Journal of Agripreneurship and Sustainable Development (JASD)
Volume 4, Number 1, March, 2021
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

ANALYSIS OF GENDER ROLES IN GOAT PRODUCTION MANAGEMENT IN KANO STATE, NIGERIA

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ABSTRACT
The study analyzed gender roles in goat production management in some selected Local Government Areas of Kano State, Nigeria. Multi-stage sampling technique was used to select 143 goat farmers. Data was collected using structured questionnaires and analyzed using descriptive statistics, logit regression and Harvard analysis. The findings revealed the mean age of 44.3 years for men and 38.6 years for women with mean household size of 11 people for both genders and mean herd size of 12 and 11 goats for male and female respectively. The findings further revealed that annual income (P>0.009), herd size (P>0.026) and extension contact (P>0.084) had positive influence to goat production activities among the male goat farmers while annual income (P>0.012) and herd size (P>0.029) had positive influence for goat production activities among the female goat farmers. However, the coefficient of household size (P>-0.082 and -0.200) was negative and significant for both male and female goat farmers, respectively. Harvard analysis reported that 76-100% male farmers were involved more on barn construction, fodder collection, medication and goat marketing; while female goat farmers were involved more on feeding and water provision as revealed by 76-100%. Both genders were involved in cleaning of barn; but male have more control over the resources in goat management. Pest and disease problem (70.1% and 68.2%), feed shortages (26% and 47%) and limited capital (29.9% and 34.8%) were the main constraints faced by goat farmers. The study concluded that goat production was not gender sensitive. It was recommended that goat farmers should be encouraged to form cooperatives and pool their resources together to facilitate easy access to credit, extension agencies need to extend their services to all goat farmers in respective of gender and the need for improvement in veterinary services to curtail the problem of pest and diseases.

Keywords: Gender roles, Goat, Harvard analysis, Logit regression, Production management.

INTRODUCTION
Livestock is considered a key asset for rural households worldwide and a primary livelihood resource for rural communities; about 752 million of the world's poor keep livestock to produce food, generate cash income, manage risks and build up assets (Food and Agriculture Organization [FAO], 2012). Livestock "widens and sustains three major pathways out of poverty, securing the assets of the poor, improving smallholder and pastoral productivity and increasing market participation by the poor" (International Livestock Research Institute [ILRI], 2007). The Nigerian livestock sector has been a source of well-being for many citizens, particularly for the rural dwellers (Umar and Ben, 2014). Nigeria has an estimated livestock population of about 34.5 million goats, 22.1 million sheep and 13.9 million cattle (Lawal-Adebowale, 2012). Between 70-80% of the nation's population are engaged in agriculture and livestock industry as their major occupation and source of livelihood (NAERLS and FDAE, 2013). Specifically, about 90% of the country's cattle population and 70% of the sheep and

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goat populations are concentrated in the northern region of the country (Tibi and Aphunu, 2010).

In rural areas, where local culture and traditions are still very vibrant, responsibilities and tasks are often assigned to women and men on the basis of traditional gender roles, defined as those behaviours and responsibilities that a society considers appropriate for men, women, boys and girls. These roles change over time, have different characteristics in every local context and are shaped biological, religious, cultural, ethnic and economic factors. They are a key determinant of the distribution of resources and responsibilities between men and women (FAO, 2010). Gender roles between women and men varies according to enterprise, farming system, technology used, culture, wealth status, religion and animal populations which are influenced by sociocultural and socio-economic factors (Mulema *et al.*, 2017). Women dominated roles in goat management practices and husbandry were feeding/grazing, cleaning of barns, watering and done in conjunction with other activities (Zahra *et al.*, 2014) whereas; men generally involved in barn preparation/construction, feeding, herding, sale/ marketing of animals (Kinati and Mulema, 2016). In many cases gender roles are biased and favour certain social constituencies at the expense of others. Rural women, for instance, face serious obstacles more regularly than men, since traditional structures and perceptions tend to prevent them from obtaining the necessary tools to reach their full potential in the agricultural sector. In fact, despite their major involvement in and contribution to livestock management, women tend to have limited access to resources, extension services and less participation in decision making compared to their male counterparts (FAO, 2011).

