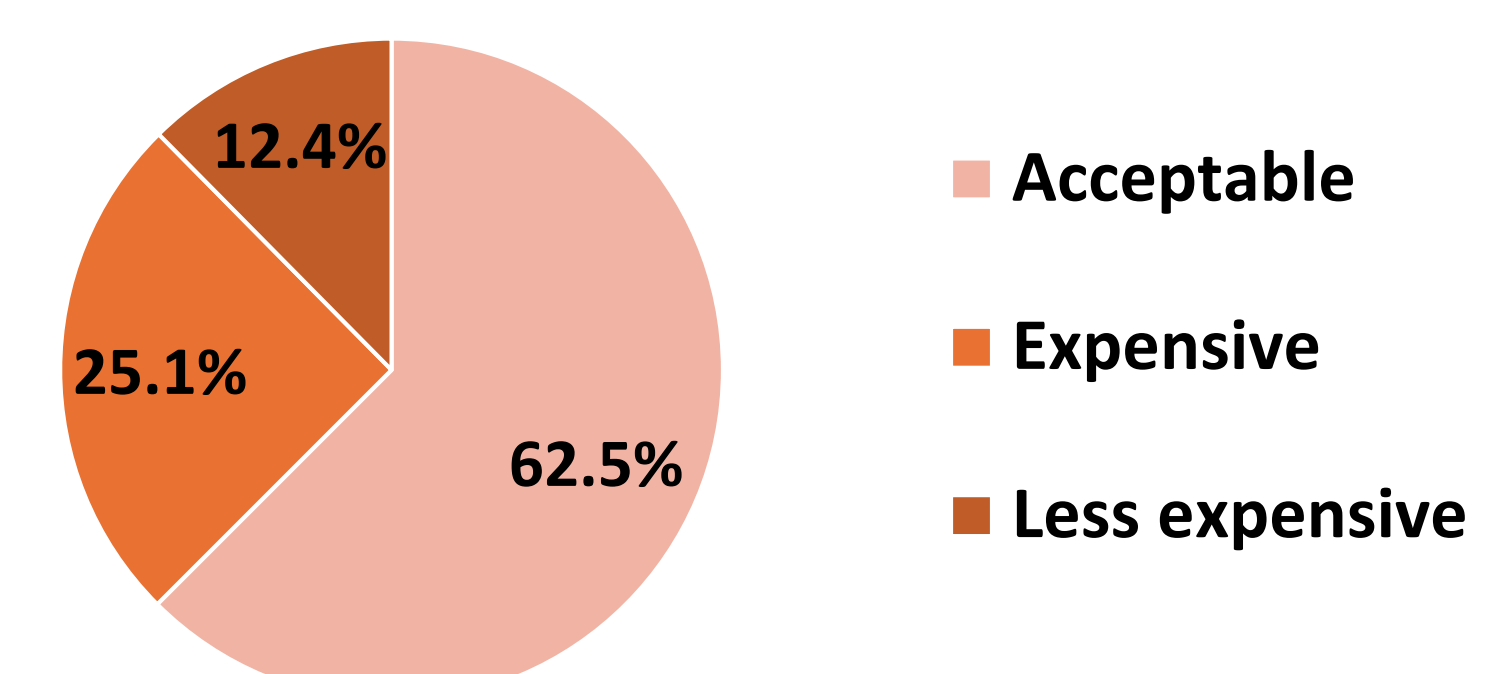


Figure 3: Assessment of the cost of Newcastle disease vaccination by farmers in Boussouma commune (n=387)

