

## Number and viability of seeds recovered from faeces of ruminant animals

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**Introduction** Ruminants play a significant role in the dissemination of plant seeds as a result of ingested seeds during grazing on pasture escaping digestion that are voided with the faeces and returned to the seed bank (Russi *et al.*, 1992).

**Materials and methods** This study was carried out at the Teaching and Research Farm of the University of Agriculture, Abeokuta, Nigeria for four months from October 2003 to January 2004. Two breeds each of the three types of ruminants were selected for the study. They were White Fulani and N'dama breeds of cattle, West African Dwarf (WAD) and Yankassa breeds of sheep and West African Dwarf (WAD) and Red Sokoto breeds of goat. Three samples of faeces were collected early in the morning weekly. The faecal samples were weighed and dissolved in water and passed through sieves to remove the seeds. The recovered seeds were then air-dried at room temperature and counted under a magnifying lens to determine the total number of seeds in the faeces. The seeds were also put into Petri dishes to determine their viability. The trial was a 3x2x4 factorial with three replicates.

**Results** Although, the number of seeds recovered per unit weight of the dry faeces was highest in cattle ( $P<0.05$ ), cattle had the least percentage viable seeds and goats the highest (Table 1). This may be because goats are browsers; they ingest feed with little or no mastication unlike cattle and sheep according to Simao Neto *et al.* (1987). The number of seeds recovered from the faeces reached the highest value ( $P<0.05$ ) in November, in the early dry season similar to the result of Jones and Simao Neto (1987). The highest percentage viability ( $P<0.05$ ) of seeds recovered was in January (Table 2).

**Table 1** Effects of Animal types on population and viability of seeds recovered from the faeces of ruminant animals

Animal types	Dwts	TNS	No/g Dwts	TNVS	%via
Cattle	132.8 <sup>c</sup>	92.0 <sup>a</sup>	0.69 <sup>a</sup>	5.1 <sup>b</sup>	4.7 <sup>c</sup>
Sheep	211.8 <sup>a</sup>	87.3 <sup>b</sup>	0.41 <sup>b</sup>	44.2 <sup>a</sup>	8.1 <sup>b</sup>
Goat	138.9 <sup>b</sup>	3.4 <sup>c</sup>	0.21 <sup>c</sup>	0.9 <sup>c</sup>	16.9 <sup>a</sup>

**Table 2** Population and viability of seeds at different months of the dry season

Months	Dwts	TNS	No/g Dwts	TNVS	%via
Oct	150.1 <sup>d</sup>	36.5 <sup>c</sup>	0.25 <sup>c</sup>	1.57 <sup>d</sup>	6.97 <sup>c</sup>
Nov	167.5 <sup>a</sup>	102.2 <sup>a</sup>	0.60 <sup>a</sup>	6.15 <sup>b</sup>	7.58 <sup>b</sup>
Dec	165.7 <sup>b</sup>	68.9 <sup>b</sup>	0.43 <sup>b</sup>	54.99 <sup>a</sup>	7.70 <sup>b</sup>
Jan	161.4 <sup>c</sup>	36.1 <sup>d</sup>	0.22 <sup>d</sup>	4.28 <sup>c</sup>	17.43 <sup>a</sup>

#Means in the same column with different superscripts are significantly different at  $P \leq 0.05$

\*\*Dwts – Dry weights of faeces; No – Number; TNS – Total Number of seeds; %via - % viability; TNVS – Total Number of viable seeds.

**Conclusions** The results of this study showed that small ruminants, especially goats, disseminate more viable seeds than cattle even though the number of seeds recovered from the faeces of cattle was higher. Also, seed dissemination through ruminants is better practised during the late dry season when the seeds are highly viable and close to the onset of rains.

## References

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