It is argued that commercialization of livestock production can lead to women losing out, whereby as production commercializes, women work more but they benefit less by controlling less income and such negative outcomes can be avoided by integrating gender in full research cycle and by conducting a gendered analysis that will inform the integration of transformative measures in the livestock development (Birgit *et al.*, 2015). The importance of gender integration in the research process is more and more acknowledged as a good practice in livestock management (Birgit *et al.*, 2015). Therefore, this study is expected to provide concrete and empirical information to goat farmers, researchers, students, policy makers and other stake holders. Also expect to provide new orientation in gender resource management and gender access to goat productions for improving household's security.

From the foregoing, the study was carried out to achieve the following objectives: describe the socio-economic characteristics of the farmers on goat management activities; describe the different roles played by men and women in goat management activities; find out men's and women's roles in access to and control over goat management practices; determined the influence of socio-economic factors on goat production management among male and female gender, and ascertain the constraints militating against goat production management based on gender in the study area. The study tested the validity or otherwise of the tested hypothesis in null form as Ho: males and females plays equal roles in goat production management.

MATERIALS AND METHODS

The Study Area

The study was conducted in Kano State, Nigeria. Kano State is situated in Sudan Savannah agro-ecological zone of Nigeria within latitude 10º 3ˈ to 12º 4ˈ North and longitude 7º 4ˈ to 9º 3ˈ East. There are two seasons in the State: wet and dry season. The wet season is from (May to September) with average rainfall of 787mm-960mm annually. The dry season is (October- April). The mean temperature ranges from 15.85ºC-33ºC (KNSG, 2013). It may low

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Volume 4, Number 1, March, 2021
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

at harmattan to as 10ºC. It has a population of approximately 9.4 million (4,947,952 male and 4,453,336 female) based on the National Population Commission (NPC, 2006) census, with annual growth rate of 3.3 percent per annum, the projected population by the year 2017 was 12,789,960 people. The State has 44 Local Government Areas (LGAs) with land mass of 42,582.8km square out of which agricultural land is 30,684.8km square, while forest and grazing land has 11,898km square (Kano State Government [KNSG], 2013). The key sectors of the economy for growth are agriculture, commerce and manufacturing.

The 44 LGAs were classified into three (3) administrative zones by Kano State Agricultural and Rural Development Authority (KNARDA). Farming is the main occupation of the people who are predominantly Hausa/Fulani, they are mostly engaged in the production of crops like millet, sorghum, maize, rice, cowpea, groundnut, pepper, tomato, onion and rearing of animals such as cattle, sheep, goat and poultry (KNSG, 2013).

Sampling Techniques

The sampling method for the study was multi-stage sampling techniques as shown in Table 1. First stage involves purposive selection of Albasu, Rimin Gado and Gaya LGAs based on the high intensity and concentration of goat farmers. The second stage involved random selection of three (3) communities from each Local Government Area (LGA) selected. Finally, the third stage involved random selection of 20% proportionately of both estimated total male and female goat farmers from extension agent's survey list in each selected community. A total of 143 goat farmers were selected 77 male and 66 female from both sample frames of male and female goat farmers.

Table 1: Summary of Sample Frame and Size for Goat Farmers

LGAs	Communities	Farming population (male)	20% farming population (male)	Farmers population (Female)	20% farming population (female)	20% of Total goat farmers
Albasu	Faragai	35	7	30	6	13
	Gwagwarandan	38	8	28	6	14
	Saya-saya	38	8	25	5	13
Rimingado	Akalawa	56	11	41	8	19
	Dokadawa	43	9	38	8	17
	Juji	58	12	42	8	20
Gaya	Kademi	40	8	70	14	22
	Wudilawa	35	7	25	5	12
	Kamfasi	33	7	28	6	13
Total		**376**	**77**	**327**	**66**	**143**

Source: KNARDA, 2018

Data Collection Procedure

Data for this study was collected through primary and secondary sources. Primary data was collected using structured interview schedule administered to the selected goat farmers. The data was collected by trained enumerators with the guiding support and supervise by the researcher.

