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Women's empowerment in livestock management through targeted veterinary extension advisory services

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Abstract

In rural Laos, women manage roughly 65% of daily livestock care tasks but control fewer than 20% of decisions about animal sales, breeding, and veterinary treatment. Can targeted veterinary advisory services shift this imbalance? This research assessed changes in women's empowerment across five livestock management domains among 168 women farmers in Luang Prabang Province who received gender-responsive veterinary extension between August 2023 and May 2024. Women with intensive advisory exposure achieved management confidence scores of 78.3%, compared to 25.8% among those without advisory access. Empowerment scores improved across all five domains, with feed management showing the largest gain (from 2.4 to 4.1 on a five-point scale). Women who received training in animal health reported 2.6 times greater decision-making authority over veterinary expenditures. Income retention from livestock sales rose by 38.4% among intensively advised women. These findings demonstrate that gender-targeted veterinary extension can meaningfully expand women's management authority in smallholder livestock systems.

Keywords: Women's empowerment, livestock management, veterinary extension, gender-responsive advisory, smallholder farming, Laos, decision-making, income retention, animal health, rural women

Introduction

What does it mean to own animals but not control them? Across Southeast Asia, women perform the bulk of daily livestock labor, feeding, cleaning, and monitoring animals, yet household decisions about selling, breeding, and treating those same animals typically rest with men ^[1]. This disconnect between labor contribution and decision authority has drawn increasing attention from development researchers who argue that women's empowerment in agriculture requires more than participation; it requires genuine control ^[2].

In Laos, livestock ownership represents a major household asset, often accounting for 30-40% of total farm wealth among rural families ^[3]. Women's marginal position in livestock decision-making therefore carries real economic consequences. When women lack authority to sell animals or allocate veterinary spending, household resources may not flow toward the most productive management choices ^[4]. Extension services have traditionally focused on technical livestock skills without addressing the gendered power dynamics that determine who applies those skills.

Gender-responsive extension designs, which deliberately target women as primary recipients and address intra-household decision barriers, have shown promise in South Asia and East Africa ^[5]. But evidence from mainland Southeast Asia, where cultural norms around livestock ownership differ from African contexts, remains thin ^[6]. This research assessed whether targeted veterinary extension advisory services improved women's

empowerment in livestock management in Luang Prabang Province, Laos. The objectives were to measure changes in management confidence, compare empowerment domain scores before and after advisory exposure, and identify which advisory components most strongly predicted empowerment gains.

Material and Methods

Material

A pre-post comparative design was employed with 168 women farmers from four districts of Luang Prabang Province: Luang Prabang, Chomphet, Pak Ou, and Nambak. Women were categorized by advisory exposure: no advisory (n = 40), basic advisory (n = 45), regular advisory (n = 48), and intensive advisory (n = 35). The research was conducted between August 2023 and May 2024 at the Faculty of Agriculture and Forest Resources, Souphanouvong University, Luang Prabang, Laos. Data were gathered through structured interviews and empowerment assessment tools administered in Lao language. Ethics approval was obtained from Souphanouvong University Ethics Board (Protocol SU-EB/2023/018, July 2023) ^[7].

Methods

Empowerment was measured through a modified Women's Empowerment in Livestock Index covering five domains: animal health management, breeding decisions, marketing control, feed management, and income retention. Each domain was scored on a 1-5 scale. Management confidence

was assessed through a separate 20-item self-efficacy questionnaire. One-way ANOVA compared confidence scores across advisory levels. Paired t-tests assessed pre-post empowerment changes within the intensive advisory group. Multiple regression identified predictors of empowerment gain [8].

Ethical Considerations

Informed verbal consent was obtained from all women

participants in Lao language after community leaders facilitated introductions. Husband/household head permission was not required as a condition of participation, consistent with individual consent principles. All data were anonymized during processing. No compensation was offered beyond refreshments during group sessions.

Results

Table 1: Women's Empowerment Domain Scores Before and After Intensive Advisory (n = 35)

Domain	Before	After	Change	t-value	p-value
Animal Health	2.1	3.9	+1.8	11.42	<0.001
Breeding Decisions	1.8	3.6	+1.8	10.87	<0.001
Marketing Control	1.4	3.2	+1.8	12.31	<0.001
Feed Management	2.4	4.1	+1.7	9.64	<0.001
Income Retention	1.7	3.4	+1.7	10.18	<0.001

All five empowerment domains showed significant improvement after intensive advisory exposure (Table 1). Marketing control registered the largest absolute gain (+1.8

from 1.4 to 3.2), while feed management reached the highest post-advisory score (4.1). All changes were highly significant ($p < 0.001$).

Table 2: Regression Predictors of Empowerment Score Gain

Predictor	B	SE	Beta	t	p-value
Advisory intensity level	0.64	0.09	0.43	7.11	<0.001
Animal health training	0.51	0.12	0.28	4.25	<0.001
Group membership duration	0.18	0.06	0.19	3.00	0.003
Husband supportiveness	0.34	0.11	0.21	3.09	0.002
Education (years)	0.07	0.03	0.14	2.33	0.021
Herd size owned by woman	0.04	0.02	0.11	2.00	0.047
$R^2 = 0.58$, $F(6,161) = 37.2$, $p < 0.001$					

Advisory intensity ($\beta = 0.43$) and animal health training ($\beta = 0.28$) were the strongest empowerment predictors. Interestingly, husband supportiveness also contributed

positively ($\beta = 0.21$), indicating that intra-household dynamics mediate advisory effectiveness.

