

# Evaluating the traditional feed storage systems of grain legume fodders in northern Ghana

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## Objectives

- To evaluate loss of dry matter and nutritional quality of different grain legume fodders stored in different locations.
- To evaluate different packing types during storage of legume fodder.
- To determine farmers' and sheep's preferences for grain legume fodder type.

## Background

- Feed scarcity and high cost of feed, especially during the dry season are major challenges to ruminant production in West Africa.
- The residues of grain legumes, also known as grain legume fodders (GLFs) such as **cowpea**, **groundnut** and **soybean** are a major source of feed for ruminants.
- However, little is known about storage systems of these fodders to maintain their quality over a longer period time.

## Conclusions

- Protecting legume fodder during storage in sacks minimizes dry matter and nutritional losses.
- Room storage is promising to be the best location as fodder store.
- Cowpea fodder was ranked higher by farmers as feed resource for their animals than groundnut and soybean fodder.

## Methods

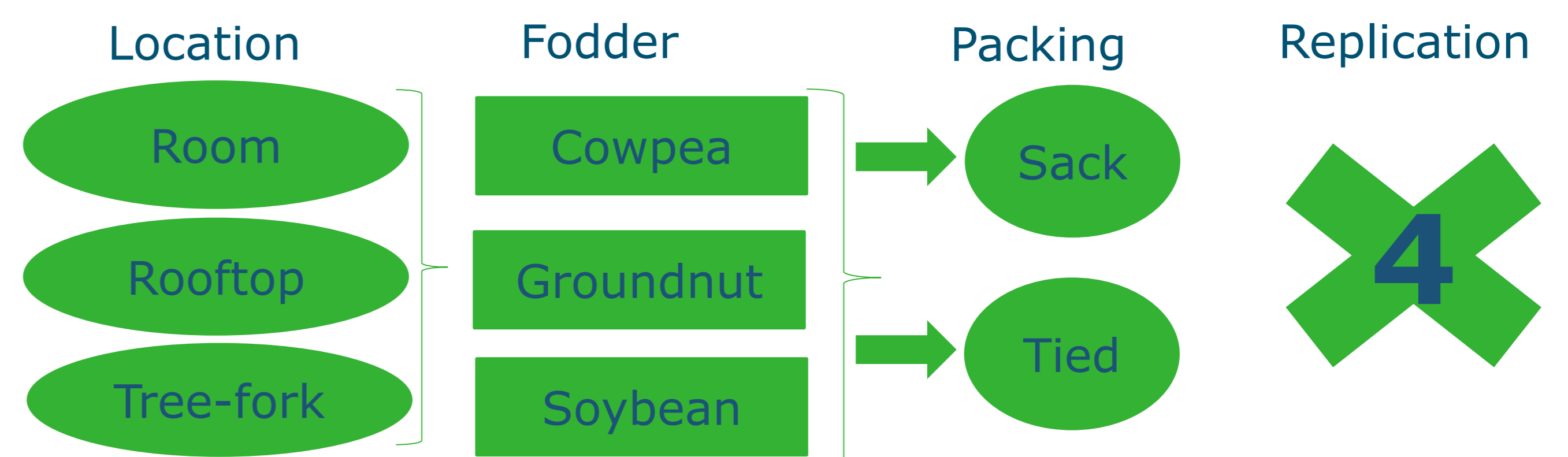


Figure 1: Split-split plot experimental design



Photo 1: Fodder in sacks or tied with rope at different storage locations: **A** Room, **B** Rooftop and **C** Tree fork



Photo 2: Evaluation of sampled stored fodder by; **A** Farmers, **B** Sheep and **C** Laboratory chemical analysis

## Results

- Sack storage had lower dry matter loss (13%) than tiring with rope (32%).
- Crude protein content and in-vitro dry matter digestibility decreased with increasing storage period (Fig 2).
- Farmers ranked cowpea fodder as better feed than groundnut and soybean fodders (Table 1)
- Sheep intake of cowpea and groundnut haulm was higher than soybean (Fig 3).