Analytical Techniques

Descriptive statistics (frequency, percentage, mean, minimum and maximum), Harvard Analytical Framework and inferential statistics (logit regression) were used in the study. The logit regression model was specified as:

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$Y = B_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + \ldots + b_{10}X_{10} + e_i$
where;
Y = Gender role index (housing construction/grazing/tethering and fodder collection, feeding, drinking, cleaning and sanitation of barn, medication/vaccination and deworming, marketing of goat). Seven (7) management practices were considered. The dependent variable was 1 or 0, if the respondent was involved in 4 to 7 activities was scored 1 and if he is involved in less than 4 activities, he was scored 0.
B_0 = Constant
$B_1 – B_{10}$ = Coefficient of X variables
X_1---- X_{10} =Selected Socio-economic variables
X_1 = Age
X_2 = Sex
X_3 = Marital status
X_4 = Household size
X_5 = Annual Income
X_6 = Level of Education
X_7 = Flock number
X_8 = Contact with Extension Agent
X_9 = Cooperative membership
X_{10} = Access to credit

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Goat Farmers

The socio-economics characteristics of male and female goat farmers according to age, household size, experienced in goat rearing, herd size and goat output are shown in Figure 1 and Figure 2, respectively. The average age of the male and female goat farmers was 44.3 and 38.7, respectively. This indicates that majority of them were in their active productive ages which may perhaps implies increase in productivity. This finding agrees with Umunna *et al.*, (2014) who reported that majority of small ruminant farmers in the Southern Guinea Savanna of Nigeria falls within the age ranges of 40 to 49 years.

The household size male and female farmers in Figure 1 and 2 was found to be about 11 persons for both male and female goat farmers respectively. This implies that the farmers considered in the study area had quit number of Household sizes that may serve as a source of labour in goat management activities. This finding disagrees with Baruwa (2013) who reported that the mean household size of goat farmers was 8 and more than half of the farmers had family size ranging between 6 and 10.

Experience can be seen to better improve the agricultural productivity as a result of skills, knowledge and practice acquired over the years. Figure 1 and Figure 2 shows that both male and female goat farmers had an average goat farming experience of 23 and 19 years, respectively. This indicates that the goat farmers in the study area had adequate experience in goat farming business. This finding is in line with Baruwa (2013) who reported a mean experience in goat farming of 16 years which shows that most of the farmers were not new in the enterprise.

The number of goat rearing per flock is presented in the Figure 1 and Figure 2. The result revealed that both male and female goat farmers had an average herd size of 12 and 11 goats respectively. This finding implies that the average herd size of the farmers was between 12 and 11 respectively. This is in contrast with Sumberg (2014) who reported an average flock size ranging between 2 to 5 animals per owner with goats being commonly owned than sheep

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in his study area. Furthermore, Figure 1 and 2 reveals that both male and female goat farmers had an average goat output of 43.1Kg and 44.7 kg, respectively.

