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ASSESSMENT OF THE FACTORS THAT LIMIT RABBIT PRODUCTION UNDER AN INTENSIVE PRODUCTION SYSTEM IN ZANZIBAR

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ABSTRACT: *A study was conducted to assess the factors that limit rabbit production under an intensive production system in Zanzibar. A total of 390 farmers from three districts each has 130 respondents were interviewed in a cross-sectional survey. The results revealed that 48.2% of farmers had kept rabbits and 51.8% did not, while 53.2% of the farmers kept medium breeds and 46.8% of them kept small breeds of rabbits. In terms of management systems was significant (ρ≤ 0.038) in the feeding system was 60.2% of farmers used an intensive system and 39.8% employed semi-intensive systems, whereas a higher number of farmers 88.6% of main diets fed the rabbits with green grass than 11.4% utilized kitchen wastes. In the observed marketing of rabbits and their products, the proportion of respondents who had sold rabbit parts was significantly higher (ρ≤ 0.007), that is 73.0% had sold rabbits than 27.0% who did not sell any rabbit parts. However, it was not statistically significant concerning the types of rabbit products sold and marketing challenges at ρ≤ 0.836 and ρ≤ 0.475 respectively. The disease infection was reported by 58.9% of farmers their rabbits were affected by the disease and 41.1% of them did not. However, no statistical significance was associated with the causes of disease infection at ρ≤ 0.299. Likewise, rabbit production in Zanzibar is at an immaturity stage and is constrained with many drawbacks. Therefore, proper animal husbandry practices and extension service delivery are recommended.*

KEYWORDS: Rabbit production, extension service, feeding system, disease, marketing

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INTRODUCTION

Rabbit production in Zanzibar Tanzania, is gradually rising and most producers are keeping these animals under small-scale production, but it remains an important part of the production since it is a source of protein as well as macro and micro minerals to the people in the country (DLD, 2020). The rapidly growing human population in Zanzibar is creating a high demand for animal protein which is difficult to meet from domesticated animals such as cattle, sheep, goats, or even poultry (URT, 2020).

However, rabbit production has constraints to the development of a viable rabbit industry in Zanzibar, Tanzania, ranging from institutional and policy limitations that hinder the development of sustainable programs for smallholder rabbit units to critical environmental conditions e.g. poor extension services, poor stock adaptation, poor diet quality as well as poor disease prevention and control (Oseni *et al.*, 2014). In particular, institutional limitations include the lack of an appropriate policy framework for small stock development that supports backyard and smallholder rabbit production systems (Adu *et al.*, 2005) and other critical constraints non-application of sustainable models for low-input rabbit units and the absence of user-focused development programs (DLD, 2020).

In Zanzibar, Tanzania rabbit production has three production systems namely extensive, semi-intensive, and intensive system**s** (Theau-Clement *et al*., 2016). The extensive system (Natural System) implies total dependence on forages and kitchen wastes, so it is very cheap and easy to provide the quantity of feed required but it is labour-intensive and can introduce diseases and health problems(Daszkiewicz *et al.*, 2012). In semi-intensive systems, rabbits mostly use forages and some supplement concentrate feeds. It falls between the extensive and intensive system in terms of advantages and disadvantages. This system is most suitable for small-scale producer**s** (Exequiel *et al.*, 2012), whereas intensive systems have total dependence on prepared concentrate feeds and few forages, hence involving high levels of production and little risk of disease introduction, though it is characterised by high production costs (Theau-Clement *et al*., 2016). Thus, this study aims to assess the factors that limit rabbit production under an intensive production system in Zanzibar in order to recognize the challenges hindering rabbit production in the community.

MATERIALS AND METHODS

Study area

A cross-sectional study was conducted in Zanzibar, Tanzania and involved three districts out of 11 districts which form the Zanzibar. The study districts involved were West ‘B’, North ‘A’ and South. The criteria used to obtain these districts because were not suitable for large animal keeping such as cattle, goats, etc, due to the high population of the human settlements and the potential for tourism activities.

Sampling Procedure and Sample Size

The Purposive sampling method was employed to select three districts namely; West ‘B’, North ‘A’, and South districts to assess the factors that limit rabbit production under an intensive production system. Subsequently, a total of 390 livestock keepers whereby 130 livestock

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keepers from each district at the 10 Shehia (Village) were involved. Thirteen (13) livestock keepers whose owners willingly accepted to participate in the study were purposively selected from each of the selected Shehia (Village).