Table 1: Farmers' ranking of quality of stored grain legume fodders by physical appraisal on scale of 1-10 (1=bad ... 10=good).

Crop	Storage type		Mean*
	Sack	Tied	
Cowpea	7.2	6.5	6.83c
Groundnut	5.8	5.4	5.59b
Soybean	2.3	2.4	2.35a
SED	(0.067)		

\*Means with different letters are significantly different at P<0.05

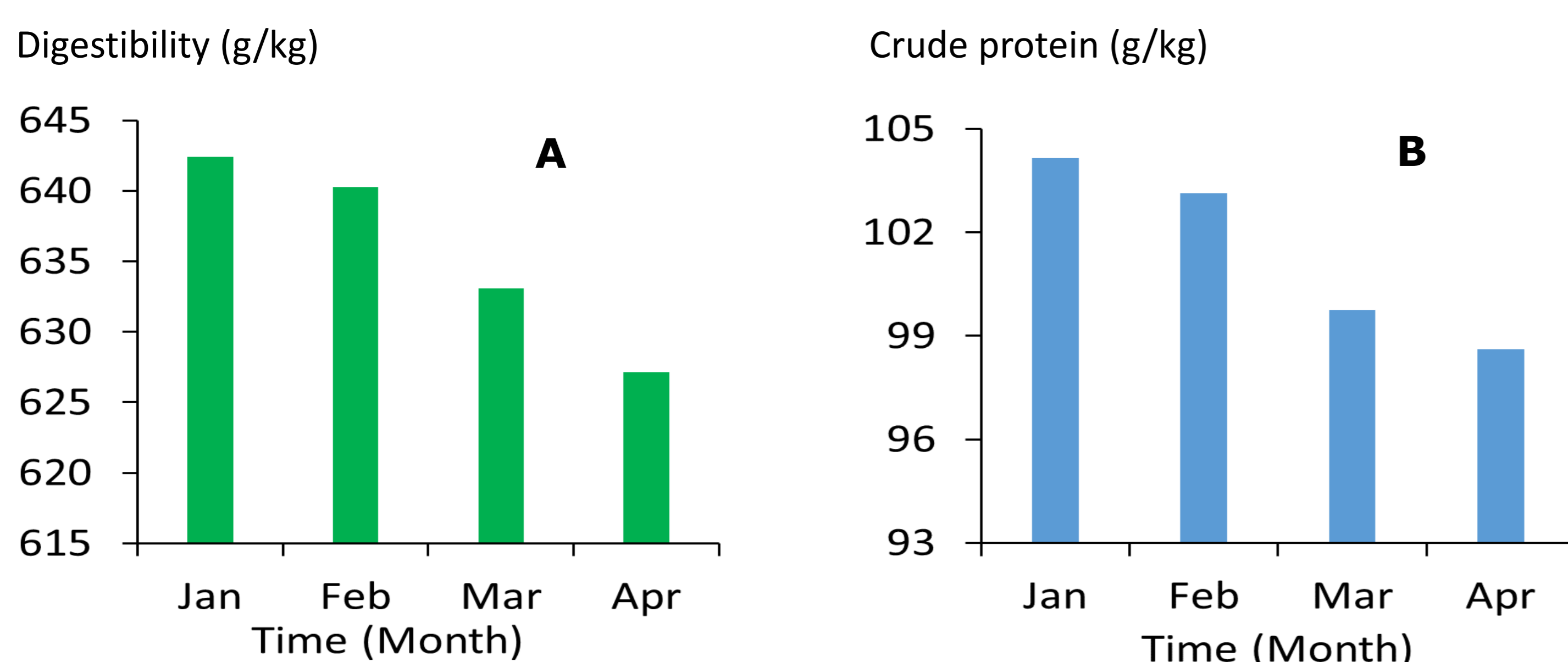


Figure 2: Effect of time on in-vitro dry matter digestibility (A), and crude protein content (B) of stored grain legume fodder