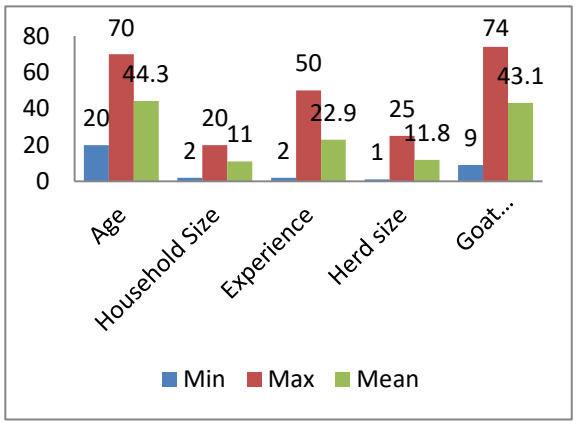

Figure 1: *Male goat farmers*

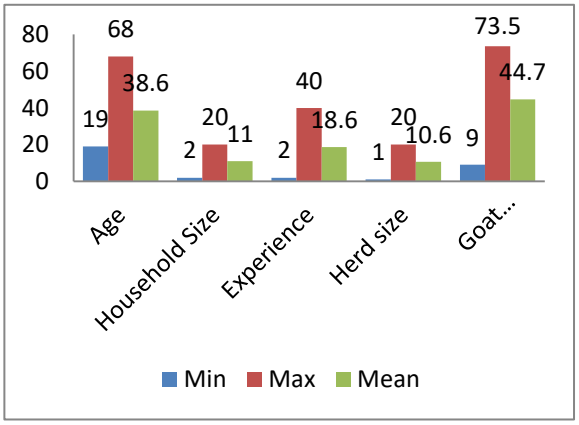

Figure 2: *Female goat farmers*

Result in Table 2 revealed that most (89.9%) of male and female (80.3%) Goat farmers were married respectively. This portrays the fact that married people have responsibility and also need support to carry out their practices in goat production activities. This finding is consistent with (Baruwa, 2013) who reported that majority of goat farmers were married which confers some level of emotional stability on the farmers. As presented in Table 2, more than one third (36.4%) of male goat farmers had non-formal education as compared to more than half (53.0%) of the female goat farmers who also had non-formal education. This finding indicates the high value and regards given to non-formal education in the study area. However, only 10.4% of male goat farmers and 3.0% of female goat farmers had tertiary education. This result clearly shows that substantial numbers of male goat farmers were literate which implies that there will be more improvement in their production compared to their female counterpart.

Table 2 provides information on the annual income of male and female goat farmers. The result revealed that almost one third (29.9%) of male goat farmers had income range between ₦32,000 to ₦53,000 while more than half (56.0%) of female goat farmers had annual income between ₦10,000-₦31,000 only. But, the mean annual income of ₦51,506.49 and ₦33,477.27 was established for male and female goat farmers respectively. This implies that male goat farmers generated more income from their goat production compared to their female counterpart. Also, the low-income distribution among the goat farmers may be attributed to their subsistence goat production system which leave everything to chance.

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Table 2: Socio-Economic Characteristics of Male and Female Goat Farmers

Variables	Male (n = 77)	Female (n = 66)
Marital status		
Single	7 (9.1)	2 (3.0)
Married	69 (89.6)	53 (80.3)
Divorced	1 (1.3)	4 (6.1)
Widow/Widower	-	7 (10.6)
Educational level		
Never being to School	3 (3.9)	14 (21.2)
Non-Formal Education	28 (36.4)	35 (53.0)
Primary	17 (22.1)	9 (13. 6)
Secondary	21 (27.3)	6 (9.1)
Tertiary	8 (10.4)	2 (3.0)
Annual income from goat production		
₦10,000-31,000	21 (27.3)	37 (56.0)
₦32,000-53,000	23 (29.9)	22 (33.3)
₦54,000-75,000	18 (23.4)	7 (10.6)
₦76,000-97,000	15 (19.5)	-
System of production		
Extensive	25 (32.5)	26 (39.4)
Semi-Intensive System	52 (67.5)	40 (60.6)
Veterinary extension		
Service		
Yes	71 (92.2)	63 (95.5)
No	6(7.8)	3 (4.5)
Frequency of contact with veterinary extension agents	17 (23.9)	5 (7.9)
Monthly	44 (62.0)	21(33.3)
Quarterly	10 (14.1)	37 (58.7)
Yearly		
Access to credit		
Have Access	5 (6.5)	2 (3.0)
Have no Access	72 (93.5)	64 (97.0)
Cooperative membership		
Member	33 (42.9)	36 (54.5)
Non-member	44 (57.1)	30 (45.5)
Special Need People (disable)	9 (11.7)	7 (10.6)
Able People	68 (88.3)	59 (89.4)

Source: Field Survey, 2018

Results in Table 2, also reveals that majority of goat farmers both male and female were engaged in semi-intensive production system of goat production management as revealed by 67.5% and 60.6% respectively. This implies that goats were allowed to move freely with little management and capital inputs such as supplementary feed. This finding agrees with Sumberg (2014) who asserted that sheep and goat are present in rural households and the majority of the animals are kept in free-roaming flocks with little management and capital inputs. However, the finding disagreed with Mohammed and Ayoola (2017) who reported that majority of the farmers operates extensive system of goat management.

