



INITIATIVE ON
Sustainable Animal
Productivity

POLICY BRIEF

Embracing Forage Technologies in Mai Son District, Son La Province, Vietnam: Lessons from the Li-Chan Project and Recommendations for Future Endeavors

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KEY MESSAGES

- Farmers in the Mai Son district are increasingly embracing novel forage varieties, such as Green Elephant grass and legumes. Notably, Green Elephant grass is favored for its adaptability to the local climate, substantial biomass production, and positive impact on animal productivity. This adoption proves instrumental in fulfilling the growing demand for animal feed.
- Key obstacles hindering widespread adoption revolve around limited access to training, information, and financial resources for investments. The challenges are particularly acute in remote and mountainous areas, with Hmong women experiencing additional hurdles due to language barriers. Efforts to address these barriers are crucial for fostering comprehensive adoption of beneficial forage technologies in the region.

CONTEXT

Livestock systems in Vietnam are increasingly moving towards intensification (Ba et al., 2012). Livestock production in the Northwest Highlands of Vietnam plays a crucial role in supporting the livelihoods of small producers and ethnic minorities (Tiemann, 2019). However, farmers in this region encounter various challenges in fulfilling the demand for livestock feed. Common issues include feed shortages, particularly during the winter season (December–April), low nutritional quality of the feed basket, meager forage yield, and labor-intensive forage-gathering practices (Hammond et al., 2021; Atieno et al., 2021a; Tran et al., 2023). To address these challenges, the government and other stakeholders are advocating for a modernization agenda in livestock production. This agenda focuses on diversifying and enhancing the nutritional quality of the animals' feed basket. Key strategies involve the dissemination of forage varieties that are nutritionally advantageous and help ensuring a consistent availability of feed throughout the year.

Aligned with these initiatives, the CGIAR Research Program on Livestock, under the Li-Chan Project, actively facilitated capacity building in animal nutrition and the dissemination of improved forage varieties, including both grasses and legumes. This effort yielded positive outcomes in terms of enhanced productivity, effectively addressing the challenges

in livestock nutritional management within the Mai Son district of Son La province (Atieno et al., 2021a, 2021b).

Building on these achievements and as part of the OneCGIAR Initiative SAPLING, this study seeks to discern the preferences among the forage varieties promoted over the past five years. Additionally, it aims to identify factors that either encourage or discourage their adoption. This groundwork is essential for the subsequent expansion of these interventions to other regions in Vietnam. To achieve this objective, we have opted for a qualitative approach, employing semi-structured interviews conducted with both adopting and non-adopting producers, encompassing men and women in the Chieng Luong and Chieng Chung communes of the Mai Son District.

METHODS AND DATA

Employing a qualitative methodology facilitated a comprehensive exploration of factors influencing the adoption of forage technologies (FT). The evaluated FTs encompassed *Urochloa* hybrid cv. Mulato II (Mulato II), *Megathyrus* *maximus* cv. Mombasa (Mombasa guinea), *Pennisetum purpureum* (Green Elephant), *Paspalum atratum* (Ubon paspalum), *Stylosanthes guianensis* cv. Vulgaris x cv. Paucifloa (Ubon Stylo), *Arachis pinto* (Pinto peanut), and *Vigna umbellata* (rice bean). The research, conducted by enumerators from the Northern Mountainous Agriculture & Forestry Science Institute (NOMAFSI), involved 42 semi-structured interviews with both adopters and non-adopters across six villages in Chieng Luong and Chieng Chung communes within the Mai Son district.

A purposive sampling method was employed to ensure representation of both women and men farmers. Additionally, the socio-geographic typologies utilized in prior studies were maintained, distinguishing four farming systems and considering ethnic composition across three geographic systems: valley areas, mid-level, and highland areas (Tiemann, 2019; Hammond et al., 2021) (see Figure 1). We selected farmers who have embraced a minimum of one type of FT, with a particular focus on those advocated by the Li-Chan project. Our interviews aimed to pinpoint the specific species they have integrated, understand the primary motivations behind their adoption, explore the perceived benefits they have encountered, and identify the hurdles encountered throughout the adoption process. The interviews, conducted in Vietnamese in May 2023, were subsequently translated into English. Data analysis was conducted utilizing the content analysis method. The categories of analysis included in the tool encompassed 1) knowledge of the FT and 2) benefits and challenges associated with adoption.

