

## UTILIZATION OF COMMON GRASSES BY GOATS IN TWO SEASONS

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### Summary

The effect of feeding freshly-cut common grasses on growth performance of Black Bengal goats during the pre-monsoon and pre-dry season was evaluated. Four castrated goats of 5-6 months age with a mean initial body weight were 11.17 and 10.23 kg for pre-monsoon and pre-dry season respectively, were used as experimental animal. Nutrient component, intake of different nutrients and its effect on body weight changes were determined. Common grass harvested during the pre-monsoon season contained higher nitrogen (15.6 g/kg) and less DM (196.8 g/kg) than the grass harvested in pre-dry season where nitrogen was 12.8 g/kg and DM was 454.9 g/kg. Intake of DM, OM, N, and NDF were 73.12 g, 67.12 g, 964.68 mg and 50.14 g/kg  $W^{0.75}$  respectively in pre-monsoon were higher than those in pre-dry season at  $p < 0.01$  level of significance. Higher ( $p < 0.01$ ) growth (35.71 g/day) rate was found in pre-monsoon season. It may concluded that grasses grown during the pre-monsoon season was higher nitrogen value and appeared to be more palatable.

(**Key Words** : Common Grass, Season, Nutrients, Goats)

### Introduction

In developing countries, goats which are reared under traditional rural scavenging management system by the small and marginal farmers become their secondary cash income. Due to shortage of pasture, goats live on natural vegetation specially common grasses. Common grasses are mainly available on the harvested or fallow lands, roadside, crop field ridges and canal sites. Rahman et al. (1991) observed a number of seasonally available some of the species of grass and weeds of cropland. Amin and Alam (1990) stated that goats utilize common grass efficiently if fed adequately. These availability depends on the total communal grazing fields and the season. There are little information about nutrients content and nutritive value of these grasses but no attempt had been taken on seasonal availability of common grass. It is therefore, to establish a picture of potentialities of common grass as ruminant livestock feed in different seasons, hence it is

necessary to determine the nutrients contents and nutritive value of common grass on goat production concerned in different season.

### Materials and Methods

Two 56 days feeding trials were conducted at the sheep, goat and horse farm of Bangladesh Agricultural University, Mymensingh to determine the seasonal variation on utilization of common grasses.

### Collection of common grass

Common grass (a mixture of different native abundantly grown grass species) were collected from the adjacent land of the farm, road sides and crop field ridges during pre-monsoon (April to June) for trial I and pre-dry (October to December) for trial II. The average humidity, rainfall and temperature during pre-monsoon and pre-dry season was 80.41 vs 81.91%, 217 vs 117 mm and 28.5 vs 23.5°C respectively. Grass was harvested when they attained at 30-40 cm height.

### Experimental animals

In each feeding trial 4 (four) castrated Black Bengal goats approximately 5-6 months of age with a mean initial body weight 11.17 and 10.23 kg for pre-monsoon and pre-dry season respectively, were used. These animal were

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purchased from local market and were dewormed. The animals were kept in the individual pen made of bamboo slated floor throughout the trial period.

### Feeding trial

Common grass was supplied *ad libitum* (at the rate of 120% of the fresh intake of the previous day) and was given in equal proportions at 07:00 and 16:00 h in each feeding trial. Refusals of grass was collected everyday in the morning. Goats had free access to fresh water. The digestion trials were conducted during 3rd and 6th weeks of each feeding trial according to the method described by Swift et al. (1950). During digestibility trial feed, refusals and faeces were recorded in the morning. Both the trials were started with a 15 days adjustment period.

### Live weight gain

The animals were weighed at weekly interval during the experimental period in both seasons. Each goat was weighed in the morning before any feed was given. The practice was continued till the trial was over.

### Analysis

The chemical analysis of feed, refusals and faeces were done for the determine dry matter (DM), organic matter (OM) and nitrogen (N) according to the method of AOAC (1965). Neutral detergent fibre was performed as described by Georing and Van Soest (1970). All the data were analyzed by statistical method using analysis of variance (Steel and Torrie, 1980) in completely randomized design (CRD) and mean values were tested for difference with Duncan's New Multiple Range Test (DMRT) using statistical Analysis system (SAS, 1982).

## Results and Discussion

The most available common grass species are found in the experimental period are shown in table 1. These are naturally grown and available abundantly in different season.

### Nutrients content

Nutrients content of common grass in pre-monsoon and pre-day season are presented in table 2. Dry matter (DM) content of the common grass harvested in pre-dry season was higher than that of pre-monsoon season. Tareque (1985) reported that similar results. DM content of pre-monsoon grasses is also similar as reported by Ranjan and Katiyar (1969) and Sarker and Alam (1990). The above difference of DM in different season may due to higher rainfall and moisture content in the soil. The

