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ASSESSMENT OF SMALL-SCALE LIVESTOCK PRODUCTION IN THE MUNICIPALITY OF NAAWAN, MISAMIS ORIENTAL, PHILIPPINES: FOUNDATIONS FOR THE TAGBALOGOATS EXTENSION INITIATIVE

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ABSTRACT

Assessment plays a role in extension projects in rural areas, as it facilitates understanding beneficiaries' needs and emphasizes the importance of training needs assessments. The "Tagbalogoats: Quality Forage Assistance Project" in Naawan, Misamis Oriental, Philippines, stresses animal nutrition's significance for sustainable backyard livestock farming. Surveying 55 livestock raisers across six barangays, the project assesses demographics, forage options, challenges, and training needs. Most participants are over 50 years old, with a majority being women. Swine is the most raised livestock, followed by cattle, goats, and buffaloes. Local forage options often lack nutritional value, indicating the necessity for better support. Farmers express a high demand for livestock management and forage services training. These findings show the importance of ongoing support for sustainable agriculture, especially in addressing the service gap. Empowering farmers through training enhances their livelihoods and promotes regional economic growth. The project not only advances sustainable livestock production but also focuses on the importance of women in agriculture and provides lessons for other similar projects in the agricultural sectors.

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INTRODUCTION

Livestock production remains a critical component of the agricultural sector in the Philippines, playing a vital role in the livelihoods of many rural communities. While crop cultivation often garners more attention, small-scale livestock farming presents an underexplored opportunity for economic growth, particularly in areas where land resources are limited. The Philippine Statistics Authority (2022) reported that livestock production contributed significantly to the total agricultural output, particularly in rural regions, where it serves as a primary source of income for many households. Despite its importance, small-scale livestock production often faces numerous challenges, including poor feeding practices, limited access to high-quality forage, and a lack of targeted training in sustainable farming methods.

The "Tagbalogoats: Quality Forage Assistance Project" was established to address these challenges, with a particular focus on sustainable livestock production in Barangay Tagbalogo, Naawan, Misamis Oriental, Philippines. The project aims to improve the quality of forage available to livestock farmers, thereby enhancing overall animal nutrition and production. Livestock species, including goats, cattle,

buffaloes, and swine, all depend on the availability of high-quality forage to thrive. Unfortunately, many local forage options in the region are insufficient in meeting the nutritional needs of these animals, resulting in lower productivity and increased mortality. The project's core objectives include providing farmers with access to high-quality forage, educating them on sustainable livestock farming practices, and conducting training needs assessments to tailor interventions that best support the local farming community.

This initiative builds on previous research into the utilization of superior forage options such as Guinea grass combined with legumes like Indigofera, which has shown promising results in improving livestock productivity (Maña *et al*., 2023). These forage options have been selected for dissemination through the project, considering their adaptability to local environmental conditions and their proven benefits in livestock farming. The training needs assessment, which forms the first activity of this extension project, plays a crucial role in ensuring that the farmers receive knowledge and resources most relevant to their context, thereby enhancing the sustainability and impact of the project. The objectives of this paper are to assess the demographics, forage options, challenges, and training needs of the livestock raisers across six barangays. Additionally, the study aims to identify the local forage options available, evaluate their nutritional gaps, and provide training on proper forage and livestock management. By doing so, the project seeks to empower rural farmers and promote more sustainable livestock farming practices in the region. This assessment aims to enhance the forthcoming activities, offer valuable information, and implement improvements for future extension efforts aimed at benefiting the target farmers.

MATERIALS AND METHODS

This assessment is not limited solely to Barangay Tagbalogo. Given that Tagabalogo serves as the model farm, the project's reach is anticipated to extend to other barangays within Naawan. Therefore, this assessment is conducted in several barangays within Naawan that engage in livestock farming. This initiative aims to ensure that the needs of these communities will also be met in the future.

Site of the Study

The study was carried out in Naawan, Misamis Oriental, Philippines. Before commencing the study, the researcher sought permission to conduct surveys among livestock farmers in the following areas: Don Pedro (7), Linangkayan (10), Patag (6), Lubilan (6), Maputi (13), and Tuburan (7), totaling 55 respondents.

