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Evaluation of Farm Record Keeping, Benefits and Challenges of Small Ruminant Production in Gbonyin Ekiti Local Government Area

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ABSTRACT

This study evaluated farm record-keeping practices, benefits, and challenges among small ruminant farmers in Gbonyin Local Government Area of Ekiti State, Nigeria. A total of 60 farmers were randomly selected from eleven (11) communities. Data were collected through structured questionnaires and semi-structured interviews. Descriptive statistics such as frequencies and percentages were used to analyze quantitative data, while qualitative data were analyzed thematically. The results revealed that respondents were dominated by middle-aged (41–50 years); males (65%) with secondary education (53.3%), indicating a literate and active labour force. Most respondents (85%) reared goats, primarily for income generation and household consumption. The majority practiced an extensive production system and did not engage in rotational grazing. Although 63.3% of farmers were aware of manure benefits, all respondents used animal waste as fertilizer, reflecting environmental consciousness. Record keeping was poorly practiced, with only 35% maintaining any form of record, mostly manual, and irregularly updated. Major constraints to record keeping included lack of time (28.3%), limited education (21.7%), and inadequate resources (11.6%). Despite these challenges, farmers identified income generation (26.7%) and manure production as key benefits of small ruminant farming. Profitability was perceived as moderate by 38.3% of respondents, though uncertainty persisted due to poor documentation and market fluctuations. The study concludes that while small ruminant farming contributes meaningfully to rural livelihoods, improved training, access to record-keeping tools, and institutional support are essential for enhancing productivity and financial sustainability among smallholder farmers.

Keywords—**Farm record-keeping practices, Benefits, Challenges, Small ruminants, Gbonyin Ekiti LGA.**

I. INTRODUCTION

Livestock contributes significantly to global agriculture, accounting for approximately 40% of the total agricultural output while supporting the livelihoods, food, and nutrition security of nearly 1.3 billion

people worldwide [1]. Beyond direct production, livestock plays an integral role in sustainable food systems by serving as a source of manure and farm power, as well as providing financial and social security, particularly for vulnerable communities [2]. According to [3], an estimated 500 million pastoralists across the globe rely on livestock herding not only for food and income but also as a store of wealth and a form of collateral or safety net during periods of hardship. In Nigeria, the livestock sub-sector contributes between 9% and 21% of agricultural gross domestic product (GDP), reflecting its importance to socioeconomic growth and food security [4]. Nigeria possesses the largest small ruminant population in Africa, with an estimated 73.8 million goats and 42.1 million sheep, primarily consisting of indigenous breeds [5].

Small ruminants like sheep and goat production are viable ventures in Nigeria in view of the obvious benefits and the ease of the production. [6] highlighted that ruminant constitute a noteworthy part of livestock production in Nigeria. They play vital functions in the lives of households in the rural arears, offering distinct advantages over other livestock. It constitutes one of the major protein sources to the urban and rural populace. [7] reported that small ruminant production performs a crucial function in the provision of protein of animal origin in Nigeria, in addition to possessing an outstanding capacity to mitigate the shortage.

The main constraints of small ruminants are diseases and parasites, feed shortage, labour scarcity, predators, land shortage, lack of improved goat breeds, and poor market access to sell goats and goat products [8][9]. The study by [10] showed that disease was ranked as the first constraint, while feed shortage and predators were ranked second and third in all three agroecosystems. There were shortages of ruminants feed resources both in the dry and wet season of the year [11]. Despite the importance of small ruminant production, many farmers in Gbonyin LGA face challenges that limit productivity and profitability. Among these challenges, inadequate farm record keeping has been identified as a critical constraint.

Effective record keeping involves systematically documenting activities such as animal purchases, sales, feed intake, health interventions, breeding records, and mortality [12]. Maintaining accurate records enables farmers to monitor animal performance, plan feeding and breeding programs, evaluate profitability, and make informed management decisions [13]. However, in many rural communities, record-keeping practices are often poor due to factors such as low literacy levels, limited access to training, inadequate extension services, and the fragmented nature of farming enterprises [14]. This study aimed at understanding the status of farm record keeping and its associated benefits which is essential for

improving the productivity and sustainability of small ruminant production [15].

II. MATERIALS AND METHODS

A. Experimental Site

This study was conducted in Gbonyin Local Government Area of Ekiti State. Gbonyin Local Government Area of Ekiti State is located between latitudes $7^{0}32^{1}$ and $7^{0}40^{1}$ North of the equator and longitudes $5^{0}22^{1}$ and $5^{0}43^{1}$ East of the Greenwich meridian (Fig 3.1). Gbonyin Local Government Area is made up of eleven communities, comprising Aisegba, Agbado, Imesi, Egbe, Ijan, Ilupeju – Ijan, Iluomoba, Ipole Iloro, Iro, Iro- Ayeteju and Ode- Ekiti. Ode- Ekiti is the Local Government headquarter (Fig 3.1). Other farmsteads in the Local Government Area include Aba Ogundele, Aba Oba, Aba Akawo, Aba Temidire, Abajesin, Aba Kume, Aba Ajeoku, Aba Anifowose, Aba Panu, Ajebamidele, Ita- Aluko and Odiolowo.