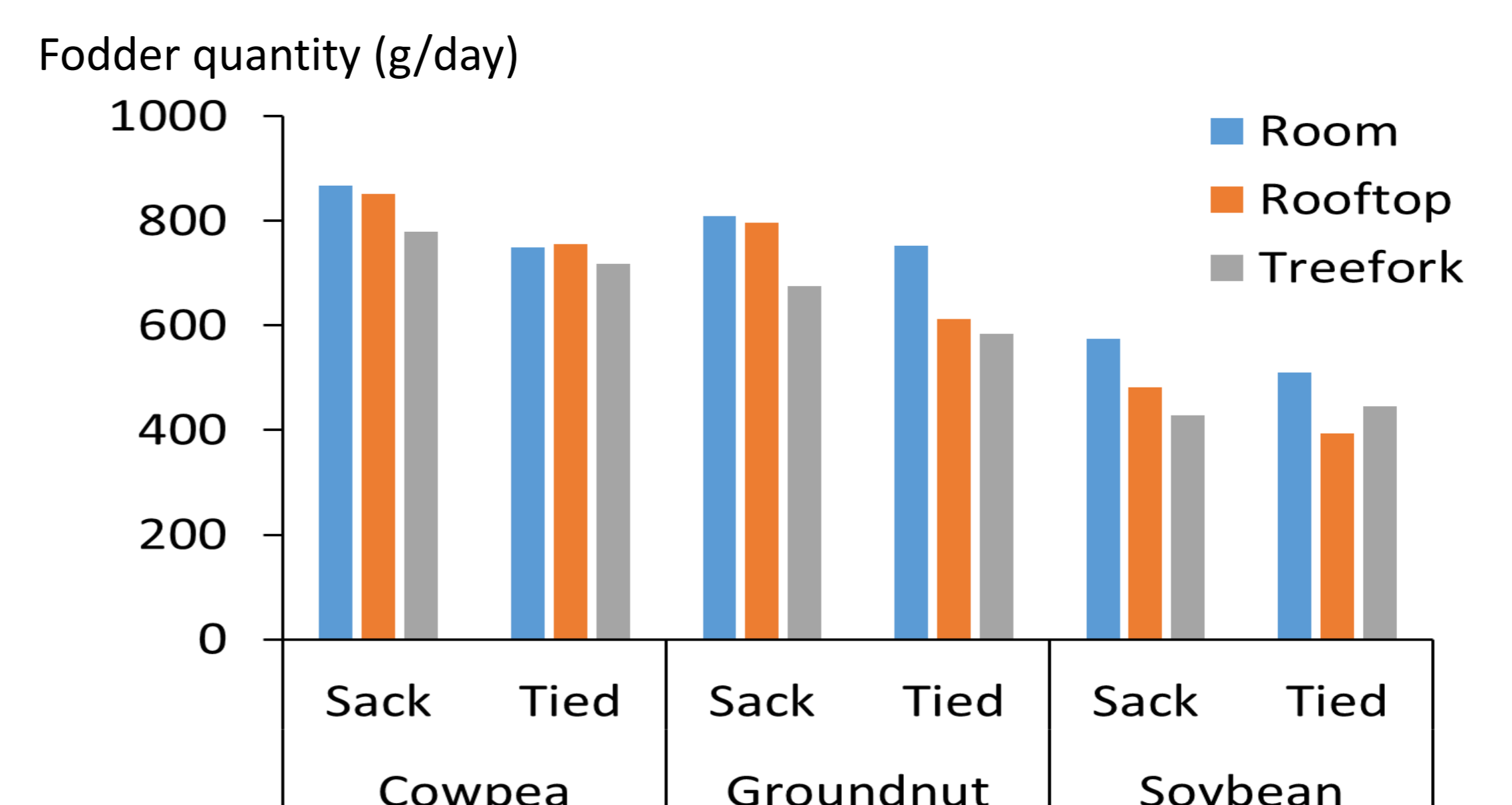


Figure 3: Effect of storage location, legume fodder and storage type on quantity of total fodder consumed by 12 matured sheep in 14 hours