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KNOWLEDGE OF DOG BREEDERS ON INFERTILITY IN BITCHES WITHIN JOS METROPOLIS

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ABSTRACT
Infertility has the potential to negatively affect dog breeding business which can be explored in order to reduce unemployment especially among youths. This study attempted to evaluate the knowledge of dog breeders on infertility in bitches. Descriptive statistics analysis was done to determine the distribution of knowledge of dog breeders on infertility in bitches. Majority of the dog breeders in Jos are males 89 (64.5%), the modal age group was 20-30 years 80 (58.0%) and majority of the dog breeders are self-employed 56 (40.6%). The most predominant breed of dog is the Russian shepherd 49 (41.8%). The mean knowledge score was 13.10 and standard deviation (SD) was 7.20, most dog breeders show to have a good knowledge score of brucellosis 121 (87.7%), transmissible venereal tumor 102 (73.9%), canine distemper 128 (92.8%) and leptospirosis 123 (89.1%) as common causes of infertility, foetal and neonatal death. 91 (65.9%) of dog breeders identified when to mate a bitch through vaginal cytology test. In conclusion, most of the dog breeders had good knowledge of infertility on the Plateau but failed to consult veterinarians which might have lead to increase in the number of cases of infertility in bitches presented at University of Jos, Veterinary Teaching Hospital, Polo.

KEYWORDS: Knowledge, Bitches, Breeders, Infertility, Jos

INTRODUCTION
The domestic dog (*Canis familiaris)* is a member of the genus Canis (canines) and is the most widely abundant terrestrial carnivore. Dog was the first species to be domesticated, and has been selectively bred over a millennia for various behaviours, sensory capabilities and physical attributes (Horn *et al*., 2013). Infertility in the bitch is the inability to produce viable offspring (Hofer *et al.,* 2012). Infertility in the bitch is difficult to solve because it can be as a result of different conditions which may be difficult to distinguish, such as lack of fertilization and early embryonic death (Kutzler, 2018). The most common cause of infertility in bitches is poor breeding management rather than inability to conceive. It is critical to conduct a complete history and physical examination before beginning an extensive medical evaluation to uncover any concerns (Horn *et al.,* 2013). The completion of a routine database aids in the detection of serious systemic illness that could affect fertility. This study attempted to evaluate the knowledge of dog breeders on infertility in bitches on the Plateau metropolis.

MATERIALS AND METHOD
STUDY AREA AND POPULATION
The study was carried out in Jos, the capital of Plateau state located in the north central geopolitical zone of Nigeria. Jos is situated on longitude 9° 43' east of the Greenwich and

latitude 8° 45 43' north of the equator with a population of about 900,000 residents at the 2006 census (Climate-Data, 2021).

STUDY DESIGN AND POPULATION

The research design for this study was the combination of descriptive and cross-sectional design. Relatively cross-sectional design was found appropriate because of its utility in collecting quantitative data with questionnaire within a short time. A cross sectional study method was used to assess the knowledge, attitude and practices of dog breeders in Jos metropolis on infertility in bitches using a well-structured questionnaire to determine their demography, knowledge and attitude about infertility alongside the various practices which relates to infertility (Appendix 1).

Sample Size

Sample size was determined with the adoption of the following formula: $n=Z^2pq/d^2$. n represents the maximum sample size, z is the normal deviation, p stands for prevalence of infertility, q=1-p and d is the precision of the study alpha at 5 % (Oyetunde & Ofi, 2010) Where Z=1.96, q=0.42 and d=0.05. n=138.

SAMPLING AND DATA COLLECTION

Structured questionnaire was designed then pre-tested employing a face to face interview and an online goggle form format to 10 dog breeder groups within the study area. The questionnaires were analyzed and re-evaluated for questions that were not clear to the respondents, afterwards a link was generated for the modified goggle forms and also 20 copies made for dog breeders in the Veterinary Teaching Hospital, University of Jos. One hundred and thirty-eight (138) questionnaires were completed and submitted with each containing 25 questions randomly administered for data collection to consenting dog breeders (respondents) at the University of Jos Veterinary Teaching Hospital and to other dog breeders within Jos metropolis.

DATA ANALYSIS

Data were subjected to descriptive statistics and were expressed in frequency, percentages, mean and standard deviation using JMP 13 Pro software which was presented in tabular form.

RESULTS AND DISCUSSION

ASSESSMENT OF KNOWLEDGE OF RESPONDENT ON INFERTILITY.

The mean knowledge score of respondents was 13.10 out of 19 items scored. Table 1 shows that 125 (90.6%) have knowledge about infertility, 13 (9.4%) do not have knowledge about infertility. 126 (91.3%) identify heat in a bitch through bloody vaginal discharge, 10 (7.2%) through change in behavior and 2 (1.4%) by carrying out vaginal cytology test. Most dog breeders, 91 (65.9%) identified when to mate a bitch in heat by using vaginal cytology test while a few others, 47 (34.1%) count number of days in heat. 121 (87.7%) know about brucellosis while 17 (12.3%) do not know about brucellosis, 123 (89.1%) know about leptospirosis while 15 (10.9%) do not, 31 (22.5%) know about campylobacteriosis while 107 (77.5%) do not, 102 (73.9%) know about transmissible venereal tumour (TVT) while 36 (26.1%) do not, 128 (92.8%) know about canine distemper while 10 (7.2%) do not. Majority of dog breeders 122 (88.4%)

show to have a good knowledge about the important role of nutrition in infertility while 16 (11.6%) do not have any knowledge on the role of nutrition in infertility.

Table 1: Assessment of Knowledge of Respondent on Infertility

Knowledge Item	Frequency n = 138	Percentage (%)
Infertility		
Yes	125	90.6
No	13	9.4
Identification of heat		
Bloody vaginal discharge	126	91.3
Behaviour change	10	7.25
Vaginal cytology	2	1.45
Identification of mating day		
Count of days	47	34.1
Vaginal cytology	91	65.9
Brucellosis		
Yes	121	87.7
No	17	12.3
Leptospirosis		
Yes	123	89.1
No	15	10.9
Campylobacteriosis		
Yes	31	22.5
No	107	77.5
TVT		
Yes	102	73.9
No	36	26.1
Canine Distemper		
Yes	128	92.8
No	10	7.2
Nutrition		
Yes	122	88.4
No	16	11.6

Mean = 13.1, Standard deviation = 7.20

The result of this study shows that most dog breeders have an acceptable level of knowledge about infertility (13.1±7.20). This may be due to years of experience as dog breeders and availability of several Veterinary clinics (private and government Veterinary clinics) within Jos metropolis. This finding agrees with the work carried out by Schutjens & Wever (2000) which show that dog breeders who have good level of knowledge about reproduction and infertility in dogs have at least two (2) year experience in dog breeding enterprise. Majority of these dog

breeders (65.9%) identified when to mate a bitch in heat through vaginal cytology test, this may be attributed to the increased chances of conception in bitches observed by breeders in recent times after carrying out vaginal cytology test when introduced by the University of Jos Veterinary Teaching Hospital (UJVTH) than those times when breeders mate a bitch by counting number of days in heat. Dog breeders show to have a good level of knowledge about common diseases such as brucellosis (87.7%), leptospirosis (89.1%), transmissible venereal tumor (73.9%), and canine distemper (92.8%) which is identified as common causes of infertility, still birth and early neonatal death which agree with trend observed by Hofer (2012).

Conclusion and Recommendation

The study has highlighted the dog breeder's knowledge gaps on infertility in bitches within Jos metropolis and effective management will help improve bitch productivity.

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