The study area is characterized by rainforest type of vegetation. Animals in the area include antelope, grass cutters, squirrels, porcupine, monkeys, and snakes of all types. The study area is situated in the tropical rain forest region of Nigeria. The area has two distinct seasons- the dry and wet. It has adequate moisture that supports high yielding forest because it received between 1,000mm to 1,800mm of rainfall annually and annual temperature of between 25^{0}C to 30^{0}C.

B. Experimental Design

A random sampling technique was used to select small ruminant farmers within Gbonyin Local Government Area of Ekiti State. A sample size of 60 farmers was targeted, ensuring diversity in farm size, type of animals (goats, sheep), and farming practices.

C. Data Collection

A structured questionnaire was administered to farmers. The questionnaire included questions related to farm record-keeping practices, benefits of small ruminant farming, and the challenges they encountered. Semi-structured interviews were also conducted with selected key informants, including agricultural extension officers, local leaders, and veterinary experts.

D. Statistical Analysis

Quantitative data collected from the surveys were analyzed using descriptive statistics (frequencies, percentages). Qualitative data from interviews were coded and analyzed thematically to identify key trends and insights. The data were subjected to standard methods of statistical analysis using windows-based SPSS [16]. The analysis of variance (ANOVA) test was used and level of significance was set at

$p<0.05$.

III. RESULTS AND DISCUSSION

A. Socioeconomic Characteristics of Respondents

The result indicated that 48.3% were between 41–50 years, showing that small ruminant production in Ado-Ekiti is dominated by people in their active working age. This age distribution suggested a vibrant and productive labour force actively involved in livestock rearing. This finding aligns with [17] who observed that middle-aged farmers play a significant role in agricultural production due to their physical strength and experience. The gender distribution revealed 65% males and 35% females, indicating male dominance in small ruminant farming. Similar gender disparity was reported by [18], who found that men are more involved in animal husbandry due to higher access to land and capital. However, female participation (35%) suggests growing inclusiveness in livestock production. In terms of education, 53.3% of the respondents had secondary education, 25% had tertiary education, while none had no formal education. This shows that most farmers are literate enough to understand basic management and record-keeping practices. [19] similarly reported that literacy positively influences farm efficiency and adoption of improved livestock management technologies. Regarding farming experience, 55% had been involved for 6–10 years, and 40% for 1–5 years, [20] emphasized that longer experience enhances decision-making and resilience in livestock farming. The majority (85%) reared goats, 6.7% reared sheep, and 8.3% kept both. This dominance of goats corresponds with [21], who found that goats are more common due to their adaptability and market value. Table 1 further revealed that, 88.3% kept less than 10 animals, showing that production is mainly small-scale. This is consistent with [22] findings that smallholder systems dominate livestock production in Nigeria. Notably, 93.3% received no government or NGO support, reflecting weak institutional assistance similar to [23].

B. Production System

Fig. 1 shows that most farmers practice extensive systems. This aligns with [20] who reported that extensive is common among Nigerian smallholders due to limited land. Smallholders dominate rubber cultivation, with 75-85% of the land under smallholdings. The extensive system is used due to the high costs of intensive cultivation methods. Improvements in production could be achieved through low-intensity tapping and planting high-yielding clones [24]

Table 1: Socioeconomic Characteristics of the Respondents (n=60)

Socioeconomic Characteristics	Frequencies	Percentages
Age (in years)		
Below 20	0	0
21 -30	1	1.7
31-40	28	46.7
41-50	29	48.3
Above 50	2	3.3
Gender		
Male	39	65
Female	21	35
Educational Qualification		
No formal education	0	0
Primary	13	21.7
Secondary	32	53.3
Tertiary	15	25.0
Others	0	0
How long have you been involved in small ruminant production?		
Less than a year	3	5.0
1-5 years	24	40
6—10 years	33	55
What type of small ruminant do you rear?		
Goats	51	85
Sheep	4	6.7
Both goats and Sheep	5	8.3
How many small ruminants do you currently rear		
Less than 10	53	88.3
10-50	4	6.7
50-100	3	5.0
101-500	0	0
More than 500	0	0
Do you receive any support from the government or NGOs for your farming activities?		
Yes	3	5.0
No	56	93.3
Sometimes	1	1.7