The results in Table 2 reveal that majority 92.2% of male and 95.5% of the female farmers reported having access to veterinary extension services occasionally based on the medical situation of the flock and in most cases, it is the extension agents that rendered the

veterinary services in their nearby communities. This implies that veterinary services were not regularly provided and it is dominated by animal health practitioners than the veterinary professionals which may affect the quality of service delivery to the goat farmers.

The frequency of veterinary extension contact was presented in Table 2. The result revealed that majority (62%) of the adult male goat farmers had quarterly contact with veterinary extension agents, while more than half (58.7%) reported yearly contact with veterinary extension agents. This implies veterinary extension agent concentrates more on male goat farmers on a quarterly basis than on female goat farmers. The female goat farmers were involved with veterinary extension agents mostly on yearly basis as revealed by 58.7%. This finding agreed with that of Channappagouda *et al.* (2016), who reported lesser participation of women in health care management activities which indicate the need for empowerment of women with knowledge and skill of first aid which will go a long way in the development of the sector.

Table 2 clearly indicated that majority (93.5% and 97.0%) of both male and female goat farmers had no access to credit facility. While only 6.5% male and 3.0% female reported having access to credit facility. The implication of this finding is that, it hinders the goat farmers to invest more on their production management by practicing ranching which is capital intensive. This may result into farmer-pastoralist conflict.

This refers to a group of people who come together for a common goal. Results in Table 2 indicated that 42.9% of the male and more than half of the female (54.5%) goat farmers were members of one association or the other. This could be as a result of the benefits like improved stock and other incentives derived from being a member of association through NGOs like Sasakawa Global and or through the Government agency like Kano State Agricultural and Rural Development Authority (KNARDA). The effect of being a member of the association is that member may acquire benefit that can improve the living standard of the member. This implies that there will be more vital information sharing among the member. This is in line with the finding of Oluwatayo and Oluwatayo (2012), who found out that three quarter of the goat farmers belong to one association or another.

Result in Table 2 further reveals that 11.7% and 10.6% of the male and female goat farmers were people with special need who engaged in goat production management. This implies that, engaging in goat production management help to provides opportunities for people with special need to earn a living and prevent them from engaging in street begging.

Roles Played in Goat Production Management among Goat Farmers

The goat management activities among goat farmers were achieved using Harvard analytical framework in Table 3. The presence of x on the Tables indicates the involvement of adult male, male child, adult female and female child. The goat farmers studied engaged in the production management activities by both male (adult and child), female (adult and child).

The result revealed that most (76 -100%) of adult male and less than one third (1-25%) of male children were engaged in the barn construction/housing as a production activity. On the other hand, adult female and female children were not involved in barn construction at all. This may be due to the technical nature involved in this activity that hinder female to engage in this activity. This activity is mostly done at the vicinity of the compound or at the backyard of the goat farmer.

Table 3 revealed that grazing/Tittering and Fodder collection management activity was found to be actively engaged by male adult (76-100%) and male child (51-75%) while female adult engaged in only 1-25%. This result contradicts that of Vimal and Kavithaa (2014) and

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ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

Toppo *et al.* (2004), who reported that fodder cutting, carrying and taking animal for grazing were actively performed by women.