Ethical Considerations

The provided methodology statement highlights critical ethical considerations and protective measures for the rights and confidentiality of participating livestock farmers. Obtaining informed consent is fundamental, as well as ensuring that participants fully understand the research's purpose and procedures and willingly agree to participate. This involves explaining their rights, including the option to decline or withdraw from the study.

Survey Design and Sampling Size

Since there was no available data regarding the number of livestock farmers in Naawan to serve as a basis for employing formulas to determine the sample size, the study adopted a purposive sampling strategy. This approach selects participants based on specific criteria that align with the research objectives. In this case, the criterion was the number of years engaged in livestock raising to capture a diverse range of management practices and perspectives. A total of 55 livestock raisers were selected as respondents. The determination of this sample size took into account factors such as available resources, research scope, and the desired level of statistical precision.

Reliability and Validity of the Survey Questionnaire

To ensure the reliability and validity of the survey questionnaire, a pilot test was conducted. This pilot test involved a small group of livestock farmers who were not included in the main study. The objective was to assess the clarity, comprehensibility, and appropriateness of the questionnaire items for the target population. Based on feedback from the pilot test, adjustments were made to refine the questions, improving their clarity and ensuring they accurately captured the information needed. The reliability of the instrument was tested using internal consistency measures, ensuring that the questions consistently measured the intended constructs. Validity was addressed by consulting with subject-matter experts in animal nutrition and livestock production, who reviewed the questionnaire to ensure it covered relevant and critical areas of livestock management practices.

Survey Questionnaire

The questionnaire comprised closed-ended and open-ended questions to facilitate quantitative and qualitative data analysis. The questions encompassed various topics, including:

a) Farmer demographics;
b) Feeding and nutrition management practices, including forage used;
c) Challenges and constraints encountered in livestock production;
d) Support and assistance received from relevant institutions; and
e) Training needs assessment.

RESULTS AND DISCUSSION

Demographic profile of livestock raisers

The demographic profile of livestock raisers in Naawan, Misamis Oriental, is presented in Table (1). Analyzing the data presented in the table, the demographic profile of livestock raisers in Naawan, Misamis Oriental, reflects a majority of mature participants, with 70% being 60 years or older. This aligns with a global study by FAO (2014), suggesting that livestock raising is typically an occupation of older individuals, particularly in rural areas. Regarding gender, the data indicates a higher percentage of female livestock raisers (60%) compared to males (40%). This gender

distribution emphasizes the significant role of women in livestock production, as previously documented in Southeast Asian studies (Doss, 2001)

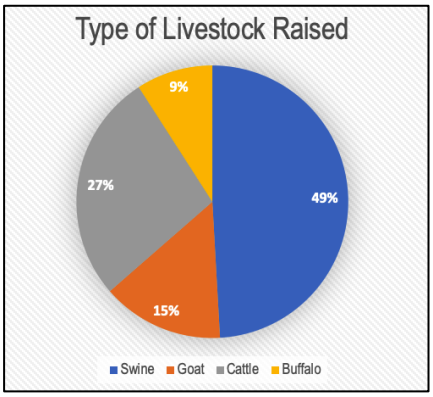

Figure (1): Types of livestock raised in by farmers in Naawan, Misamis Oriental

Table (1): Demographic profile of livestock raisers in Naawan, Misamis Oriental

Variable	Category	Frequency	Percentage
Age N=55	<29	1	1.8
	30-39	8	14.5
	40-49	7	12.7
	50-59	14	25.5
	60-69	19	34.5
	>70	6	10.9
Monthly Income N=55	<P10,000	41	74.5
	P10,001-P20,000	9	16.4
	P20,001-P50,000	4	7.3
	>P50,000	1	1.8
Educational Attainment N=55	Elementary Level	9	16.4
	Elementary Graduate	10	18.2
	High School Level	7	12.7
	High School Graduate	9	16.4
	College Level	15	27.3
	College Graduate	3	5.5
	None	2	3.6
No. of Members in the Household N=55	<2	15	27.3
	3-5	31	56.4
	6-9	8	14.5
	>10	1	1.8

The demographic profile of livestock raisers in Naawan, Misamis Oriental, is presented in Table (1). Analyzing the data provides valuable insights into the characteristics of the respondents, which have important implications for the success and sustainability of livestock farming in the area.