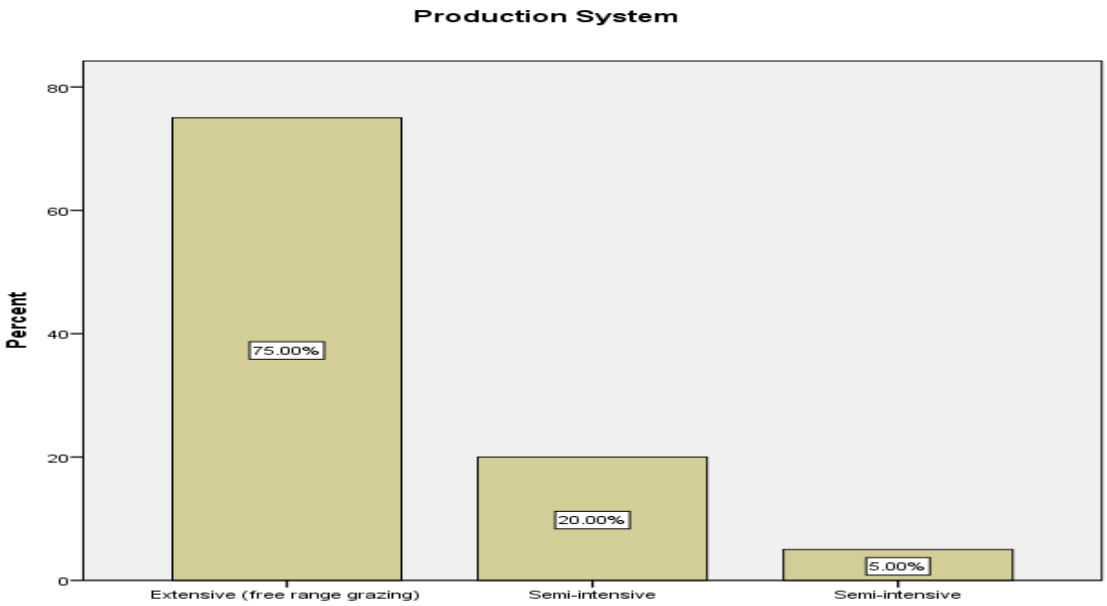

Fig 1. Production system

C. Rotational Grazing for Small Ruminants

Fig. 2 showed that Majority of the respondents (93.3%) do not practice rotational grazing probably indicates minimal adoption, reflecting poor awareness of sustainable grazing methods. [25] noted similar low adoption of improved pasture management in Southwestern Nigeria.

D. Primary Purpose of Keeping Small Ruminants

Fig. 3 and Fig. 4 showed that the primary purpose for rearing small ruminants is income generation and household consumption, with animals mostly kept less than a year before sale. This pattern agrees with [26] who found that small ruminants serve both commercial and socio-economic security roles in rural livelihoods.

E. Duration of Keeping Animals Before Sale or Slaughter

Fig. 5 shows that most farmers (over 29.7%) keep animals for less than a year before selling or slaughtering, while fewer retain them longer. This short production cycle implies a focus on quick returns, typical of small-scale enterprises. [27] similarly observed that small ruminant farmers often sell animals within a year to meet urgent cash or household needs.

F. Challenges in Managing Herd Size

Table 2 shows that the main challenges were lack of adequate grazing land (75%), high feed cost (20%), and disease management (5%). This suggests that feed resources and land scarcity are the most limiting factors. [28] and [29] similarly reported feed and land limitations as major constraints to livestock growth

and expansion in sub-Saharan Africa.

