

Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

In order to study the effect of cutting management on quality of sweet potato (SP) used as forage for dry season feeding of sheep, SP vines were subjected to four cutting regimes: pruning at 4, 6, 8 weeks interval and uncut control plots. Cut forages were fed to twelve mature West African dwarf (WAD) sheep confined in individual metabolic pens for 14 days to determine the digestibility. Freshly harvested forage from the plots was chopped, sun dried and stored for the digestibility trial. Although originally grown in 3 separate plots, a single composite sample for each cutting interval was used in the feeding experiment.



Twelve male one-year-old WAD sheep were used to estimate the digestibility of sweet potato forage cut at the different intervals. Sheep were placed in individual pens with floors adapted for faecal collection. Each sheep/pen was then randomly assigned to one of the cutting interval forage diets (three pens for each of the 4 diets). Fresh water and sun dried sweet potato tops were offered *ad libitum* for 14 days. Total faeces and uneaten feed were collected and weighed in the last 7 days. Forage and faecal samples were dried in the oven at 65°C to constant weight, milled, and stored in airtight containers until required for analysis. Numerous variables were measured but we will concern ourselves only with the gross energy from each of the cutting interval forage diets.

**Table 4.** Apparent digestibility (%) of sweet potato top cut at different intervals by WAD sheep

Cutting intervals	DM	CP	NDF	ADF	Lignin	Gross energy
4	75.72 <sup>a</sup>	71.56 <sup>a</sup>	69.38 <sup>a</sup>	65.89 <sup>a</sup>	29.79 <sup>a</sup>	<b>76.98<sup>a</sup></b>
6	68.73 <sup>b</sup>	64.93 <sup>b</sup>	62.20 <sup>b</sup>	58.34 <sup>b</sup>	27.96 <sup>a</sup>	<b>70.47<sup>b</sup></b>
8	65.25 <sup>c</sup>	60.21 <sup>c</sup>	57.34 <sup>c</sup>	51.96 <sup>c</sup>	19.55 <sup>b</sup>	<b>66.93<sup>bc</sup></b>
Control	64.01 <sup>c</sup>	58.95 <sup>c</sup>	56.65 <sup>c</sup>	40.55 <sup>d</sup>	16.03 <sup>c</sup>	<b>64.50<sup>c</sup></b>
SEM	1.95	1.85	1.80	1.76	0.84	<b>1.90</b>

*a,b,c,d: means with same letters within the column are not significantly different (P>0.05)*

Answer choices:	<b>(A) pens or sheep</b>	<b>(B) Sweet Potato vines</b>	<b>(C) cutting interval diets</b>
	<b>(D) gross energy</b>	<b>(E) dry matter yield</b>	<b>(F) Sweet Potato plots</b>

Name \_\_\_\_\_ Quiz Number \_\_\_\_\_ Date \_\_\_\_\_ / \_\_\_\_\_ / 2012

Circle the appropriate letter for each question.

- 1) What is the experimental unit for this experiment?      A      B      C      D      E      F
- 2) What is the sampling unit for this experiment?      A      B      C      D      E      F
- 3) What is the dependent variable for this experiment?      A      B      C      D      E      F
- 4) What is the treatment variable for this experiment?      A      B      C      D      E      F
- 5) If the design is RBD, what are the blocks?      A      B      C      D      E      F      NA
- 6) Does it seem more likely that the treatments are fixed or random?      (A) fixed      (B) random
- 7) What is the treatment arrangement for this experiment?      (A) single factor      (B) factorial      (C) nested
- 8) What is the experimental design?      (A) CRD      (B) RBD      (C) LSD      (D) Split-plot      (E) Repeated Measures
- 9) The treatment degrees of freedom are \_\_\_\_\_ .
- 10) The degrees of freedom for the error used for testing treatments are \_\_\_\_\_ .