The sample size was calculated according to the following formula;

$$\mathbf{N = Z^2 \underline{P\,(100 - P)}}$$

$$\mathbf{\Sigma^2}$$

Where;

N = Sample size required

Z = standard normal deviation corresponding to a 95% confidence interval, which equals 1.96

P = Expected number of livestock keepers in the study area is 9% based on rabbit keepers in Zanzibar recent survey conducted in Zanzibar (DDL, 2019)

Σ = Margin of error estimated to be 3%

$$\text{Sample size (n)} = \frac{1.96^2 \times 9\,(100-9)}{3^2}$$

N = 349

Adjusting for non-response and drop out, which is set at 12%, 12/100 x 349 = 41.88. Therefore, the sample size for this study was 349 + 41.88 = 390.88 respondents.

Data Collection

The data were collected from each District by a structured questionnaire. The questionnaire consisted of closed and open-ended questions and was given to 30 respondents from the West 'A' District for pre-test and correction or adjustment of questions. Then, 390 livestock keepers were employed to assess factors that limit rabbit production under an intensive production system.

Data Processing and Analysis

Data were analysed using Statistical Package for Social Sciences (SPSS, version 20) software. Descriptive statistical analysis was used to summarize information into frequency counts, percentages and means. Additionally, the chi-square test was used to determine whether there was a statistically significant difference between the expected and observed frequencies in one or more category variables, and the final model containing the variables that showed a significant relationship ($p< 0.05$) was adopted.

The Chi-square model used was:

$$\sum^2 = \frac{\Sigma\,(Oi - Ei)^2}{i - 1\ Ei}$$

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Where;

i = Category of sample

O^i = Observed counts from category ^{i}

E^i = Expected counts from category ^{i}

RESULTS AND DISCUSSIONS

Socio-Demographic Characteristics of the Respondents

A total of 390 respondents across three Districts in Unguja were given questionnaires to obtain information on socio-demographic characteristics presented in Table 1. The results showed that 252 (64.8%) of respondents were males and 138 (35.2 %) were females. The highest number of males was 87 (22.7%) and females 49 (12.8%) found in the South and West 'B' Districts, respectively. While the majority of respondents, 254 (65.6%) were married, 114 (29.2%) were single, and only 22 (5.2%) were divorced. In terms of age, 173 (44.4%) belonged to the age group of 18 -35 years, followed by 143 (36.7%) who were 36 -50 years of age, and only 74 (18.8%) were above 50 years. These results mirror the Zanzibar reality, where over 70% of livestock keepers are men (DLD, 2020). This might be due to the observed average age group of 18-50 years being more active in livestock keeping (Agriculture National Census, 2020). This aligns with previous findings by Sanah *et al.*, (2020) in East Algeria, who reported using 58.9% of male respondents and 78.3% from the 18-50 age group in their study on rabbit meat consumption motivations and obstacles. Similarly, Nonga *et al.*, (2016) had 72.2% male and 72.3% aged 18-50 respondents when evaluating rabbit management and mange mite infestations in Morogoro, Tanzania. The high involvement of married respondents echoes OCGS's findings (2021) that over 76% of Zanzibar livestock keepers are married. The results suggest that many livestock keepers are families working together to provide for basic needs like food, education, and healthcare. However, Sanah *et al.*, (2020) observed a lower percentage of married livestock keepers in Algeria (56.11%), likely due to differences between the two countries.

On the other hand, on the education level, the results indicate that 11 respondents (2.6%) had a degree, 60 (15.4%) diploma level, 46 (11.7%) had a certificate level, 181 (46.9%) secondary, 74 (19.0%) primary and 18 (4.4%) did not have formal education. The education levels in this study align with the Zanzibar education policy of compulsory education up to Form II (RGoZ, 2010). This is further supported by the Agriculture National Census (2020) reporting a 78.1% literacy rate for Zanzibar's agricultural population, up from 73.3% in 2008.