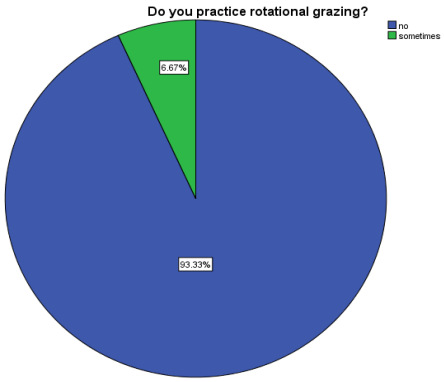

Fig 2. Rotational grazing for your small ruminants

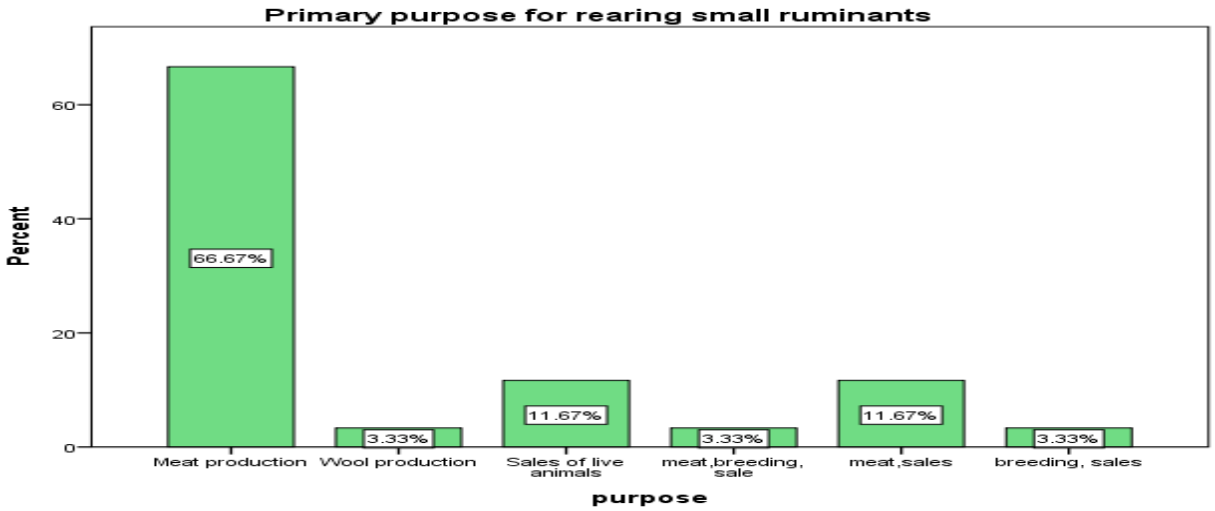

Fig 3. Primary purpose for rearing small ruminants

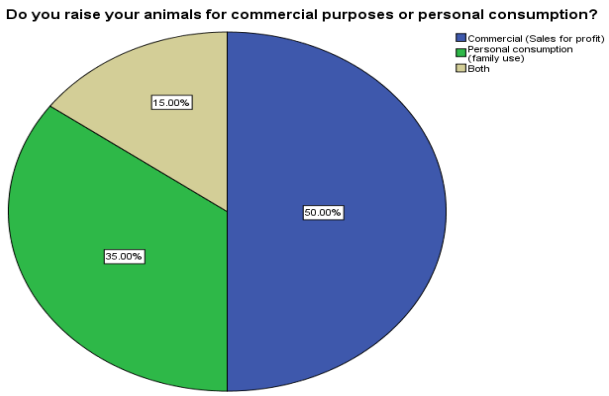

Fig 4. Commercial purposes or personal consumption

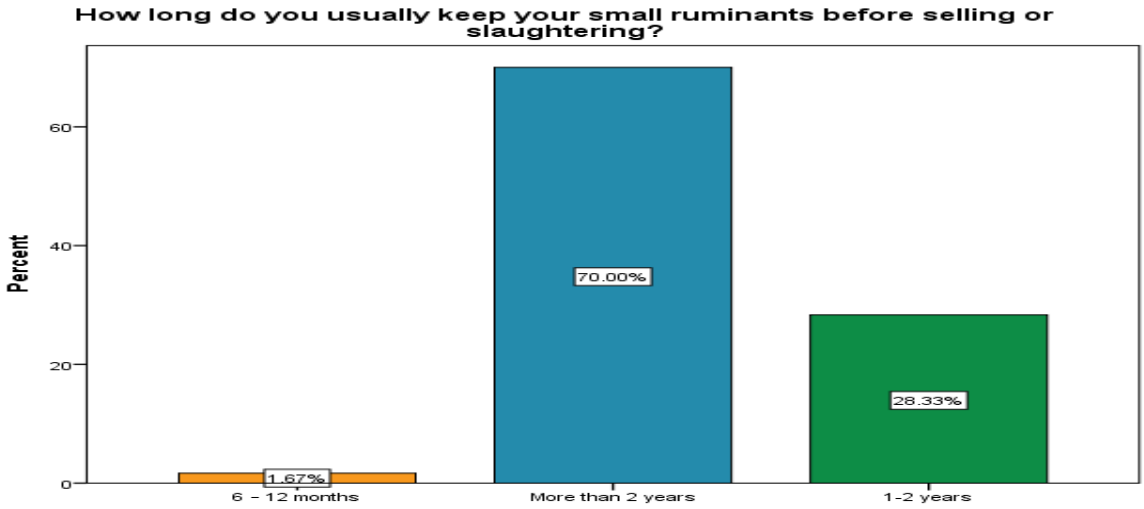

Fig 5. How long do you usually keep your small ruminants before selling or slaughtering?

Table 2: Challenges you face in managing the size of your herds (n=60)

Challenges	Frequency	Percentage	Rank orders
Lack of adequate grazing land	45	75	1st
High feed costs	12	20	2nd
Disease management	3	5.0	3rd

G. Ruminant Waste Management

Results show that 63.3% of farmers were aware of ruminant waste benefits, and all respondents (100%) used it as fertilizer as shown in Table 3. Most (85%) disposed waste in pits, indicating some level of environmental consciousness. None used it for biogas or animal feed, showing untapped potential in waste utilization. This agrees with [30] who observed that manure use is common among small ruminant farmers, while biogas adoption remains negligible due to poor technology access.

H. Record Keeping

A significant majority (65%) did not keep records, while only 35% maintained any form of records, mostly manual notebooks (26.7%) (Table 4). Only 1.7% updated records daily, showing irregular documentation practices. Similar findings were reported by [31] who emphasized that poor record-keeping limits farm management efficiency and access to financial services. Respondents who kept records found it easy (23.3%), suggesting that training and sensitization could increase adoption.

Table 3: Ruminant Waste (n=60)

Variables	Frequencies	Percentages
Are you aware of ruminant waste		
No	22	36.7
Yes	38	63.3
Primary use of ruminant waste in agriculture		
Fertilizer	60	100
Biogas production	0	0
Animal Feed	0	0
Soil conditioning	0	0
How do you manage the waste if it is not recycled		
Dispose it in pits	51	85.0
Allow it to decompose in an open area	5	8.3
Store it for future use	4	6.7
Let it accumulate without any specific plan	0	0

Table 4: Record Keeping (n=60)

Variables	Frequencies	Percentages
Do you keep records?		
No	39	65.0
Yes	21	35.0
How do you keep your records?		
Written manually in a notebook	16	26.7
On the computer or phone	5	8.3
Through a combination of both	0	0
Do not keep records	39	65
How often do you update your records?		
Daily	1	1.7
Weekly	3	5.0
Monthly	9	15.0
Occasionally	8	13.3
Never	39	65.0
Do you find record-keeping easy or difficult?		
Easy	14	23.3
Difficult	7	11.7
I do not keep records	39	65.0

I. Type of Records

Fig. 6 shows the distribution of record types maintained by small ruminant farmers in Ado-Ekiti. The chart reveals that nearly half of the respondents who keep records (48.33%) classified their entries under "other" record types, while 20% maintained health records, 16.67% kept breeding records, 11.67% kept financial records, and only 1.67% each maintained feed/nutrition and livestock inventory records. This indicates that record-keeping practices among farmers are poorly structured and heavily skewed toward informal or unclassified records. The predominance of "other" record types suggests that most farmers record information irregularly or in formats not aligned with standard farm management practices. The relatively higher proportion of health and breeding records reflects farmers' perception that such records are directly linked to animal survival and reproductive success, whereas financial and feed records are often viewed as less urgent.