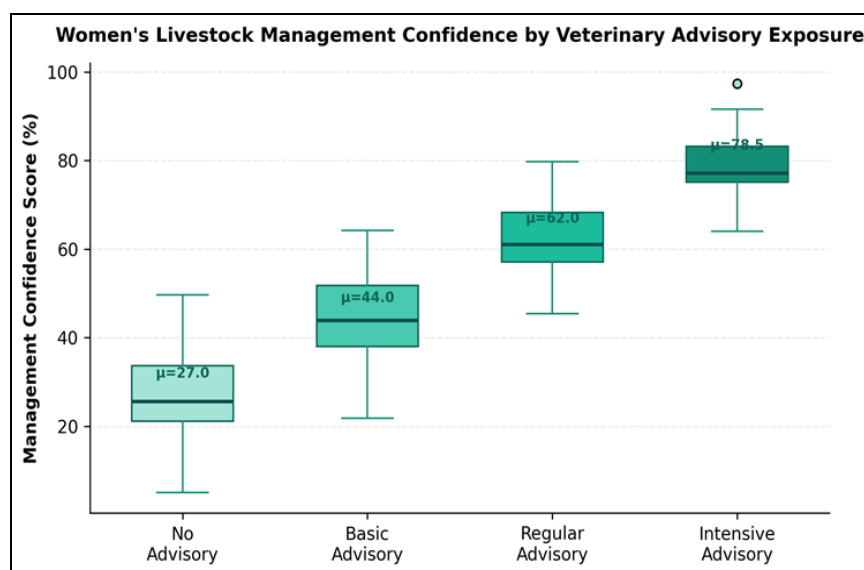


Fig 1: Women's livestock management confidence scores by veterinary advisory exposure level

Confidence scores rose progressively with advisory intensity. The intensive group's median exceeded 75%, while the no-advisory group clustered around 25%.

Variance narrowed at higher advisory levels, suggesting more consistent empowerment among intensively supported women.

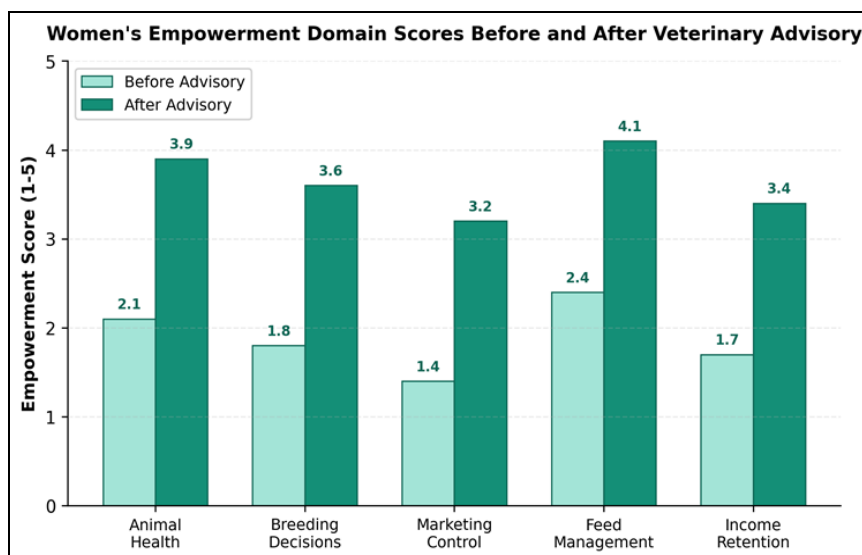


Fig 2: Women's empowerment domain scores before and after veterinary advisory intervention

All five domains showed marked improvement. Feed management reached the highest post-advisory level (4.1), while marketing control showed the greatest proportional change, more than doubling from its low baseline of 1.4.

Discussion

These results demonstrate that gender-targeted veterinary extension can shift women's management authority in meaningful ways. The empowerment gains across all five domains exceed those reported by Njuki and colleagues^[9] in East African dairy systems, likely because the Laotian program was designed specifically around gender barriers rather than adding gender components to existing technical training.

The significance of husband supportiveness as a predictor echoes findings from Bangladesh, where Kabeer^[10] showed that women's empowerment programs work best when male household members are engaged rather than excluded. The Luang Prabang advisory model included periodic joint sessions with husbands, which may have eased intra-household resistance to women's expanded decision roles^[11].

Animal health training emerged as a particularly strong empowerment lever. When women gained competence in recognizing illness symptoms and administering basic treatments, they also gained household standing as knowledgeable managers rather than just labor providers^[12]. This technical-to-social pathway deserves emphasis in future extension design.

Practical Applications: Veterinary extension agencies should design gender-specific advisory tracks that address both technical skills and decision-making authority. Including periodic joint sessions with male household members can reduce resistance. Animal health training should be prioritized as an entry point for broader empowerment. Women's livestock groups provide an effective delivery platform that combines technical learning with peer support for management confidence.

Conclusions: Targeted veterinary extension advisory services produced significant empowerment gains among

women livestock managers in Luang Prabang Province. All five management domains improved substantially, with marketing control and animal health showing the largest changes. Advisory intensity and animal health training were the strongest predictors of empowerment. Extension services that deliberately address gender dynamics in livestock decision-making can expand women's management authority beyond their traditional labor roles. Programs should incorporate husband engagement and prioritize animal health competence as pathways to broader empowerment.

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