Table 1: Socio-demographic characteristics of the respondents (n=390)

Variable	Category	North (A) District n (%)	West (B) District n (%)	South District n (%)	Total n (%)
Age Group (Years)	18-35	51 (13.0)	76 (19.8)	46 (11.7)	173 (44.5)
	36-55	55 (14.3)	35 (8.9)	53 (13.5)	143 (36.7)
	Above 55	24 (6.0)	19 (4.7)	31 (8.1)	74 (18.8)
Sex	Male	84 (21.6)	80 (20.5)	88 (22.7)	252 (64.8)
	Female	45 (11.7)	49 (12.8)	41 (10.7)	138 (35.2)

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Marital status	Married	94 (24.5)	74 (19.2)	84 (21.9)	254 (65.6)
	Divorced	6 (1.6)	0 (0.0)	14 (3.6)	22 (5.2)
	Single	28 (7.3)	54 (14.1)	30 (7.8)	114 (29.2)
Education level	Degree	2 (0.3)	5 (1.3)	4 (1.0)	11 (2.6)
	Diploma	14 (3.4)	28 (7.3)	18 (4.7)	60 (15.4)
	Certificate	10 (2.6)	20 (5.2)	16 (3.9)	46 (11.7)
	Secondary	60 (15.6)	62 (15.9)	59 (15.4)	181 (46.9)
	Primary	32 (8.3)	14 (3.4)	28 (7.3)	74 (19.0)
	None	12 (3.1)	2 (0.3)	4 (1.0)	18 (4.4)

Note: n= number observed

Rabbit Farmers and Types of Rabbits kept

The chi-square test was employed to show a statistical association between the farmers who kept rabbits and those who did not (Table 2). The results show that 188 (48.2%) farmers were rabbit keepers, while 202 (51.8%) were not. The chi-square test results showed a significant ($\rho \leq 0.001$) association between rabbit keeping, where a higher number of rabbit keepers, 80 (42.7%), were found in the West 'B' District than 80 (39.7%) non-rabbit keepers found in the North 'A' District. These results align with Mokoro *et al.,* (2015), who reported significantly higher proportions of non-rabbit farmers compared to rabbit farmers in four Kenyan districts: Manga (70%), Nyamira North (68%), Masaba North (65%), and Borabu (60%). This suggests significant variation in farmers' willingness to keep rabbits across different areas.

Likewise, 188 farmers were studied to obtain information on the types of rabbits kept, where two major types of rabbits were observed: medium and small breeds. The results are summarized in Table 4.2. The results show that 102 farmers (53.2%) kept medium breeds of rabbits, while 86 farmers (46.8%) kept small breeds. The chi-square test results showed that there was no significant ($p \geq 0.461$) difference between the types of rabbits kept in the three Districts. The current study's findings on rabbit breed preference differ from those of Mailu *et al*., (2013) in Kenya, who reported a preference for medium-sized breeds due to their potential for good mothering ability, numerous offspring, good growth, and high carcass weight (Mailafia *et al.,* 2010).

Table 2: Rabbit Farmers and Types of Rabbits kept (n=390)

Variable	Category	North (A) District n (%)	West (B) District n (%)	South District n (%)	N (%)	$\chi 2$	P-Value
Rabbit keeping	Yes	50(26.5)	80(42.7)	58(30.8)	188(48.2)	15.103	0.001**
	No	80(39.7)	50(24.6)	72(35.7)	202(51.8)		
Types of Rabbit	Medium breed	25(24.2)	42(41.4)	35(34.3)	102(53.2)	1.549	0.461 ns
	Small breed	26(29.9)	37(43.7)	23(26.4)	86(46.8)		

Note: *Statistically significant at 0.05, **statistically significant at 0.01, ns = Not statistically significant at 0.05, $\chi 2$= Chi-square value.

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Feed and Feeding System

A total of 188 farmers in the three districts were surveyed to acquire information on the feed and feeding system of the rabbits, as summarized in Table 3. The results of the feeding system showed that 113 (60.2%) farmers used an intensive system, while 75 (39.8%) practised semi-intensive systems. The chi-square results showed a statistically significant association ($p \leq 0.038$) with the feeding system used. More farmers 52 (46.4%) practised the intensive system in West 'B' compared to 38 (33.9%) in the South District. In contrast, 28 (37.7%) farmers practised the semi-intensive system in West 'B' and 27 (36.5%) in the North 'A' District.