This finding agrees with the report of [32], who observed that only a small proportion of livestock farmers in Nigeria kept formal records and that most of these records were inconsistent and incomplete. Similarly, [33] found that small ruminant farmers in Kwara State exhibited poor record-keeping behavior, attributing it to low literacy levels, lack of training, and the informal nature of the enterprise. [34] also emphasized that record-keeping among smallholders in Nigeria is strongly influenced by education, access to extension services, and scale of production, with most smallholders focusing on basic records such as health and breeding rather than financial documentation. Furthermore, [35] and [23] highlighted that poor documentation limits farmers' ability to track performance, evaluate profitability, or qualify for agricultural loans. These observations mirror the pattern in the present study, where less than 15% of respondents kept financial, feed, or inventory records.

J. Challenges of Record Keeping

The result presented in Table 5 reveals the major challenges of record keeping among small ruminant farmers in the study area. The findings show that lack of time (28.3%) was the most frequently reported constraint, followed by limited education or skills (21.7%) and the combination of lack of time and educational skill (25%). Other challenges identified included lack of resources (11.6%), lack of time and forgetfulness (11.6%), and other minor factors (1.7%). This indicates that most farmers struggle to keep accurate records primarily due to insufficient time and low educational attainment, which limits their understanding of proper record management practices. The predominance of time-related constraints suggests that farmers are often engaged in multiple farm and household activities, leaving little opportunity for accurate documentation of production and financial information.

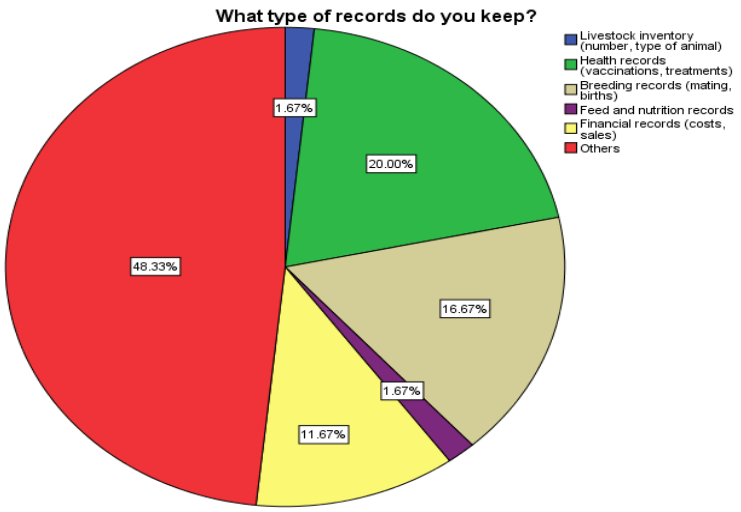

Fig 6. Type of Records

Table 5: Challenges of Record Keeping (n=60)

Variables	Frequencies	Percentages
Lack of time	17	28.3
Limited education/skills	13	21.7
Lack of resources	7	11.6
Lack of time and Forgetfulness	7	11.6
Lack of time and Educational Skill	15	25.0
Others	1	1.7

This finding agrees with [36], who reported that farmers often neglect record keeping because of competing tasks and poor time management. Similarly, [31] observed that lack of time and prioritization were among the most significant barriers to consistent record documentation in livestock enterprises. The issue of limited education and record-keeping skills also corroborates the findings of [37] who noted that low literacy levels among smallholder farmers hinder understanding of record formats and data interpretation, leading to poor record maintenance. Furthermore, the combination of lack of time and educational skill (25%) shows that these challenges are interrelated rather than isolated. [38] also reported that workload and literacy levels jointly influence farmers' ability to maintain records, as less educated farmers are less likely to prioritize such activities. The presence of resource-related challenges (11.6%) further implies that the inability to afford record books, digital tools, or training materials also contributes to poor record-keeping practices, consistent with [39], who identified lack of materials and institutional support as barriers to effective record management systems.

K. Benefits observed from small ruminant farming

Fig. 7 illustrates the various benefits that respondents derived from small ruminant farming in Ado-Ekiti Local Government. The result shows that 26.67% of the respondents identified income generation as the major benefit obtained from keeping small ruminants. This indicates that the enterprise serves primarily as a reliable source of livelihood and financial stability for households in the study area. Small ruminant production is recognized for its quick turnover and steady market demand, making it a preferred source of supplementary income. This finding supports [27] who reported that small ruminant farming provides consistent income that contributes significantly to the financial resilience of rural households in Nigeria. Another 3.33% of the respondents reported manure production as a major benefit. This reflects the integrated nature of farming systems in the area, where livestock waste is utilized as organic fertilizer to improve soil fertility and crop yield. The use of manure helps farmers reduce reliance on expensive inorganic fertilizers and enhances soil structure. This result agrees with the findings of [30], who observed that livestock manure plays an important role in sustainable crop production among Nigerian smallholder farmers.