RESULTS

Adoption of forages technologies

The predominant forage varieties adopted in the region include Green Elephant grass and Mombasa guinea, with Pinto peanut, Rice bean, Mulato II, and Ubon Stylo also seeing adoption, albeit to a lesser extent. Green Elephant grass emerges as the most favored variety across all types of farms, commonly utilized by both men and women.

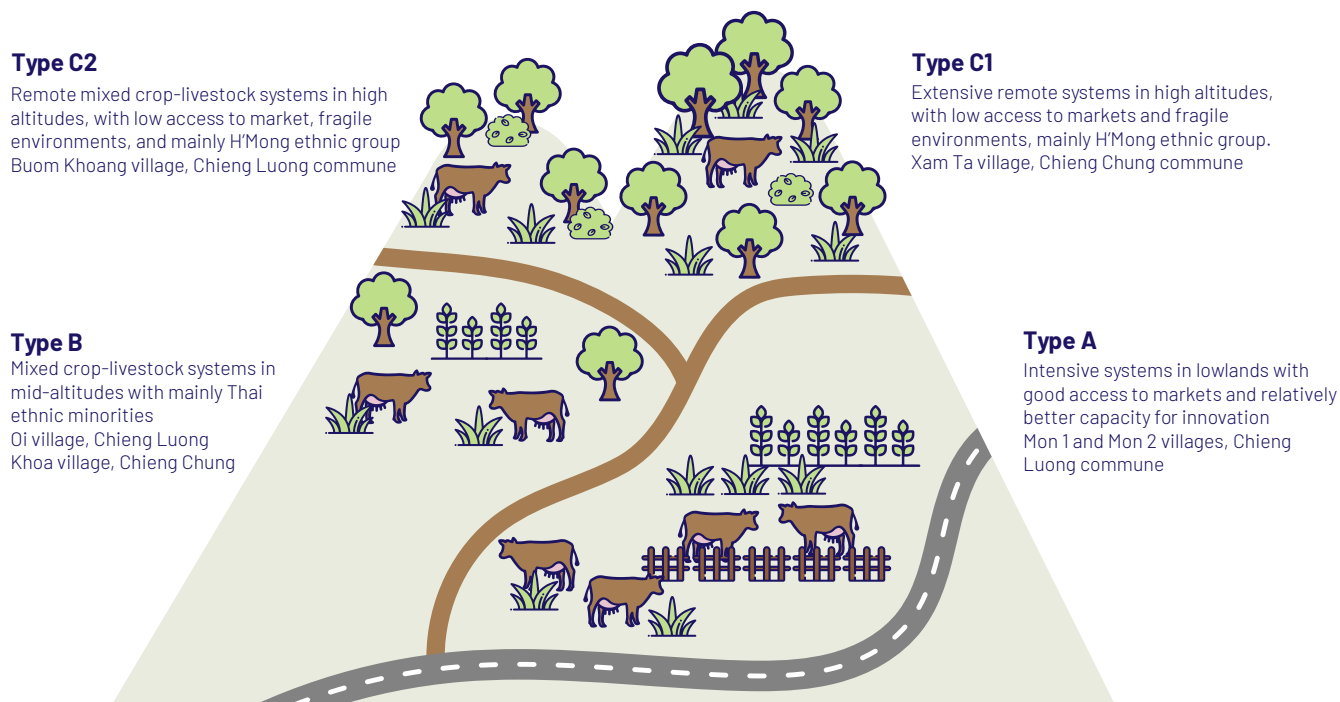


Figure 1. Description of farm typologies and study areas.