Table 3: Goat Production Management Activities among the Goat Farmers

Activities	Adult male	Male child	Adult female	Female child
Barn Construction	Xxxx	Xx	-	-
Grazing/Tethering, fodder collection	Xxxx	xxx	x	X
Feeding/Fodder serving	Xxx	xxx	xxxx	Xxx
Watering	Xx	xxx	xxxx	Xxx
Barn cleaning & sanitation	xxxx	X	xxxx	X
Medication(deticking, vaccination & deworming)	xxxx	X	xx	X
Goat Marketing	xxxx	-	xxx	-

Note: x = 1- 25%, xx = 26 – 50%, xxx = 51 – 75%, xxxx = 76 -100%
Source: Field survey, 2018

The result in Table 3 further revealed that feeding/fodder serving was found to be actively engaged by adult female as revealed by most (76-100%), while adult male, male and female children were engaged in feeding/fodder management activity by 51-75%. However, this activity is found to be engaged by both genders. The high involvement in feeding/fodder serving by adult female agreed with finding of Mohanasundarraj and Tripathi (2010) who reported higher involvement of women in the concentrate's feeds, feeding and watering of their animals.

The watering activity in Table 3 was found to be actively engaged by the adult female as indicated by 76-100%, thus; feeding and watering of goat can be said to be considered as female activities. The active engagement of female may be as a result of the fact that it is a secluded activity which screened them from the public view and also it is less tedious. This agrees with Vimal and Kavithaa (2014) who said feeding and watering were actively performed by women.

Table 3 indicated that barn cleaning and sanitation/packing of animal dung are considered to be the activity of both adult male and female as revealed by 76-100% involvement in this activity.

Medication which include deticking, vaccination and deworming was also found to be actively engaged by adult male as shown by 76-100%. This may be as a result of delicate aspect of the activity. This agrees with Paudel *et al.* (2009) who reported that construction of goat shed and medication were actively done by men.

The result of goat marketing activity presented in Table 3 showed that it was largely carried out by adult male and female as indicated by 76-100% and 56-75%, respectively. This activity can be carried out by both genders despite the cultural and religious belief of the people within the study area. The marketing of goat can be done by women in their respective houses through agent while they can also sell at the nearby market. Therefore, looking at the overall results of involvement, the study revealed more adult male involvement then their adult female counter parts. Thus, the null hypothesis is also rejected.

Access to Resources among the Goat Farmers

Table 4 presents the access to resources by the goat farmers. The result found out that the adult male and female have access to mentioned resources but male had more access than female. The findings further revealed that the male and female child had little access to

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resources and no access to farmyard manure by the female child. This may be connected to the fact that female children are not involved in farming in the study area.

Table 4: Access to Resources among the Goat farmers

Resources	Adult male	Male child	Adult female	Female child
Access to Barn	Xxxx	x	xxx	xx
Livestock/goat	Xxxx	x	xxxx	xx
Water provision	Xxxx	xxxx	xxxx	xxxx
Livestock inputs (feeder, drinker, feeds/ and drugs)	Xxxx	x	xxxx	xx
Cash	Xxxx	x	xxx	X
Farm yard manure	Xxxx	xx	xx	-
Education	Xxxx	xxxx	xxx	xxxx

Note: x = 1- 25%, xx = 26 – 50%, xxx = 51 – 75%, xxxx = 76 -100%
Source: Field survey, 2018

Control over Resources by the Goat Farmers

The result of Harvard Analytical framework in Table 5 shows that children generally had fewer control over all the resources of goat management. The children (male and female) had no control over the barn. This could be because they were still under the custody of their parents. Also, female children were found to have no control over farm yard manure and this may be due to the fact that female children were not involved in crop farming. Table 5 further shows that 26-50% adult female goat farmers had control over barn and farm yard manure. This is due to the fact that women were not the household heads in the study area. Table 5 further shows that adult male goat farmers had total control over the barn, livestock inputs, cash, goat stock/breeding and farm yard manure while adult female goat farmers had more control on cash and goat breeding stock as indicated by 76-100% respectively. This could be due to the fact that some adult female goat farmers still depend on their husbands in providing these resources to facilitate their production activities.