Obstacles to effective ND vaccination

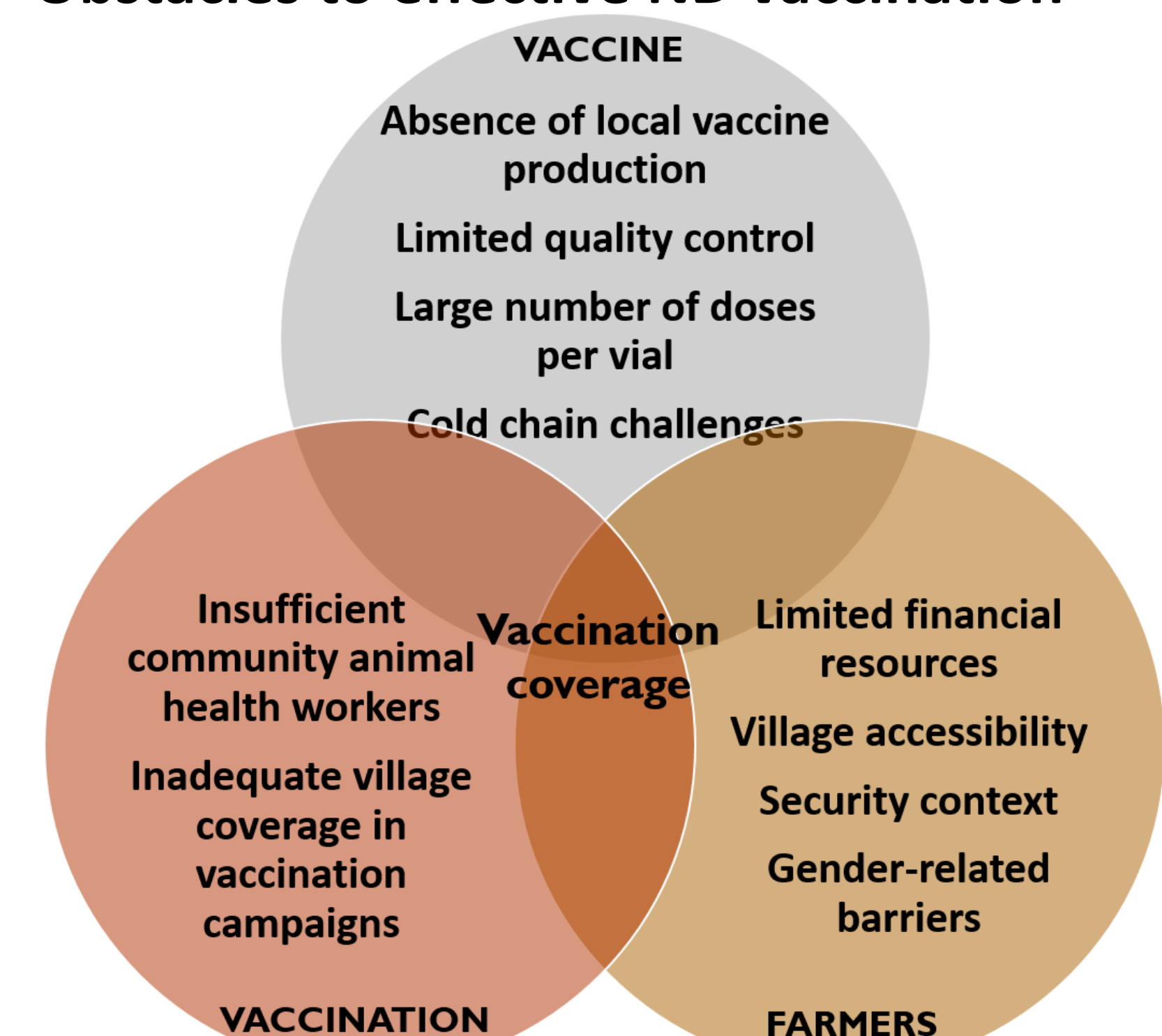


Figure 4: Venn diagram illustrating factors hindering vaccination coverage in rural areas

Conclusion

- Insufficient vaccine quality control, combined with cold chain failures, was pointed out by actors, as major obstacles to good effective vaccination.
- The large number of doses per vaccine vial is unsuitable for smallholder poultry farmers due to their smaller flock size.
- Insufficient vaccinators and incomplete village coverage during vaccination campaigns contribute to low vaccination rates.
- Promoting local vaccine production or repackaging, adopting thermotolerant vaccines, increasing community animal health worker numbers including female vaccinators and integrating vaccination with other agricultural services can greatly enhance ND vaccine supply chain efficiency.



Photo by ILRI Burkina Faso

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