In terms of the type of feed used, almost three-quarters 165 (88.6%) of the farmers fed the rabbits green grass, while only 23 (11.4%) used kitchen waste. This shows a significant difference ($p \leq 0.049$) in the types of feed used across the three districts. The highest number of farmers who used green grass was in West 'B' 74 (45.1%), followed by South District 51 (31.1%) and North 'A' District 40 (23.8%). These results contrast with Abu *et al*. (2008), who reported no significant differences in Nigeria, where farmers used both intensive and semi-intensive systems. Similarly, Abu *et al.* (2008) found that Nigerian rabbit diets mainly comprise green grass and legumes with kitchen waste, served in wooden, cement, or metal troughs. Nonga *et al.* (2016) also reported that 100% of farmers in Morogoro, Tanzania, used fresh grass as their primary diet.

In terms of the types of supplement feeds used, 56 (44.4%) farmers utilized maize bran, 42 (33.3%) used pellets, 20 (14.3%) used layer feeds, and only 10 (7.9%) used wheat bran. A significant number of farmers ($p \leq 0.001$) from the three districts used maize bran: 24 (42.9%) from the North 'A' district, followed by 16 (28.6%) in the West 'B' district and 16 (28.6%) in the South district. Notably, the majority of farmers in the West 'B' district 28 (66.7%) used layer feed as a supplement, while 14 (66.7%) farmers in the North 'A' district used pellets. However, the findings on feed supplements diverge from Seren *et al*. (2014) in Kenya, who found that 20% of farmers offered concentrate supplements at levels ranging from 20g to 150g, while many didn't supplement daily. Similar low levels and high forage content in Kenyan rabbit diets were reported by Borter and Mwanza (2011). Furthermore, Konmy*et al*. (2023) found that only 2.83% of farmers in Benin provided supplements. This suggests a lack of awareness about the importance of supplement feeds for rabbit production.

Table 3: Feed and Feeding System

Variable	Category	North (A) District n (%)	West (B) District n (%)	South District n (%)	N	$\chi 2$	p-Value
Feeding system	Intensive	22 (19.6)	52 (46.4)	39 (33.9)	113 (60.2)	6.554	0.038**
	Semi-intensive	27 (36.5)	28 (37.8)	20 (25.7)	75 (39.8)		
Type of feeds	Fresh grass	40 (23.8)	74 (45.1)	51 (31.1)	165 (88.6)	6.013	0.049**
	Kitchen waste	10 (47.6)	6 (23.8)	7 (28.6)	23 (11.4)		

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Supplement feed	Yes	41 (32.0)	53 (41.4)	35 (26.6)	128 (69.2)	7.419	0.024**
	No	8 (14.0)	26 (45.6)	24 (40.4)	60 (30.8)		
Type of supplement feeds used (n=128)	Maize bran	24 (42.9)	16 (28.6)	16 (28.6)	56 (44.4)	30.083	0.001**
	Wheat bran	2 (20.0)	4 (40.0)	4 (40.0)	10 (7.9)		
	layer	3 (7.1)	28 (66.7)	4 (40.0)	42 (33.3)		
	Pellet	14 (66.7)	3 (16.7)	11(26.2)	20 (14.3)		
				3 (16.7)			

Note: *Statistically significant at 0.05, **statistically significant at 0.01, $\chi 2$= Chi-square value.

Marketing of Rabbits and their Products

The 188 farmers were surveyed on the marketing of rabbits and their products, as shown in Table 4. Regarding the commercialization of rabbits or their products, the proportion of respondents who had sold rabbit parts was significantly higher ($p \leq 0.007$).

In other words, 137 respondents (73.0%) had sold rabbit parts, compared to 51 respondents (27.0%) who did not. Among those who sold rabbit parts, respondents from the West 'B' District were in the lead with 67 respondents (49.6%), followed by the South District with 38 respondents (27.4%). Conversely, the number of respondents who hadn't sold rabbit parts was higher in the South District 20 respondents (40.0%) and the North 'A' District 18 respondents (36.0%).

Furthermore, the chi-square test results revealed no statistically significant differences regarding the types of rabbit products sold ($p \geq 0.836$) and marketing challenges ($p \geq 0.475$). This implies that there were no significant variations in these variables among the farmers in the three selected districts. These findings align with Chipo *et al*., (2019), who, while evaluating the challenges and opportunities of rabbit production and marketing in Zimbabwe, reported that 60% of farmers sold their rabbits for business, while 28% sold them for emergency needs and 12% to control herd size. Similarly, Tembachako *et al.,* (2017) found that in Zimbabwe, most the farmers sold live rabbits to local markets or farmers within their communities. Furthermore, echoing the findings of Ndyomugyenyi *et al.,* (2013), our results suggest that many Ugandan farmers sold rabbits locally due to poor market linkages between producers and external markets. This limited potential buyers' access to rabbits for commercial purposes, home consumption, or breeding stock.