L. Profitability of small ruminant farming

Fig. 8 shows that 20% of respondents considered small ruminant farming highly profitable, 38.33% rated it moderately profitable, while 41.67% were unsure of its profitability. This distribution suggests that although many farmers derive some financial benefit, uncertainty about profitability remains high likely due to inadequate record keeping, fluctuating feed prices, and disease losses. Similar findings were reported by [33] in Kwara State, where most small ruminant farmers perceived only moderate profits because of high production costs and limited market access. [40] likewise observed that small flock sizes and reliance on extensive systems reduce profit margins despite goats' economic potential. The large proportion of respondents uncertain about profitability supports [32], who linked poor awareness of profit levels to weak record-keeping habits. Overall, while small ruminant production provides supplementary income, improving management efficiency, feed resources, and financial documentation could enhance profitability.

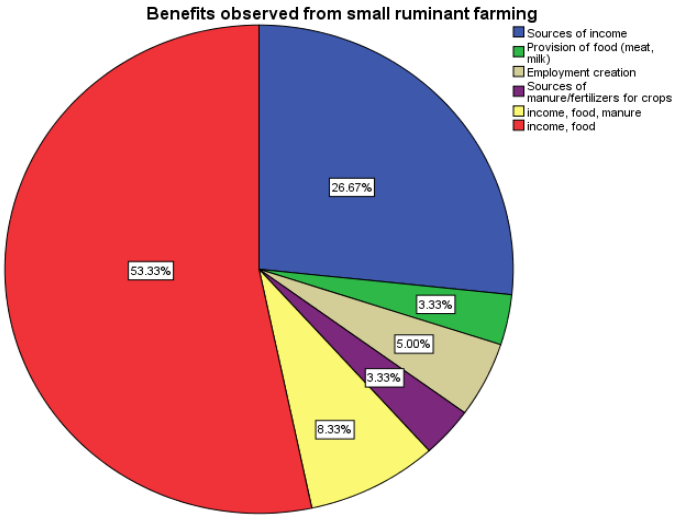

Fig 7. Benefits observed from small ruminant farming

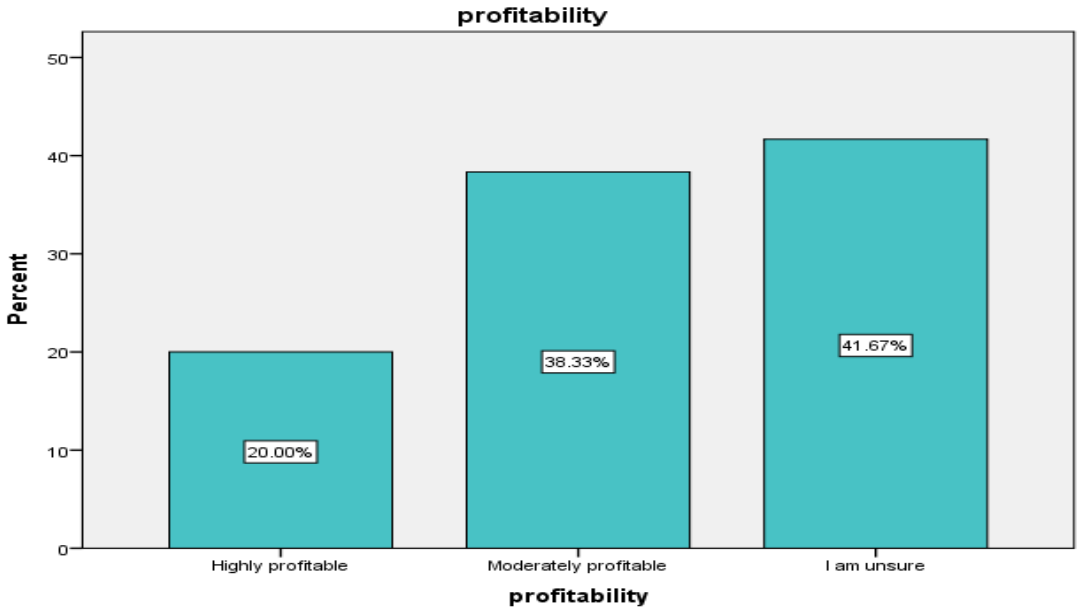

Fig 8. Profitability of small ruminant farming

M. Economic advantages linked to keeping records

Fig. 9 reveals that record keeping does not aid economic decisions and profit evaluation. These findings disagree with [41], who found that record keeping directly influences farm profitability by helping farmers make informed financial decisions.

N. Main challenges faced in small ruminant production

Fig, 10 highlight that disease outbreaks, feed shortages, and limited access to credit are the main challenges facing farmers, while lack of extension support, and market fluctuation also play roles. [17] and [29] similarly reported disease, feed cost, and financial limitations as the most prevalent challenges among small ruminant producers in Nigeria.

O. Constraint to Record Keeping

Table 6 show that the major constraints include illiteracy (55%), inadequate knowledge (31.7%), and poor access to templates (15%). This supports [18], who emphasized that educational level significantly affects farm record adoption and quality.

P. Has record keeping improved the productivity of your small ruminants?

Fig. 11 indicates that most farmers who keep records believe it has improved productivity, while Fig. 12 shows that record keeping does not enhances access to credit and financial support. [31] confirmed that proper record keeping boosts confidence, facilitates farm planning, and attracts institutional loans.

