PERFORMANCE OF PERENNIAL PEANUT (*ARACHIS GLABRATA BENTH*) IN CAMEROON

R.M. Njwe and B. Awounfouet
Department of Animal Science, Faculty of Agriculture, University of Dschang,
P.O. Box 222, Dschang, Cameroon

ABSTRACT
The objective of this study was to assess the yield and chemical composition of perennial peanut (Arachis glabrata) at growth intervals of 30, 45, 45, 60, 75 and 90 days so as to recommend the best interval of cutting. The yield of dry matter increased from 3133 to 3804 kg ha^{-1} at cutting intervals of 30 and 60 days, respectively, after which it declined to 3445 kg ha^{-1} at 90 days . The dry matter content increased with cutting interval from 25.6 % at 30 days to 31.6 % at 90 days. After 45 days of regrowth the crude protein content of forage declined with maturity from 19.4 % to 17.1 %, whereas crude protein yield per hectare attained an optimal peak of 730 kg ha^{-1} at 60 days cutting interval. The highest leaf:stem ratio was attained at 75 days regrowth. From the study the recommended interval of grazing perennial peanut at Dschang during the wet season is 60 days.

KEY WORDS
Perennial peanut, cutting interval, yield, chemical composition, leaf:stem ratio.

INTRODUCTION
Natural pastures in Cameroon are generally deficient in legumes and rich in gramineae. Their nutritive value is relatively low when compared to temperate pastures. In an attempt to improve natural pastures in Cameroon several legume species including the perennial peanut were introduced for screening under local ecological conditions. Observation on small plots of perennial peanut at Dschang since 1985 indicated a high potential for vegetative growth and yield. Besides, Prine and French (1991) have recommended perennial peanut as an excellent forage for hay and silage cattle, sheep, goats and rabbits. The objective of this study was to assess the yield and chemical composition of unfertilised perennial peanut on the high plateau region of Cameroon as a basis of determining the optimal cutting interval.

MATERIALS AND METHODS
The trial was carried out at Dschang with an altitude of 1500m and an annual rainfall of 1800 mm. Rainfall is unimodal with the peak in September and the rainy season is between mid-March and mid-November. The soils are described as ferralytic with pH ranging from 5.5 to 6.0. Maximum and minimum are 26^0C and 10^0 C while the mean is 20^0 C. A perennial peanut paddock planted in 1991 was cut back and divided into 20 plots in a randomised complete plot design having five treatments and four replicates in March 1993. The treatments were five cutting intervals: 30, 45, 60, 75 and 90 days. The area of each plot was 4 x 4 metres and each plots were separated by 1 m alleys. On each harvest date, the innermost 1 x 1 metre portion of the plot was harvested with a secateur at a height of 10 cm for estimation of fresh vegetative yield, leaf:stem ratio and dry matter content. Subsequently, the samples were ground to pass through a 1mm sieve and preserved in airtight plastic bags for chemical analyses. The trial was repeated in March and August 1994 . Forage samples were analysed for crude protein, organic matter and neutral detergent fibre. Yield and analytical data obtained for the three trials was analysed using the SAS (1985) procedures for randomised complete block design. The Duncan multiple range test was used to detect differences between treatment means.

RESULTS AND DISCUSSION
A summary of average yield and chemical composition of perennial peanut for three trials are shown in Tables 1 and 2. Maximum dry matter yield of 3804 kg ha^{-1} was obtained at 60 days cutting interval. This value was signifiantly ($P<0.05$) higher than 3134 kg ha^{-1} recorded at 30 days and statistically similar to all other treatments. These yields are low, when compared to 10 ton ha^{-1} reported by Beltranena, Breman and Prine (1981) at 56 days interval of cutting in Florida. Fertilization of perennial peanuts influenced the higher forage yields obtained in Florida whereas fertilizer was not applied in the plots in Cameroon. Dry matter content of forage increased significantly ($P<0.05$) with duration of regrowth period until 60 days after which no significant increase was recorded. The leaf:stem ratio ranged from 0.89 to 1.06 at 30 and 75 days cutting intervals, respectively. The leaf:stem ratio also increased with duration of cutting interval until 75 days, after which it declined. The results of this investigation confirm reports from Florida by Beltranena *et al* (1981) that the leaf:stem ratio increased from 14 to 70 days cutting interval, after which it declined. The leaf: stem ratio at 75 days cutting interval was significantly ($P<0.05$) larger than at 30 and 90 days. Crude protein content of perennial peanut was 17.3 % when forage was harvested after 30 days. At 45 days regrowth, it had increased to 19.4 %. This increase was not significant. At longer regrowth periods beyond 45 days, the crude protein content of perennial peanut declined linearly. Forage crude protein levels obtained at all intervals of cutting in this study are higher than the 10.1- 16.4 % reported for this legume by Prine *et al* (1981). The total crude protein yield of 730 kg ha^{-1} was significantly ($P<0.05$) higher than all other treatments. Neutral detergent fibre content of perennial peanut were generally low compared to most roughages fed to ruminants. Based on the optimal dry matter and crude protein yield per hectare observed in this investigation, it may be concluded that the best cutting interval for perennial peanut at Dschang is 60 days.

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Table 1
Yield and leaf:stem ration of perennial peanut at various regrowth intervals in Cameroon

Cutting Interval (days)	Dry matter (Kg ha^{-1})	Crude Protein (Kg ha^{-1})	Leaf Stem Ratio
30	3133 ± 13 b	562 ± 15 c	0.82 ± 0.03
45	3357 ± 22 ab	666 ± 10 b	0.95 ± 0.03
60	3804 ± 18 a	720 ± 21 a	0.99 ± 0.02
75	3404 ± 23 ab	684 ± 18 b	1.06 ± 0.04
90	3445 ± 16 ab	599 ± 12 c	0.93 ± 0.03

NB: Values on the same column with different letters are significantly different ($P<0.05$).

Table 2
Chemical composition of perennial peanut at various intervals of cutting in Cameroon.

Cutting interval (days)	Dry matter (%)	Organic matter (%)	Crude protein (%)	Neutral Detergent Fibre (%)
30	25.58 ± 0.18 c	90.67 ± 0.09 a	17.31 ± 0.16 ab	54.11 ± 0.22 b
45	28.30 ± 0.11 b	89.57 ± 0.12 ab	19.39 ± 0.10 a	54.52 ± 0.18 ab
60	29.75 ± 0.14 ab	89.58 ± 0.08 ab	18.54 ± 0.20 ab	57.91 ± 0.16 a
75	30.51 ± 0.19 a	89.76 ± 0.11 ab	18.72 ± 0.14 ab	55.26 ± 0.21 ab
90	31.53 ± 0.14 a	89.67 ± 0.10 ab	17.05 ± 0.19 b	52.49 ± 0.17 b

NB: Values on the same column with different letters are significantly different ($P<0.05$).