The data indicates that the majority of livestock raisers are older, with 70% of respondents aged 60 years or older. This trend aligns with findings from a global study by the FAO (2014), which highlights that livestock farming is often pursued by older individuals, particularly in rural settings. Older farmers may have extensive

experience, but the aging population could also pose a challenge in terms of the adoption of new technologies and innovations in livestock production. Efforts may be needed to engage younger generations in livestock farming to ensure the long-term sustainability of the practice.

The data reveals that 60% of the livestock raisers in Naawan are women, while 40% are men. This gender distribution presents the role women play in livestock production, particularly in rural communities. Women are often responsible for the day-to-day care and management of livestock, as documented in several Southeast Asian studies (Doss, 2001). Recognizing the contributions of women in livestock production and ensuring that they have access to resources, training, and support will be crucial for improving productivity and animal welfare.

The majority of respondents (74.5%) reported a monthly income of less than P10,000. This reflects the financial constraints that many small-scale livestock raisers face, resonating with the narrative of low-income subsistence farming common in rural settings (Ellis, 1998). Low-income limits farmers' ability to invest in better feed, healthcare for animals, and infrastructure improvements, which can ultimately affect the productivity of their farms. Efforts to introduce cost-effective innovations and income-generating activities can help address this challenge and improve the livelihood of these farmers. The educational attainment of livestock raisers varied, with 27.3% of respondents having attended some level of college, while 16.4% were college graduates. This is a positive indicator, as higher education levels can be linked to a greater capacity to understand and implement more sophisticated farming techniques. However, a significant proportion of respondents had only completed elementary or high school education, which might limit their access to or understanding of advanced agricultural knowledge. Training programs should be tailored to accommodate the varying educational levels of livestock raisers to ensure that all participants can benefit.

The data shows that the majority of households (56.4%) consist of 3-5 members. This has implications for labor availability, as larger households may have more members who can contribute to farm work. On the other hand, smaller households may face challenges related to labor shortages, which could affect their capacity to expand or intensify their livestock production. Understanding household composition is important for designing support programs that cater to the specific needs and capacities of different farm families.

Animal raised by livestock farmers in Naawan, Misamis Oriental

From a total of 55 respondents, swine is the most commonly raised livestock, with 49.1% of the respondents engaged in it, followed by cattle (27.3%), goats (14.5%), and buffalo (9.1%). A detailed examination of Figure (1) reveals that swine raising is the predominant livestock activity in Naawan, Misamis Oriental, accounting for 49.1% of the total. This trend corresponds with national patterns in the Philippines, where swine raising represents a significant agricultural pursuit due to the considerable demand for pork in local and national markets (BPS, 2021). Following closely, cattle comprise 27% of livestock activity, with goats at 15% and buffaloes at 9%. In this context, ' buffalo' encompasses both swamp and riverine buffalo. It is worth noting that buffalo production in Naawan is expected to expand

due to the *Alab Karbawan* Project initiated by the Philippine Carabao Industry, aimed at raising buffaloes for dairy purposes (PCC, 2023).

In general, ruminant production in Naawan, Misamis Oriental, is present but not as widespread as expected. For instance, goats are considered the more affordable ruminant to raise, often dubbed the "poor man's cow," yet only a few farmers choose to raise them. The primary reason is the absence of high-quality forage sources necessary to optimize ruminant production (Dapar *et al*., 2023). Ruminants require a well-balanced combination of feeds rather than relying solely on a single type of feed. Goats, in particular, tend to be overlooked in terms of proper feeding practices, resulting in limited productivity and discouraging farmers from investing in their cultivation.

Feeds and feeding practices

Table (2) provides information on the types of feed given to different livestock and their feeding practices among livestock raisers in Naawan, Misamis Oriental.