Q. Has record keeping helped you to access financial support?

Fig. 12 shows that a majority of respondents (81.67%) reported that record keeping has not helped them to access financial support, while only 15.00% affirmed that it has, and 3.33% stated that it has helped sometimes. This result indicates that despite some level of awareness or practice of record keeping among small ruminant farmers, it has not translated significantly into improved access to formal or informal financial assistance. This finding suggests that most farmers in the study area may not be benefiting from the potential economic advantages of maintaining proper farm records. According to [31] effective record keeping can enhance farmer confidence and credibility when applying for credit or financial support, as financial institutions often require documented farm performance before granting loans. The low percentage of respondents who benefited (15%) implies that record keeping practices among small ruminant farmers are either inadequate or not aligned with the requirements of lending institutions. Furthermore, [42] emphasized that accurate and consistent farm records are essential tools for assessing farm performance and serve as proof of enterprise viability, which financial bodies use to evaluate loan eligibility. The high proportion (81.67%) of farmers who did not benefit could also reflect a weak linkage between farmers and financial institutions or limited knowledge on how to utilize farm records for credit access. Similarly, [43] found that poor documentation and lack of financial literacy are major barriers preventing smallholder farmers from leveraging record keeping for funding opportunities.

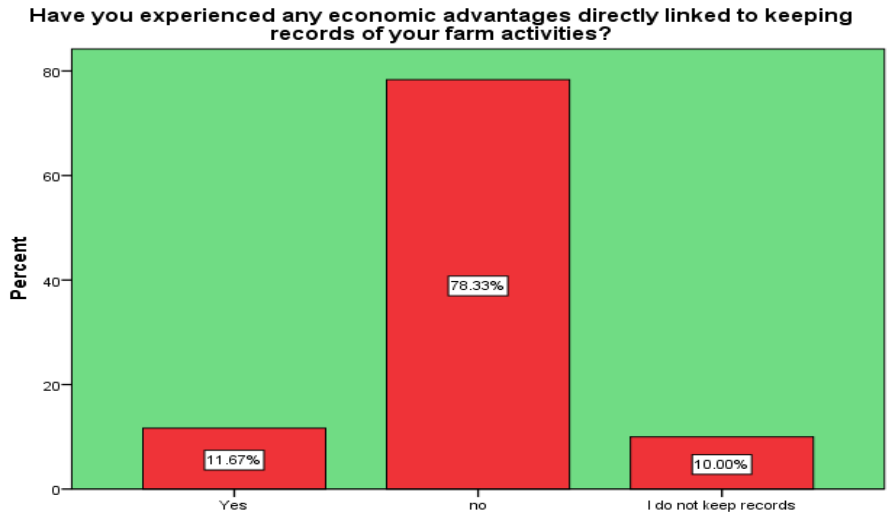

Fig 9. Economic advantages linked to keeping records

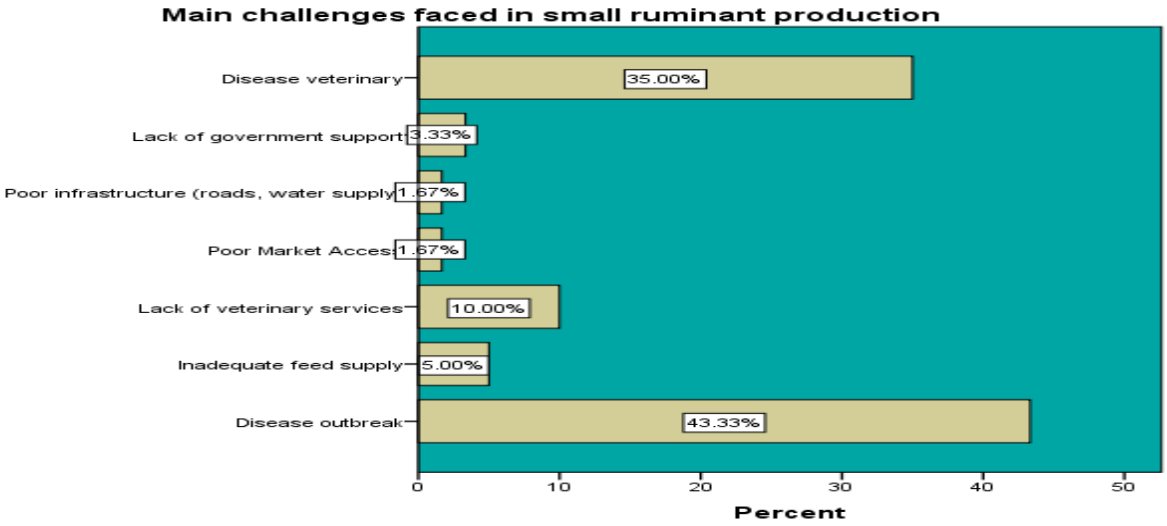

Fig 10. Main challenges faced in small ruminant production

Table 6: Constraint to Record Keeping (n=60)

Constraint	Major Constraint		Minor Constraint		Not a Constraint	
	Freq	%	Freq	%	Freq	%
Lack of time to keep records	11	18.3	7	11.7	42	70
Inadequate knowledge or training on record-keeping	19	31.7	9	15	32	53.3
Illiteracy or low educational level	33	55.0	8	13.3	19	31.6
Poor access to farm record templates or tools	9	15	12	20.0	39.0	65.0