In farms categorized as Type A and C2, farmers are primarily influenced by the Li-Chan project and recommendations from fellow farmers who have successfully implemented forage technologies. Conversely, in Type B and C1 farms, diversifying feed sources, experimenting with new varieties, and increasing biomass production are the predominant motivations for adoption. Regarding gender differences in FT adoption, women often rely on expert recommendations, such as those from the Li-Chan project and neighboring farmers. In contrast, men emphasize the significance of augmenting biomass production.

Farmers have recognized various benefits stemming from the implementation of these FT. The foremost advantages include reduced labor costs, attributed to the low maintenance requirements of these varieties, and increased animal productivity. Women particularly highlight the convenience of having forage plant areas closer to their homes, facilitating seamless integration with household labor. Farmers in Type C1 and C2 farms appreciate the ease of cutting these forage technologies without posing harm during harvesting. Table 1 gives a comprehensive overview of the benefits of adoption identified by the interviewees.

Table 1. Adoption of forages technologies.

Type	Gender	Varieties adopted by farmers	Factors influencing the use of FT	Benefits from using these FT
A	Men	Most have heard of and use Green Elephant grass and Mombasa guinea	1. Promoted by projects through training (Li-Chan). 2. Recommendations from neighbors and relatives. 3. Higher biomass production and preferred by livestock.	1. Reduced labor cost. 2. Easy to access since planted areas are closer to farms. 3. Do not require too much care. 4. Increased animal productivity.
	Women	Most have heard of and use Green Elephant grass and Mombasa guinea	1. Promoted by projects through training (Li-Chan). 2. Need to try new varieties. 3. Higher biomass production and nutrient levels.	1. Increased animal productivity.
B	Men	Most have heard of and use Green Elephant grass, Mombasa guinea, Pinto peanut, and rice bean	1. Need to try new varieties. 2. Higher biomass production.	1. Increased animal productivity.
	Women	Most have heard of and use Green Elephant grass and Mombasa guinea	1. Diversification of feed sources and better forage adaptability. 2. Recommendations from neighbors and relatives. 3. Higher biomass production.	1. Easy to access since planted areas are closer to farms. 2. Increased animal productivity.
C1	Men	Most have heard of and use Green Elephant grass	1. Need to try new varieties. 2. Better forage adaptability.	1. Reduced labor cost. 2. Easy to access since planted areas are closer to farms.
	Women	Most have heard of and use Green Elephant grass and Mulato II	1. Need to try new varieties.	1. Easy to access since planted areas are closer to farms.
C2	Men	Most have heard of and use Green Elephant grass, Ubon Stylo, and Mombasa guinea	1. Promoted by projects through training (Li-Chan). 2. Higher biomass production.	1. Reduced labor cost. 2. Easy to harvest and no harm while harvesting.
	Women	Most have heard of and use Green Elephant grass and Mombasa guinea	1. Promoted by projects through training (Li-Chan). 2. Recommendations from neighbors and relatives.	1. Easy to harvest and no harm while harvesting.

Barriers to adoption

Farmers who have adopted forage technologies encountered diverse barriers and challenges, leading to the discontinuation of some previously adopted varieties. Notably, Pinto peanut, rice bean, and Ubon Stylo are among the most underutilized varieties, primarily due to their low performance and poor adaptability to cool winters.

Access to training for the effective management of forage technologies is identified as crucial, but not all farmers have had the opportunity to benefit from it. Farms located closer to the market (Type As and B), exhibit greater access to training compared to more distant farm Types C1 and C2. Furthermore, there is a gender disparity, with men having more access to training than women. Training initiatives have been provided by the Li-Chan project, veterinarians, and non-governmental organizations. Similar challenges are observed in terms of access to information, particularly on farms situated in remote and mountainous areas (Type C1 and C2). All farmers interviewed from these areas express difficulties in accessing information, with Hmong women facing more significant challenges than men, including language barriers such as not speaking and reading Vietnamese. The internet and handouts serve as the primary sources of information for these farmers.

Financial constraints and limited access to credit pose challenges for farmers. In farm Types A, B, and C1, farmers predominantly finance livestock activities using their savings. On the Type C2 farms, which are further away from the market, there is a prevalent fear among farmers of being unable to repay loans. Table 2 provides an overview of the barriers to adoption derived from interviewed farmers.