Table (2): Feeds and feeding practices

Variable	Category	Frequency	Percentage (%)
Feed Given to Swine N=27	Concentrate	6	20.0
	Swill/orts	10	33.3
	Combination	11	46.7
Feed Given to Goat N=16	Forage	14	85.7
	Combination	2	14.3
Feed Given to Cattle N=22	Concentrate	1	4.5
	Forage	18	81.8
	Combination	3	13.6
Feed Given to Buffalo N=6	Forage	5	83.3
	Combination	1	16.7
Swine Feeding Practices N=27	Creep Feeding	1	3.6
	Ad libitum	1	3.6
	Phase Feeding	26	92.9
Goat Feeding Practice N=16	Cut-and-carry	2	12.5
	Tethering	13	81.3
	Grazing	1	6.3
Cattle Feeding Practices N=22	Cut-and-carry	4	19.0
	Tethering	16	71.4
	Grazing	2	9.5
Buffalo Feeding Practices N=6	Cut-and-carry	1	16.7
	Tethering	5	83.3
Source of Water N=55	Local water system	42	76.4
	Springs, Rivers	13	23.6

Regarding the type of feed given, the data indicates different practices for different types of livestock. For swine, a combination of feed types is commonly used (46.7%), with the rest divided between concentrates (20.0%) and swill/orts (33.3%). These practices reflect a balanced feeding strategy, taking advantage of pigs' omnivorous nature to utilize various feed sources (Patience *et al*., 2015). Goats, cattle,

and buffalo are predominantly fed with forage (85.7%, 81.8%, and 83.3%, respectively), a feed type that aligns with their herbivorous dietary habits. In some cases, a combination of feed types is also used, particularly for cattle (13.6%) and buffalo (16.7%), indicating the supplementing of forage with concentrate feeds for increased nutrition (Niepes and Bestil, 2023).

The data also reveals the feeding practices employed by the farmers. For swine, phase feeding dominates (92.9%), a strategy that involves changing the diet composition at different stages of the pig's life to meet its changing nutritional needs (Patience, 2012). For goats, cattle, and buffalo, tethering is the most common practice (81.3%, 71.4%, and 83.3%, respectively), allowing for controlled grazing and easier management of the animals (Wróbel *et al,* 2023).

Forage utilized by farmers

The forage species utilized by livestock raisers in Naawan, Misamis Oriental, Philippines, as summarized in Table (3), exhibit a variety of preferences among farmers. Napier grass (Pennisetum purpureum) is the most commonly utilized forage, with approximately 63.64% of farmers opting for it. Napier grass is known for its high yield and nutritional value, making it a popular choice for livestock feed. It is rich in nutrients such as crude protein, fiber, and minerals, which can positively impact the growth and health of the animals (Bogdan, 1977). Nevertheless, the Napier grass livestock farmers utilize in Naawan is primarily the native variety. This choice is made due to its adaptability to local climate conditions despite its relatively lower nutritional content.

Guinea grass (*Panicum maximum*) and Cogon grass (*Imperata cylindrica*) closely follow Napier grass, which 61.82% of the farmers use. These forages are also known for their resilience and adaptability in various environments, making them suitable choices for livestock feeding (Lyimo *et al*., 2009). Guinea grass (*Panicum maximum*) holds promise as a forage for goat production in Naawan, as it exhibits adaptability to the local conditions and is likely to deliver more favorable results when used in conjunction with high-quality legume forage (Maña *et al*, 2023)

Para grass (*Brachiara mutica*) is another popular option among livestock raisers in Naawan, with 58.18% of farmers utilizing it. It is recognized for its high palatability and digestibility, contributing to its widespread use as livestock forage (Sath *et al*., 2013). Carabao grass (*Paspalum conjugatum*) is used by a notable proportion of farmers, with 47.27% choosing it. While it may not be as prevalent as other options, Carabao grass is appreciated for its nutritional value, especially for cattle, and its adaptability to different climatic conditions (Heuzé *et al*., 2016). However, *Paspalum conjugatum* has limited nutritional value in Southeast Asia and the Pacific region, as stated by Stür *et al*. in 1990. Its utility is restricted due to its low protein content (6-15% DM) and its unattractiveness to cattle. However, it's worth mentioning that both factors could potentially be enhanced by applying light nitrogen fertilizer (Beetle, 1974).

