Opportunities to promote cattle breeding in northwest vietnam: a business model approach

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Abstract

Aiming to modernize the livestock sector in Vietnam, native cattle (yellow cattle), despite being preferred by regional demand, face limitations due to their low production performance, lower resistance to modern diseases, and slow growth rate. In this context, cattle breeding through artificial insemination (AI) is part of a broader strategy promoted by the government and NGOs to improve animal productivity and health, meet the growing demand for higher-quality beef, and promote sustainable intensification of cattle farming. Despite these benefits, adoption rates remain low due to the prevalence of traditional cattle management practices, high costs of maintaining improved breeds, limited availability of AI services, and market conditions that discourage investment. This study assesses the economic and social opportunities and constraints of scaling up AI services in rural areas of Northwest Highlands in Vietnam, approaching from a business and gender perspective. We analysed the service providers' business models, and conducted interviews and focus groups with users, government representatives, and farmer organisations' leaders to gain a comprehensive view of the service market, engaging a total of 73 stakeholders. Our findings show that AI service demand is unstable and limited, as most users, primarily small-scale farmers averaging 2–5 cattle heads, still prefer natural mating. Household decision-making on accessing the service is largely controlled by men, and women show distrust in the technology due to perceived risks, such as the potential loss of a cows' reproductive capacity. Although the AI service value proposition is flexible and includes additional services associated with animal welfare and input supply, often delivered through a network of technicians, it is not fully profitable, and its services are mainly subsidised by the government or NGOs. This is also due to the lack of essential input supply for the service (e.g., nitrogen and semen), which forces providers to source them from other provinces, and operating costs increase. To improve AI service supply, facilitate accessibility, and promote scalability, strategies should include formalizing and supporting AI providers as microentrepreneurs, strengthening local input supply chains (such as nitrogen centers or

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sperm banks), and strengthening campaigns to improve user perceptions of the practice's benefits.