It is worth noting that a 2011 study by the Kenyan Ministry of Agriculture identified local households and restaurants as the primary consumers of rabbit meat. Similarly, rabbits in Australia are primarily used for meat production, generating income and serving as laboratory specimens (Williams *et al.,* 2012).

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Table 4: Marketing of Rabbits and their Products

Variable	Category	North (A) District	West (B) District	South District	N	$\chi 2$	p-Value
Rabbit products Sold (n=188)	Yes	32 (23.0)	67 (49.6)	38 (27.4)	137 (73.0)	9.832	0.007**
	No	18 (36.0)	13 (24.0)	20 (40.0)	51 (27.0)		
Type of products sold (n= 137)	Live rabbit	23 (23.2)	47 (49.5)	27 (27.4)	97 (70.4)		
	Urine	1 (14.3)	5 (71.4)	1 (14.3)	7 (5.2)	1.446	0.836 ns
	Manure	7 (21.2)	16 (48.5)	10 (30.3)	33 (24.4)		
Marketing challenge (n=188)	Yes	32 (27.1)	53 (44.9)	33 (28.0)	119 (64.1)	1.487	0.475 ns
	No	18 (25.8)	26 (37.9)	25 (36.4)	69 (35.9)		
The main challenge of marketing (n=119)	No permanent marker	8 (18.2)	22 (50.0)	14 (31.8)	44 (37.3)		
	Low price	22 (38.2)	20 (36.4)	14 (25.5)	56 (46.6)	8.726	0.068 ns
	Few buyers	2 (10.5)	12 (63.2)	5 (26.3)	19 (16.1)		

Note: *Statistically significant at 0.05, **statistically significant at 0.01, ns = Not statistically significant at 0.05, $\chi 2$= Chi-square value

Rabbit Diseases (Infections)

Of the 188 farmers surveyed on disease infection (as shown in Table 5). The results showed that 110 (58.9%) farmers reported their rabbits being affected by the disease, while 78 (41.1%) did not. Notably, 52 (46.5%) farmers from the West 'B' District reported rabbit disease infestation, compared to 36 (33.6%) in the South District. This difference was statistically significant ($p \leq 0.027$). Conversely, a higher number of farmers, 29 (36.8%) from North 'A' District, followed by 28 (35.5%) in West 'B' District, did not report any disease, indicating no significant difference ($p > 0.05$).

However, no statistically significant associations were found between the causes of disease infection. This suggests that these variables did not vary significantly among farmers in the three districts. The results differed from those reported by Chah *et al.* (2018), who, while assessing disease management practices among rabbit farmers in Enugu State, Nigeria, found that only 17.9% considered disease a problem, with 82% reporting no issues. This contrast might be attributed to two factors: firstly, farmers prioritising the selection of healthy rabbits for breeding, and secondly, the relative inexperience of many farmers, potentially limiting their observation of disease outbreaks.

Among the reported causes of rabbit deaths, diarrhoea 27 (36.5%), unknown causes 25 (33.8%), and skin infections 22 (29.7%) were the most prevalent. There was significant variation ($p \leq 0.011$) among farmers in the reported causes of death. Notably, the highest number of deaths by diarrhoea 14 (51.9%) occurred in the West 'B' District, followed by unknown causes 12 (48.0%) in the South District and skin infections 10 (45.4%) in the North 'A' District. These findings disagreed with, Chah *et al*. (2018) noted that among the minority

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who did observe disease issues, skin infection (mange) was the most prevalent (75%), followed by diarrhoea, ear canker, and sniffles (all at 8.3%). This aligns with Elshahawy *et al*., (2016), who identified skin infection as a common problem in rabbits.

Furthermore, the present study diverges from the findings of Nonga *et al.* (2016), who reported that 100% of farmers in Morogoro, Tanzania experienced rabbit diseases, with diarrhoea (61.1%) and skin infection (22.2%) being the most common. These discrepancies could be due to variations in rabbit management systems, seasonal influences, or the practice of mixing adult and young rabbits.