Barnyard Grass (*Echinocloa spp*) is used by 37.23% of the farmers, indicating its popularity as a forage species in Naawan. It is known for its high moisture content and can serve as a valuable source of nutrition for livestock, particularly during dry seasons (Jasrotia *et al*., 2005). Centrosema (*Centrosema pubescens*) is utilized by 23.6% of the farmers. This legume forage is rich in protein and can enhance livestock

performance when integrated into their diets (Henderson *et al*., 1997). Ipil-ipil (*Leucaena leucocephala*) and Pinto peanut (*Arachis pintoi*) are both utilized by 16.36 % of the farmers. These leguminous forages are appreciated for their nitrogen-fixing abilities, which can enhance soil fertility and provide a valuable source of protein for livestock (Mafongoya *et al.*, 2006). The least utilized forage species in Naawan are Stylo (*Stylosanthes humilis*) and Kakawate (*Gliricidia sepium*), used by 3.6% and 1.8% of farmers. These lower utilization rates might be due to limited availability or a lack of awareness regarding their benefits as forage options.

Table (3): Forage species utilized for feeding

Forage species	Percentage (%)
Napier grass/Elephant grass (*Pennisetum purpureum*)	63.64
Guinea grass *(Megathyrsus maximus)*	61.82
Cogon grass *(Imperata cylindrica)*	61.82
Para grass *(Brachiaria mutica)*	58.18
Carabao grass *(Paspalum conjugatum)*	47.27
Barnyard grass *(Echinocloa spp.)*	37.23
Centrosema *(Centrosema pubescens)*	23.64
Trichantera/Madre de Agua (*Trichantera gigantea*)	23.64
Leucaena/Ipil-ipil *(Leucaena leucocephala)*	16.36
Pinto peanut/Mani-mani *(Arachis pintoi)*	16.36
Stylo *(Stylosanthes humilis)*	3.64
Gmelina (Gmelina arborea)	3.64
Gliricidia/Kakawate *(Gliricidia sepium)*	1.82
Banana (leaves) *(Musa spp.)*	1.82

The selection of forage species in Naawan primarily depends on what is locally available. However, most forage options exhibit low nutritional value, highlighting the urgent need for enhanced forage support within the community.

Livestock production challenges and intervention

Table (4) presents significant challenges livestock raisers face in Naawan, Misamis Oriental, Philippines. Understanding these problems is crucial for developing targeted interventions and solutions that could improve livestock productivity and livelihoods.

The main problem reported by farmers was feed shortage, mentioned by 43.6% of the respondents. Livestock feed is an important factor in animal production systems, and shortages can affect animal health, growth, and productivity (Duguma *et al*., 2021). Additionally, feed scarcity can lead to malnutrition, making animals more susceptible to diseases and parasites (Bertoni, 2021).

Farmers' complaints about poor forage quality (20%) may be attributed to several factors, including low-nutrient forage species, inadequate forage management practices, and a lack of access to knowledge and resources that would enable them to improve forage quality. Farmers' challenges in enhancing forage quality underline the need for targeted interventions, such as improved forage species selection, better forage management techniques, and educational programs.

Table (4): Problems encountered by livestock raisers

Variable	Category	Frequency	Percentage (%)
Major Problem Encountered in Livestock Raising N=55	Feed shortage	24	43.64
	Diseases	6	10.91
	Limited Know How	9	16.36
	Lack of Market Access	1	1.82
	Water Scarcity	1	1.82
	Predator	1	1.82
	Poor forage species	11	20.00
	Thieves	2	3.64
Major Reason for Death of Livestock N=55	Disease	34	61.8
	Accident	6	10.9
	Old age	2	3.6
	Hunger and dehydration	3	5.5
	Poisoning	5	9.1
	Unknown	2	3.6
	predators	3	5.5
Major Disease of Livestock Animal N=55	Diarrhea	30	54.5
	Bloat	14	25.5
	Fever	8	14.5
	External Parasites	3	5.5

About 16.36% of respondents indicated that they had limited know-how in livestock raising. The lack of proper knowledge and skills can lead to sub-optimal management practices affecting livestock health and productivity (Balzani *et al*., 2020). This suggests a need for capacity-building and training initiatives targeting livestock farmers in the region.