Table 5: Control to Resources among the Goat Farmers.

Resources control	Adult male	Male child	Adult female	Female child
Barn control	xxxx	-	xx	-
Livestock input control	xxxx	x	xxx	x
Cash control	xxxx	x	xxxx	x
Goat breeding stock control	xxxx	x	xxxx	x
Farm yard manure control	xxxx	x	xx	-

Note: x = 1- 25%, xx = 26 – 50%, xxx = 51 – 75%, xxxx = 76 -100%
Source: Field survey, 2018

Factors Influencing Goat Production Management Activities among Male Goat Farmers

The goat production management among male gender were influenced by a number of socio-economic factors. The logistic regression result in Table 6a revealed that the coefficient of household size was negative and significant at 10% which implies that the lesser the household members, the more they invest in goat management activities as they have less mouth to feed within the household.

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Table 6a: Factors that Influenced Goat Production Management among Male Goat Farmers

Variable	Coefficient	SE	Exp. (B)	Sig. (P-value)
Age	-0.042	0.068	0.959	0.544
Household size	-0.130*	0.075	0.878	0.082
Annual income	0.000***	0.000	1.000	0.009
Herd size	0.247**	0.110	1.280	0.026
Experience in goat production	0.020	0.069	1.021	0.769
Marital status	-0.512	1.446	0.599	0.723
Educational status	0.097	0.186	1.102	0.603
Extension contact	1.856***	1.073	6.400	0.084
Access to credit	1.087	1.541	2.964	0.481
Cooperative membership	-1.505	1.059	0.222	0.155
Constant	6.253**	2.602	519.754	0.016

Note: *significant at 10%; **significant at 5%; ***significant at 1%
Source: Field Survey, 2018

The coefficient of annual income, extension contact and herd size were found to be positive and significant at 1%, 1% and 5%, respectively. This is invariably saying that annual income, extension contact and herd size results in the increase to goat production management activities by male goat farmers in the study area.

Factors Influencing Goat Production Management Activities among Female Goat Farmers

The result of regression analysis in Table 6b revealed that the coefficients of household size for female goat farmers was negative and significant at 10% which implies that the lesser the household members to take care of, the more time they spent in goat management activities. Table 6b further reveals that the coefficient of annual income was positive and significant at 1%, while herd size was also positive and significant at 5%. This implies that any increase on these variables will lead to the corresponding increase in goat production management activities by female goat farmers.

Types of Livestock Extension Services Received by Goat Farmers

The result presented in Table 7 revealed that almost half (47.9%) of the male goat farmers had received services on veterinary service, technical support and cross breeding, while the female goat farmers received services mostly (46%) on routine deworming of goat against internal parasite. However, male goat farmers were not receiving services on formation of livestock cooperatives. While female goat farmers received this service through Nongovernmental Organization (NGOs). Specifically, Sasakawa African fund and Kano Agricultural and Rural Development Authority (KNARDA). This finding disagrees with that of Dickson *et al.* (2014), who asserted that men also face barrier in livestock extension services but women are more prone to neglect and overlooked by extension services providers because they are among the poor and vulnerable. This finding is also not in consonant with that of International Food Policy Reseach Institute (IFPRI, 2013) who reported that women typically had less access to veterinary extension service.

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Table 6b: Factors that Influenced Goat Production Management among Female Goat Farmers

Variable	Coefficient	SE	Exp. (B)	Sig. (P-value)
Age	-0.053	0.077	0.948	0.493
Household size	-0.118*	0.092	0.889	0.200
Annual income	0.000***	0.000	1.000	0.012
Herd size	0.280**	0.128	1.323	0.029
Experience in goat production	0.014	0.070	1.014	0.842
Marital status	0.188	1.691	1.206	0.912
Educational status	0.034	0.211	1.034	0.874
Extension contact	-0.062	1.080	0.940	0.954
Access to credit	-0.187	1.503	0.830	0.901
Cooperative membership	0.376	0.973	0.699	1.456
Constant	6.197**	2.760	491.423	0.025