TABLE 1. DIFFERENT COMMON GRASSES SPECIES FOUND IN DIFFERENT SEASON

Local Name	Scientific name
<b>Pre-monsoon</b>	
Heicha	<i>Altermanthera philoxeroides</i>
Ghechu khui	<i>Aponogeton natans</i>
Kanailala	<i>Commelina deffusa</i>
Chisra	<i>Scirpus juncooides</i>
Joina/Chakti ghash	<i>Fimbristylis miliacea</i>
Satidhara	<i>Cyperus sanguinolentus</i>
Joina chiase	<i>Fimbristylis dichotoma</i>
Panichaise	<i>Eleocharis artopurpurea</i>
Bara nirbishi	<i>Fimbristylis diphylla</i>
Mona ghash	<i>Leptochloa panicea</i>
Angta/Gaicha	<i>Paspalum scorbiculatum</i>
Dal ghas/Gobra/Jalghasha	<i>Echinochloa crusgalli</i>
Kheta ghas/Kheta buri	<i>Alteranathera paronichioides</i>
Chagaldari/Matichaise	<i>Cyperus iria</i>
Chotochaise/Moishroom	<i>Cyperus defformis</i>
Deobhadail/Sagalbati	<i>Cyperus nemoralis</i>
Khude patai	<i>Cyperus tenuiculmis</i>
Alighasa	<i>Cyperus pygmaeus</i>
<b>Pre-dry season</b>	
Borati ghas	<i>Hemigraphis hirta</i>
Ghora ghas	<i>Cryptocoryne retonspirales</i>
Nakful	<i>Wahlenbergia marginata</i>
Chapli ghas	<i>Chenopodium ambrosioides</i>
Bhadail/Mutha	<i>Cyperus rotundus</i>
Choto dhudia	<i>Euphorbia perviflora</i>
Bara dhudia	<i>Euphorbia hirta</i>
Durba	<i>Cynodon ductylon</i>
Chapra	<i>Eleusine indica</i>

organic matter content of freshly-cut common grass is almost similar in different season. It also similar to the value reported by Amin and Alam (1990) but higher than those of other tropical grasses as reported by Gihad (1976) and Gihad et al. (1980). There was a slight difference of nitrogen content of the grasses harvested at different season (table 2). The N content (15.6 g/kg) of pre-monsoon grasses was higher than pre-dry (12.8 g/kg) harvested grasses. Ranjan and Katiyar (1969) have also found higher N content in monsoon grasses. The lush growth in pre-monsoon may have resulted increased N content. The N content appear to have adequate N to meet body requirement of goat (Amin and Alam, 1990). The neutral detergent fibre (NDF) value also similar between the season.

TABLE 2. NUTRIENTS CONTENT OF COMMON GRASS OBTAINED IN TWO SEASONS

Season	DM (Fresh basis) g / kg	OM	N		NDF
			g / kg DM		
Pre-monsoon	196.9+0.94 <sup>b</sup>	912.0+0.21 <sup>a</sup>	15.6+0.01 <sup>a</sup>		682.4+0.16 <sup>a</sup>
Pre-dry	454.9+1.67 <sup>a</sup>	913.4+0.09 <sup>a</sup>	12.8+0.03 <sup>b</sup>		604.9+0.15 <sup>b</sup>
Overall	325.6	912.6	14.2		688.5

### Intake and digestibility of nutrients

The intake and digestibility of common grass fed to goats are shown in table 3. Goats consumed higher ( $p < 0.01$ ) nutrients (DM, N, OM and NDF) in pre-monsoon than pre-dry season. This was similar to the value as

reported by Amin and Alam (1990). Apparent trends of higher intake may be explained that herbage contained leaves more lustrous and less dead materials which may promoted their consumption. Moreover, the grass grown in pre-monsoon were more palatable.

TABLE 3. INTAKE AND DIGESTIBILITY OF DM, N, OM AND NDF BY GOATS FED COMMON GRASS IN TWO SEASONS

Parameter	Pre-monsoon	Pre-dry	Overall
<b>Intake</b>			
DMI (g/w <sup>0.75</sup> kg/day)	73.87 + 0.94 <sup>a</sup>	51.58 + 1.17 <sup>b</sup>	62.73 + 4.27
NI (mg/w <sup>0.75</sup> kg/day)	964.68 + 14.48 <sup>a</sup>	800.00 + 19.68 <sup>b</sup>	882.78 + 32.99
OMI (g/w <sup>0.75</sup> kg/day)	67.12 + 1.17 <sup>a</sup>	47.68 + 1.14 <sup>b</sup>	57.40 + 3.74
NDFI (g/w <sup>0.75</sup> kg/day)	50.94 + 0.87 <sup>a</sup>	35.00 + 0.77 <sup>b</sup>	42.97 + 3.06
<b>Digestibility</b>			
DM	0.69 + 0.02 <sup>a</sup>	0.72 + 0.02 <sup>a</sup>	0.70 + 0.02
N	0.56 + 0.02 <sup>b</sup>	0.64 + 0.03 <sup>a</sup>	0.60 + 0.02
OM	0.72 + 0.02 <sup>a</sup>	0.76 + 0.02 <sup>a</sup>	0.73 + 0.01
NDF	0.68 + 0.02 <sup>a</sup>	0.71 + 0.03 <sup>a</sup>	0.69 + 0.02
Body weight gain (g/day)	35.71 + 1.95 <sup>a</sup>	30.79 + 1.22 <sup>b</sup>	33.25 + 1.12

Digestibility value of two feeding groups were almost similar except N digestibility. It also similar to feed value reported by Amin and Alam (1990). Nitrogen digestibility value was higher in pre-dry season. It may be due to the lower intake of goats.

### Growth rate

The growth rate (g/day/w<sup>0.75</sup>) is shown in table 3. It is evident that goats fed pre-monsoon grasses showed increased ( $p < 0.01$ ) growth rate (36 g) than other group. Over all growth rate (33 g) achieved in these groups were similar to the growth rate of farmers level (Alam and Akbar, 1989).

From this experiment, it appeared that grass grown during pre-monsoon have higher nutritive value which were evident from higher live weight gain in goats. It may be concluded that feeding of common grass before the onset of monsoon adequately may increase live weight gain and body tissue reserve in goats.

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