Diseases were listed as a problem by 10.9% of the respondents and were the leading cause of livestock death (61.8%). Specifically, diarrhea (54.5%), bloat (25.5%), and fever (14.5%) were frequently mentioned as the major diseases affecting livestock. This further highlights the importance of animal health management, which requires a combination of preventive and curative measures, including appropriate housing, feeding, and veterinary care (Thrusfield *et al.*,2018).

Training Needs Assessment

Figure (2) illustrates the significant demand among livestock farmers for various training assistance programs. Livestock Management Training emerges as the most pressing need, with an impressive 90.91% of farmers expressing interest. This highlights the eagerness of farmers to enhance their knowledge and skills in critical areas of livestock management, including animal husbandry, nutrition, disease prevention, and overall livestock care. The strong demand for this training aligns with realities faced by small-scale farmers in agricultural regions like the Philippines, where access to modern farming techniques and best practices is often limited (Danso-Abbeam *et al*., 2018).

In addition to Livestock Management Training**,** Quality Forage Services ranks high on the priority list, with 87.27% of farmers indicating their desire for training in this area. This need reflects the understanding that high-quality forage is essential for

improving livestock health, productivity, and sustainability. Farmers recognize that implementing effective forage management strategies can lead to better feeding practices, reduced costs, and enhanced livestock output.

The interest in Artificial Insemination, with 78.18% of farmers seeking training, signifies a growing awareness of the advantages of controlled breeding. This training is crucial for improving the genetic quality and reproductive efficiency of livestock, enabling farmers to produce higher-quality offspring and increase overall productivity. Improved breeding practices can lead to enhanced yields and profitability for farmers (Lopez-Rodriguez *et al*., 2017).

Moreover, other important training needs identified include Disease Management and Biosecurity, which are essential for maintaining productive livestock operations, as training in biosecurity measures can help farmers protect their herds from outbreaks and improve overall herd health. Additionally, Financial Management and Record Keeping training can enhance operational efficiency and profitability. Training **on** Sustainable Farming Practices can also support farmers in adopting environmentally friendly methods that improve soil health and reduce the ecological impact of livestock farming.

These findings emphasize the necessity of tailoring agricultural extension services and training programs to meet the specific needs and priorities of livestock farmers. By focusing on these critical areas, the extension project can effectively support sustainable farming practices, enhance economic development, and improve the overall livelihoods of farmers in Naawan.

