Reproductive performance of West African Dwarf goats fed with *Moringa oleifera*

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**Background**

West African Dwarf (WAD) goat is the most prolific goat species (Plate 1). A non-seasonal breeder with the possibility of kidding 5 times in 3 years. In most tropical countries, lack of genetic improvement and inadequate nutrition undermines WAD goats in expressing their full genetic and productivity potential. These result into high mortality rates in kids (50%) and low fecundity in adult females. A bid to improve WAD goat performance, calls for the exploration of alternative but nutritious feed sources such as *Moringa oleifera*, a multi-purpose plant (Plate 2). Hence, we evaluated the reproductive parameters of WAD does’ as influenced by *M. oleifera* during and after gestation and the performance of their resulting kids after parturition.

**Approach**

- **Grouping and Acclimatization**
  - Five treatments (T1 – T5) with 5 replicates
  - Increasing proportion of *M. oleifera* in relation to *G. asepum* at 0%, 25%, 50%, 75%, and 100% across T1 to T5

- **Feeding**
  - Treatment: based on treatment diet composition and 4% body weight of does’
  - 100g of concentrate per doe per day
  - 0.4mls of progesterone per doe, every other day for 6 consecutive days

- **Oestrus synchronization**
  - 4mls of progesterone per doe, every other day for 6 consecutive days
  - Introduction of bucks, 24 hours post hormonal administration

- **Statistical Analysis:** SAS 2008

- **Reproductive parameter**
  - Conception rate, litter size at birth and gestation length in does
  - Birth weight, milk uptake and weaning weight of kids

- **Analysis**
  - Chemical and nutritional analysis of the forage plants used as experimental diet
  - Chemical and nutritional analysis of the forage plants used as alternative plant (Plate 2).

**Result**

We used the data of does’ which conceived during their next ovaulation after estrus synchronization. Of the experimental does’ 72% conceived shortly after hormonal withdrawal (Fig 1). Majority of the conceived does’ were in treatments fed with >50% M. oleifera (Fig 2) with the rest of the does conceiving during their second ovulation. Early conception confers higher fecundity on the does in T3 – T5 as conception rate influences kidding interval.

Conception rate among treatments increased with increasing levels of *M. oleifera* in does’ diet (Fig 2), with T5 having the highest rate. Higher conception rate within T3 – T5, indicate that *M. oleifera* is rich in nutrients (protein and energy) to enhance implantation and development of foetus (Fig 3) compared to *G. asepum* atpicum. As analysis of the feed intake by the does’ showed that there was a significant difference (P<0.05) in crude protein intake (CPi) among different treatments, with T1 having the lowest (120.1g/day). Average birth weight of kids from does fed with >50% M. oleifera in their diet was 300gms higher than other groups and 100gms higher than average recorded birth weight for WAD goats. Highest weaning weight of kids >5kg were recorded at 3 months in treatments fed with >75% M. oleifera. This was found to be due to persistency in milk production in does’ of this group (T4 and T5).

**Conclusion**

- Inclusion of high levels of *M. oleifera* in WAD does’ diet (50% and above) do enhance higher conception rate. This indicates better fecundity and invariably improves kidding interval on the long term basis.
- Higher birth weight of kids from WAD goats above the present recorded averages of 1200g is attainable.
- This will aid better development of kids which will encourage early weaning, hence improved productivity.

**References**


**Figures**

- Fig 1: Fecundity rate within the entire experimental does.
- Fig 2: Concept rate in does of different treatments based on data composition of *G. aspermum* and *M. oleifera* respectively. T1 = 100%, T2 = 75%, T3 = 50%, T4 = 25%, T5 = 0%
- Fig 3: Indicates a direct relationship between conception rate and average daily CP intake by does’ in different treatment.

**Acknowledgement**

We wish to thank Dan Carlsberg Caragegie Scholarship Board (DCC) and the scholarship disbursing arm at the Center For Gender and Social Policy Studies, Obafemi Awolowo University Ile-Ife. Special thanks to Bessie Solomon, Kamundi Akhibi, Adewuyi Oluwaseun and Dr. Oyedeji for your assistance during the course of this study.