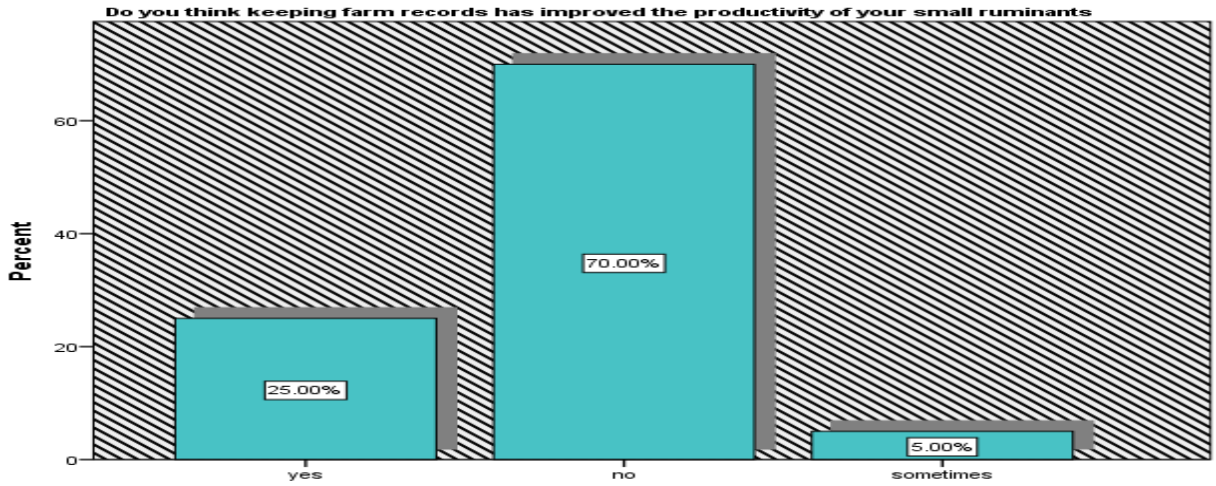

Fig 11. Do you think keeping farm records has improved the productivity of your small

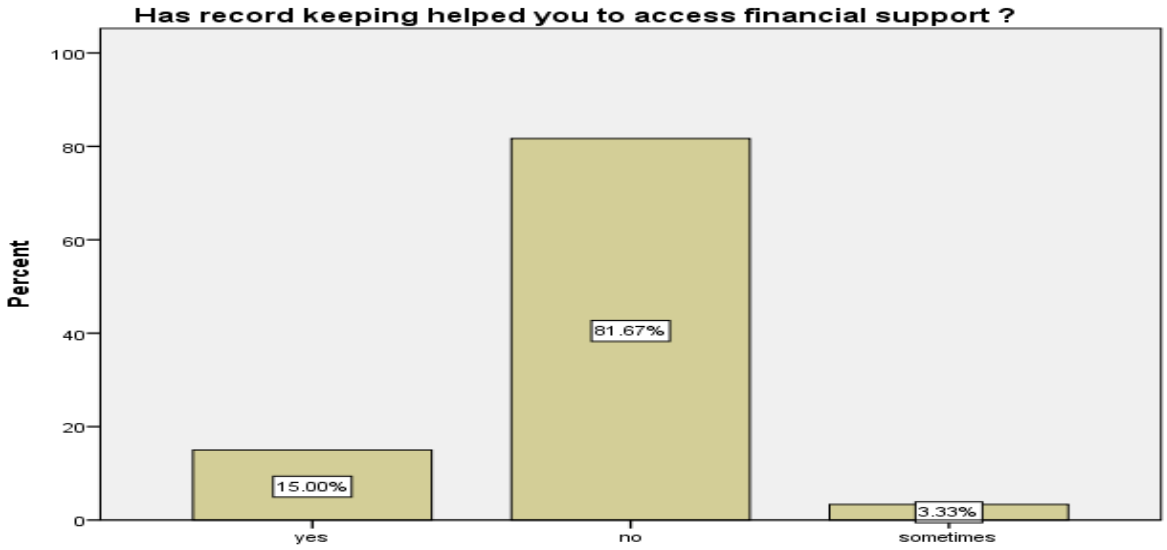

Fig 12. Has record keeping helped you to access financial support?

IV. CONCLUSION

The study revealed that small ruminant farming in Gbonyin Local Government Area of Ekiti State is dominated by middle-aged, male farmers with secondary education and moderate experience. Most farmers keep goats under extensive systems and on a small scale, mainly for income and household consumption. Although manure is effectively used as fertilizer, challenges such as lack of grazing land, high feed cost, and diseases limit productivity. Record keeping was generally poor, only 35% kept any

records, mostly manual and irregular due to lack of time, low education, and inadequate knowledge. Most farmers were unaware of the link between record keeping and profitability or access to credit. Despite moderate profitability, poor documentation and limited institutional support hinder enterprise growth. Small ruminant farming, however, remains a key livelihood source for households.

V. RECOMMENDATION

The following recommendations are therefore drawn from the findings of this study:

- Capacity Building: Farmers should be trained on simple and practical record-keeping methods to enhance management and decision-making.
- Adult Literacy and Farmer Education: Literacy and numeracy programs should be promoted to improve farmers' understanding of record management and farm planning.
- Strengthening Extension Services: Regular visits and advisory services from extension agents should be intensified to guide farmers on improved record keeping and husbandry practices.

Policy and Research Support: Policymakers should integrate record-keeping awareness into livestock development projects, while further studies should explore the link between record keeping and farm profitability.

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