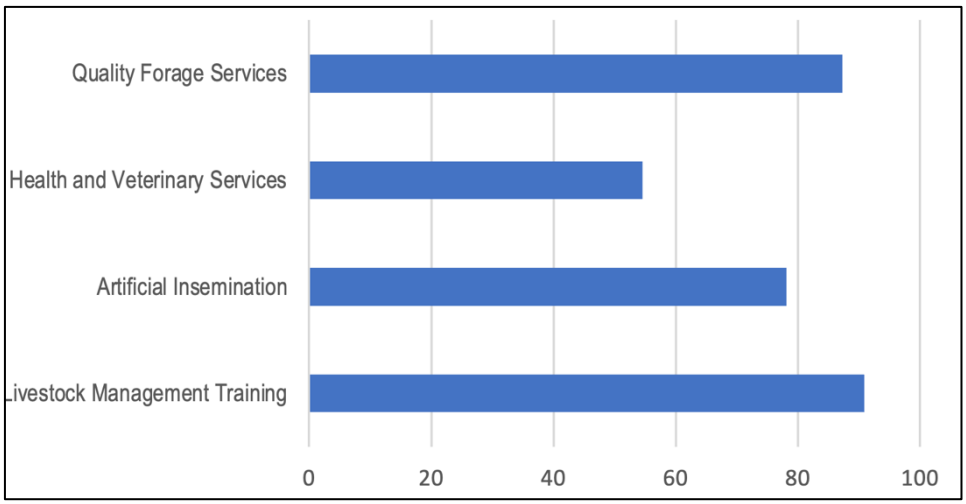

Figure (2): Training services livestock farmers want to avail

CONCLUSIONS

The "Tagbalogoats: Quality Forage Assistance Project for Sustainable Livestock Production in Brgy. Tagbalogo, Naawan, Misamis Oriental" is a potential solution to a major problem in backyard livestock farming which is the improvement of the animals' nutrition. This is because the project aims at improving the quality of forage and providing livestock training to the farmers so as to enhance sustainable regional livestock production. The survey assessment also identified helpful insights into the livestock raisers' demographic profile, their problems, and their training needs.

The findings from this project emphasize the necessity of ongoing efforts to bridge the gap in service provision and support sustainable agricultural practices. By empowering livestock farmers with the proper training and resources, we can improve their livelihoods and contribute to the region's economic development. In the quest for more sustainable and productive livestock farming, this project is a promising step in the right direction, offering a blueprint for future initiatives to enhance livestock production in similar contexts.

To further enhance the impact of the "Tagbalogoats" initiative, it is recommended to expand training programs to develop comprehensive coverage on advanced livestock management, disease prevention, financial literacy, and sustainable farming practices. Improving forage quality should be prioritized by investing in research and development of production techniques tailored to local conditions, ensuring better availability for livestock. Strengthening support networks through partnerships with local agricultural agencies and educational institutions will facilitate knowledge sharing and resource distribution among farmers. Additionally, regular training needs assessments should be conducted to ensure that extension services remain relevant and effectively address the evolving challenges faced by livestock farmers. Establishing a monitoring and evaluation framework will also be critical in assessing the impact of training programs and forage assistance initiatives on livestock productivity and farmer livelihoods, ensuring continuous improvement. By implementing these recommendations, the project can significantly contribute to the sustainability and productivity of livestock farming in Naawan and beyond.

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CONFLICT OF INTEREST

The authors report no conflicts of interest and are responsible for the content and writing of the paper.

تقييم الإنتاج الحيواني على نطاق صغير في بلدية نوان، ميساميس اورينتال، الفلبين: أسس مبادرة الارشاد الخاصة بماعز تاغبالو

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الخلاصة

يلعب التقييم دوراً حاسماً في المشاريع الإرشادية في المناطق الريفية، لأنه يسهل فهم احتياجات المستفيدين ويؤكد على أهمية تقييم احتياجات التدريب. يؤكد مشروع "ماعز تاغبالو: مشروع المساعدة على جودة الأعلاف" في نوان – ميساميس أورينتال – الفلبين، على أهمية التغذية الحيوانية في تربية الماشية المستدامة

في الفناء الخلفي. ومن خلال مسح 55 من مربي الماشية في ست مقاطعات، قام المشروع بتقييم التركيبة السكانية وخيارات العلف والتحديات والاحتياجات التدريبية. يتجاوز عمر معظم المشاركين 50 عامًا، وأغلبهم من النساء. الخنازير هي الماشية الأكثر تربية، تليها الأبقار والماعز والجاموس. غالبًا ما تفتقر خيارات العلف المحلية إلى القيمة الغذائية، مما يشير إلى ضرورة تقديم دعم أفضل. ويعرب المزارعون عن ارتفاع الطلب على التدريب على إدارة الثروة الحيوانية وخدمات الأعلاف. وتظهر هذه النتائج أهمية الدعم المستمر للزراعة المستدامة، وخاصة في معالجة الفجوة في الخدمات. إن تمكين المزارعين من خلال التدريب يعزز سبل عيشهم ويعزز النمو الاقتصادي الإقليمي. لا يعمل المشروع على تعزيز تربية الماشية المستدامة فحسب، بل يسلط الضوء أيضًا على الدور الحيوي للمرأة في الزراعة، ويقدم رؤى لمبادرات مماثلة في المناطق الزراعية.

الكلمات المفتاحية: نوان، مشروع الإرشاد، الأعلاف والثروة الحيوانية، مبادرة ماعز تاغبالو، الفلبين.

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