



## Research Article

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# Donkey Owners Knowledge and Perception on Reproduction: Case of the Builsa North District, Ghana

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## Abstract

The study was conducted in the Builsa North district of Ghana, using questionnaire to investigate the knowledge and perception of donkey owners on reproduction and reproductive health problems in their animals. A total of 94 respondents were interviewed. The majority of respondents (42.6%) observed oestrus in donkeys throughout the year, while the least (7.4 %), associated oestrus with the rainy season. The respondents were able to detect jennies on heat based on clinical signs. The majority of respondents (35.1%) were able to recognize pregnancy in jennies at 5 months gestation, while (51.1%) of respondents estimated the gestation period to be 11-12 months. The common reproductive health disorders experienced by jennies were Still births (2.7%), Abortion (2.4%), Dystocia (2.2%), Mastitis (0.4), Retained placenta (0.1%) and Metritis (0.1%). Donkey owners are very conversant with donkey reproduction. It is recommended that education on donkey reproduction and reproductive health problems for farmers be intensified in the district.

**Keywords:** Knowledge; Perception; Donkey; Reproduction

## Introduction

The donkey (*Equus asinus*) is indigenous to the African continent and is believed to have originated from the Nubian wild ass. The largest population of donkeys in the world are found in China, while in Africa, Ethiopia has the largest population estimated to be over five (5) million [1]. In Ghana, an estimated population of 13,100 donkeys are reared mainly in the Northern, Upper East and Upper West regions [2]. Donkeys were introduced to the southern parts of Ghana for animal and traction purposes [3]. Throughout the world, donkeys have been utilized for multi-purpose activities including as guard animals for protecting small ruminants, companion animals, draught animals and sport animals [4].

Despite their vast economic importance, the donkey population in Africa has been declining over the decades. This has been attributed to the illegal trade in donkey meat for export to China. There is therefore the need to maintain this current population by focusing on donkey reproduction and breeding. Attempts at improving donkey reproductive performance must take into cognisance, the indigenous knowledge of donkey reproductive physiology and breeding. Unfortunately, such information is

very scanty in literature. The available information on donkey reproduction is derived from studies done on horses, although there is a fundamental difference between them. The purpose of this study was to investigate the knowledge of donkey owners on donkey reproduction and reproductive health disorders in Northern Ghana.

## Materials and Methods

The study was conducted in the Builsa North district of the Upper East region of Ghana from January to March, 2015. The district lies between longitudes 10 05" West and 10 35" West and latitudes 100 20" North and covers an estimated land area of 816.44030 km<sup>2</sup> [5]. This district was purposively selected due to its great agricultural potential and location. It is located approximately Forty-Five (45) kilometers from the Upper East regional capital of Bolgatanga.

The respondents were randomly selected, based on an evidence of donkey rearing and interviewed using semi-structured questionnaire, designed to capture information on farmers socio-economic characteristics and their knowledge in donkey

reproduction and reproductive health disorders. Direct observation of the animals was done in order to assess the nature of the housing and husbandry conditions where applicable. The results obtained were analysed using descriptive statistics.

## Results and Discussion

### Socio-economic characteristics of donkey owners

The respondents interviewed consisted of 69 males and 25 females. Their ages ranged from 25 to 73 years with an average age of 43.2 years. The average age of donkey owners in this study was lower than the age of more than 60 years in Greece [6]. The majority of respondents (47.9%) had no formal education, 31.9% had basic education while 20.2% were graduates of Teacher training or Agricultural colleges. The respondents kept other livestock such as cattle, sheep, goats, chicken and guinea fowls. The herd size ranges from 1-19 donkeys per individual with the majority keeping an average of 4 donkeys per household. The respondents owned a total of 674 donkeys comprising of 338 female and 236 males.