RECOMMENDATIONS

Based on the identification of adoption conditions and key barriers faced by farmers in the region, the following recommendations are proposed to enhance the adoption levels of forage technologies:

- **Promote Green Elephant grass:** Given that Green Elephant grass is the preferred variety among farmers in the region and has demonstrated positive results, ongoing promotion and adoption efforts should be continued.
- **Address challenges with Pinto peanut, rice bean, and Ubon Stylo:** Recognizing the difficulties farmers face in adopting Pinto peanut, rice bean, and Ubon Stylo, focused efforts should be directed towards improving the performance and adaptability of these varieties, especially in cool winter conditions.

- **Sustain Li-Chan project activities:** The Li-Chan project has played a significant role in motivating farmers to adopt forage technologies. It is essential for the project to persist in its activities to further boost adoption levels in the region, i.e., through the OneCGIAR SAPLING initiative.
- **Enhance training and information access in remote farms:** Develop strategies to extend training and information access to farms located further away from the market. Potential initiatives may involve collaborations between research centers and rural extension programs. Additionally, a gender-inclusive approach should be integrated into these strategies to address the existing disparity in training and information access between men and women.
- **Mitigate fear of financing in remote farms:** Recognize the fear among farmers in remote farms about seeking financing. Implement measures to create favorable and easy payment conditions, encouraging farmers to confidently request credit for financing their livestock activities.

By implementing these recommendations, there is a prospect of overcoming existing barriers and fostering a more widespread and successful adoption of forage technologies in the region.



Type	Gender	Discontinuity of FT	Training and technical assistance	Information access	Financing
A	Men	Stopped using Mulato II, Pinto peanut, rice bean, and Ubon Stylo. Reasons: • labor-intensity • low biomass productivity	75% of men interviewees have received training from the Li-Chan project and veterinarians.	38% of men interviewees pointed out a difficult and infrequent access to FT information..	50% of men interviewees have no access to financing and use own savings for investments
	Women	Stopped using Ubon Stylo. Reasons: • low performance	20% of women interviewees have received training from the Li-Chan project	60% of women interviewees pointed out a difficult and infrequent access to FT information.	40% of women interviewees have no access to financing and use own savings for investments
B	Men	Stopped using Pinto peanut and rice bean. Reasons: • low performance	100% of men interviewees have received training from the Li-Chan project and veterinarians.	No men interviewees pointed out a difficult and infrequent access to FT information. It is accessed through the internet and handouts.	All men interviewees have access to financing.
	Women	Stopped using Mulato II and Pinto peanut. Reasons: • low performance • labor-intensity	100% of women interviewees have received training from the Li-Chan project, veterinarians, and NGOs.	No women interviewees pointed out a difficult and infrequent access to FT information. It is accessed through the internet and handouts.	75% of women interviewees have no access to financing and use own savings for investments
C1	Men	Stopped using all FT introduced, except Green Elephant grass. Reasons: • Preference for Green Elephant	75% of men interviewees have received training from the Li-Chan project and veterinarians.	100% of men interviewees pointed out a difficult and infrequent access to FT information.	25% of men interviewees have no access to financing and use own savings for investments
	Women	Stopped using all FT introduced	100% of women interviewees have received training from the Li-Chan project.	100% of women interviewees pointed out a difficult and infrequent access to FT information which is linked to language barriers.	All women interviewees have access to financing.
C2	Men	Stopped using Green Elephant, Mulato II, and Ubon Stylo. Reasons: • low adaptability to cool winter	25% of men interviewees have received training from the Li-Chan project.	100% of men interviewees pointed out a difficult and infrequent access to FT information.	75% of men interviewees have no access to financing and use own savings for investments. Bad auto-perception of repaying capacity.
	Women	Stopped using Mulato II. Reasons: • low adaptability to cool winter	No female interviewees have received training.	100% of women interviewees pointed out a difficult and infrequent access to FT information.	50% of women interviewees have no access to financing. Bad auto-perception of repaying capacity.

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