Table 5: Rabbit Diseases Infection

Variable	Category	North 'A' District n (%)	West 'B' District n (%)	South District n (%)	N	χ2	p-Value
Diseases infection (n=188)	Yes	21 (19.3)	52 (46.5)	37 (33.6)	110 (58.9)	7.201	0.027**
	No	29 (36.8)	28 (35.5)	21 (27.7)	78 (41.1)		
Causes of diseases (n=110)	Poor diets	6 (33.3)	8 (44.4)	4 (22.2)	18 (16.5)		
	Poor hygiene	6 (16.1)	18 (58.1)	8 (25.8)	32 (28.4)	7.238	0.299 ns
	External parasites	9 (20.5)	17 (38.6)	18 (40.9)	44 (40.4)		
	Unknown	1 (6.2)	9 (56.2)	6 (37.5)	16 (14.7)		
Causes of death (n=74)	Skin infection	10 (45.4)	6 (27.3)	6 (27.3)	22 (29.7)		
	Diarrhea	14 (51.9)	11 (40.7)	27 (36.5)	13.049	0.011**	
	Unknown	2 (7.4)	10 (40.0)	12 (48.0)	25 (33.8)		

Note: *Statistically significant at 0.05, **statistically significant at 0.01, ns = Not statistically significant at 0.05, $\chi 2$= Chi-square value.

Extension Services Delivery

188 farmers were surveyed to gather information on extension service delivery (Table 6). A significantly higher proportion of farmers 134 (71.4%) had received extension services compared to those who hadn't 54 (28.6%) ($p \leq 0.026$). Most farmers receiving services were from the West 'B' district 59 (44.7%), followed by the South district 46 (34.1%). The North 'A' and West 'B' districts had the lowest proportion of farmers without services 21 (39.6% each). The results differed from those reported by Chipo *et al*., (2019), who found that only 40% of respondents in Zimbabwe received extension services from extension staff or other sources like experienced farmers. This suggests that inadequate extension services delivery might be hindering rabbit production development in developing countries, making it difficult for farmers to manage rabbits as conventional livestock due to the challenges they face (Nonga *et al.*, 2016).

Regarding the source of extension services, 74 (55.3%) reported receiving them from livestock officers, while 60 (44.7%) received them from experienced farmers. A significant difference ($p \leq 0.001$) was found between sources. In the West 'B' district, the most common source was

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livestock officers 37 (50.7%), followed by the North 'A' district 21 (28.8%). Experienced farmers were the most common source in the South District 30 (50.8%), followed by the West 'B' District 22 (37.3%) and North 'A' District 8 (11.9%). The findings in this study align with Benson (2014), who reported that services from livestock officers. This highlights the significance of training farmers on basic husbandry techniques for the sustainability of production systems. Similarly, Mashapa *et al*. (2014) emphasised the critical role of agricultural extension services in driving agribusiness and reducing rural poverty.

Table 6: Extension Services delivery

Variable	Category	North (A) District n (%)	West (B) District n (%)	South District n (%)	N	$\chi 2$	P-Value
Extension services delivery (n=188)	Yes	29 (21.2	59 (44.7)	46 (34.1)	134 (71.4)	7.286	0.026**
	No	21 (39.6)	21 (39.6)	12 (20.8)	54 (28.6)		
Source of extension services (n=134)	Livestock offices	21 (28.8)	37 (50.7)	16 (20.5)	74 (55.3)	14.492	0.001**
	Experience farmer	8 (11.9)	22 (37.3)	30 (50.8)	60 (44.7)		

Note: *Statistically significant at 0.05, **statistically significant at 0.01, ns = Not statistically significant.

CONCLUSION AND RECOMMENDATIONS

The study findings concluded that in the study area, intensive and semi-intensive systems are common systems used for rabbit rearing and most farmers used green grass as a primary feed and low supplement concentrates, this indicates that there were low nutrients provided to rabbits. In addition, it is concluded that there is poor market availability of rabbit products in the study area leading to the farmers selling rabbit products in the local households and restaurants at low prices. Also, there is poor extension services delivery to farmers with a correlate of low education in the rabbit production sector which is still at an infarct stage in the study area. Therefore, it is recommended that the livestock policy in Zanzibar should focus on establishing innovative institutional arrangements that enhance rabbit production extension services, farm contacts, and farmer training by extension officers.

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