### Reproductive traits

The respondents were interviewed on various aspects of donkey reproductive physiology. This study shown that donkeys attained sexual maturity from age 2-3 years. This result contradicts findings that sexual maturity sets in at age 1-2 years [7,8]. The difference may be due to the fact that feeding is usually scarce especially during the dry season. This will account for a delayed onset of sexual maturity in affected animals. Respondents were quizzed on the seasonality of the oestrous cycles. The majority of respondents (42.6%) observed oestrus in donkeys throughout the year, while the least (7.4%), associated oestrus with the rainy season Table 1. This finding supports the observation that donkeys come into oestrus throughout the year under tropical and subtropical conditions [8,9] Seasonal reproduction in donkeys is controlled by photoperiod and other factors such as feed availability, body condition score, health and environmental conditions [10]. The latter factors appear to be more prominent in the study district which experiences a cold harmattan season and scarcity of feed from December to February annually. Jennies will therefore cycle depending on the prevailing weather conditions and feed availability.

The clinical signs used by donkey owners to detect jennies on heat are listed in descending order as follows: male and female courtship behavior (24.8%), female mounting other donkeys (13.8%), vulvar discharge (6.3%) and red swollen vulva (2.1%) Table 2. It is therefore apparent that donkey owners are familiar with the signs of oestrus in jennies. The signs of heat in jennies is similar as in animals such as small ruminants, cattle and pigs, which are also reared by donkey owners.

Female donkeys on heat were naturally mated by donkey jacks which sometimes resulted in pregnancy. Donkey owners used signs such as distended abdomen, enlarged udder, non-acceptance for mating by males and weaning of foals to diagnose pregnancy. The majority of respondents (35.1%) were able to recognize pregnancy in jennies at 5 months gestation, while 3.2% did so at 2-month

gestation Table 3. The majority (51.1%) of respondents estimated the gestation period to be 11-12 months, while 6.4% said it was 7-8 months Table 4. In addition, most respondents (44.7%) said foaling occurred throughout the year and was not limited to any seasons or months of the year Table 5. This finding supports the view that pregnancy and parturition are less seasonal in domestic donkeys than in wild asses [11] (Tables 1-5).

**Table 1:** Donkey owners knowledge of time of oestrus.

Parameter	Number of Respondents	% Respondents
Do not know	13	13.8
All year round	40	42.6
Dry season	34	36.2
Rainy season	7	7.4
Total	94	100

**Table 2:** Donkey owners recognition of oestrus.

Sign	Number of Respondents	% Respondents
Males chasing females	25	24.5
Female mounting others	13	13.8
Red swollen vulva	2	2.1
Vulvar discharge	6	6.3
Acceptance of males for mating	15	16.1
No known sign	35	26.6
Total	94	100

**Table 3:** Age at which pregnancy is first recognized by owners.

Time/month	Number of Respondents	% Respondents
2	3	3.2
3	17	18.1
4	25	26.6
5	33	35.1
6	5	5.3
7	7	7.4
8	4	4.3
Total	94	100

**Table 4:** Duration of pregnancy.

Gestation period/months	Number of Respondents	% Respondents
8-Jul	6	6.4
10-Sep	18	19.1
12-Nov	48	51.1
13-14	22	23.4
Total	94	100

**Table 5:** Donkey owners knowledge of time of foaling.

Time of Foaling	Number of Respondents	% Respondents
All year round	42	44.7
Dry season	27	28.7
Rainy season	25	26.6
Total	94	100

## Reproductive health disorders

Respondents were quizzed on reproductive health disorders experienced in donkeys for the last two years. The results indicated that 8.3% donkeys had been affected with reproductive disorders within the last two years. Table 6. The common reproductive health disorders experienced by jennies in descending order were Still births (2.7%), Abortion (2.4%), Dystocia (2.2%), Mastitis (0.4), Retained placenta (0.1%) and Metritis (0.1%). The reported disorders are similar to those reported in equids in India [12,13]. No reproductive health disorders were reported in male donkeys (Table 6).

**Table 6:** Cases of reproductive health problems in donkeys.

Type	Number	% Prevalence
Still birth	18	2.7
Abortion	16	2.4
Mastitis	3	0.4
Metritis	1	0.1
Retained placenta	1	0.1
Dystocia	15	2.2
Total	54	8.3

## Conclusion and Recommendation

Donkey owners are very conversant with donkey reproductive physiology. Reproductive health disorders are a major issue in female donkeys in Northern Ghana. It is recommended to intensify education on donkey reproductive health for farmers. Further investigation should be conducted to identify the microbes responsible for reproductive health disorders.

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## Conflicts of Interest

No conflict of Interest.

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