Note: *significant at 10%; **significant at 5%; ***significant at 1%
Source: Field Survey, 2018

Table 7: Livestock Extension Advisory Services Received by Goat Farmers

Services	Male (%)	Female (%)
Barn construction	8 (11.3)	8 (12.7)
Barn routine cleaning and sanitation	18 (25.4)	26 (41.3)
Routine deworming of goat against internal parasite	24 (33.8)	29 (46.0)
Formation of livestock cooperative	-	4 (6.3)
Feed conservation techniques (silage and roughages)	17 (23.9)	22 (34.9)
Selection of breeding goat for improving production	14 (19.7)	14 (22.2)
Buck fattening for increase household income	14 (19.7)	16 (25.4)
Formulation of concentrate feeds	27 (38.0)	30 (47.6)
Veterinary service, technical support and cross breeding	34(47.9)	28 (44.4)
Improved goat breeding stock	-	12 (19.0)

Source: Field Survey, 2018

Constraints Militating Goat Production Management of the Respondents

Table 8 reveals that the most important constraint faced by the goat farmers in the study area was prevalent of pest and disease (70.1% and 68.2%) especially during the heat period which ranked 1st for both male and female goat farmers, respectively. The Table 8 results further reveals that (29.9%) of the male goat farmers considered limited capital as the second most important constraint. This is followed by shortage or sometimes scarcity of feeds and forage with 26% which was ranked third. With respect to female goat farmers, the second most important constraint militating against goat production was shortage or scarcity of feeds and forage which accounted for 47%. This was followed by limited capital (34.8%) which ranked third among the female goat farmers.

Journal of Agripreneurship and Sustainable Development (JASD)
Volume 4, Number 1, March, 2021
ISSN (Print): 2651-6144; ISSN (Online): 2651-6365

Table 8: Constraints to Goat Production Management among Goat Farmers

Constraints	Male (%)	Ranking	Female (%)	Ranking
Prevalent of Pest and Disease	54 (70.1)	1st	45 (68.2)	1st
Feed/Forage shortage	20 (26.0)	3rd	31 (47.0)	2nd
Limited capital	23 (29.9)	2nd	23 (34.8)	3rd
Tediousness/ stressful mgt	7 (10.0)	8th	10 (15.2)	5th
Costly feed	18 (23.4)	4th	21 (31.8)	4th
Housing/ barn constraint	13 (16.9)	7th	10 (15.2)	5th
Accidents	5 (6.5)	9th	4 (6.1)	8th
High cost of medication	17 (22.1)	5th	8 (12.1)	7th
Sudden death and theft	15 (19.5)	6th	9 (13.6)	6th

Note: Percentage not hundred because of multiple responses
Source: Field survey, 2018

CONCLUSION AND RECOMMENDATIONS

The study concluded that both male and female were involved in similar and different roles in goat production. Construction of barn was majorly carried out by male, feeding and watering was majorly associated with the female, the male goat farmers had more access to and control over goat production/farming resources than the female goat farmers who had more access to resources, control over cash and less control over certain resources like Barn control, livestock inputs (feeds, rake), and farm yard manure. The flock or herd size is low in both male and female, and majority of male and female genders does not have access to credit for their enterprise. Therefore, goat production in the study area was not gender sensitive for the fact that male goat farmers performed substantial roles, had more access to and control in goat production management over their female counterpart. However, the most important constraint faced by the male and female goat farmers was prevalent of pest and disease. Based on the findings of this study, the following recommendations were made:

1. Goat farmers association or cooperative should be encouraged to come together to enable them have access to credit facility to improved their productivity.
2. There is need for goat farmers to be aware of causes of pest and disease for prevention against the disease.
3. Female goat farmers should be made to have equal control over resources like their male counterparts.
4. There is need for goat farmers to be practicing intensive system of production to prevent goat exposure to environmental challenges like accidents and thieves.
5. People with special need should be encouraged the more to be involved in goat production so as to prevent them from street begging and to be financially self-reliance.

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