Original Article

PERFORMANCE OF MEAT SHEEP, CHEMICAL COMPOSITION AND STRUCTURE OF TROPICAL PASTURE GRASSES MANAGED UNDER INTERMITTENT CAPACITY

DESEMPENHO DE OVINOS DE CORTE, COMPOSIÇÃO QUÍMICA E ESTRUTURA DO PASTO DE GRAMÍNEAS TROPICAIS MANEJADAS SOB LOTAÇÃO INTERMITENTE

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ABSTRACT: The purpose of this study was to evaluate the performance of sheep in different tropical forages and the structure of the canopy and chemical composition of pasture. The treatments consisted of two cultivars of *Panicum*, Massai and Aruana and two of *Brachiaria*, Marandu and Piatã under intermittent capacity and variable stocking rate, in the rainy season. Santa Inês intact male sheep were used. The greatest leaf blade mass and leaf blade:stem ratio for cv. Massai were observed in the pre- and post-grazing. The harvest efficiency of leaf blades and stem did not differ among cultivars. In both components of cvs. Marandu and Piatã showed the lowest NDF level. The highest crude protein value in stem and leaf blade were observed in Aruana and Marandu cultivars. Marandu also presented the highest *in vitro* dry matter digestibility of leaf blades. Animals kept in Aruana pastures had the highest average daily gain. The highest stocking rates and animal yield per area were observed in the pastures of cv. Massai and Marandu. The grasses are able to produce satisfactory results for sheep production on pasture under exclusive system in the northeastern Brazil during the rainy season.

KEYWORDS: *Brachiaria brizantha*. Morphological components. *Panicum maximum.* Animal production.

INTRODUCTION

The Brazilian cattle industry is based predominantly on production systems of animals in pastures, which justifies the importance of the continuous evolution of research on forage crops. In intermittent pasture systems, the intensity of defoliation determines the efficiency of harvesting forage available during the period of occupation, besides altering losses by leaves senescence and tiller dynamics.

Among the tropical grasses, the *Brachiaria brizantha* cv. Marandu is one of the most cultivated in Central Brazil, and yet, studies on forage supply and its effect on intensity of defoliation are scarce (BRAGA et al., 2007). *Panicum maximum* is one of the widely used grasses in animal production systems, thanks to its good adaptation to tropical and subtropical climates and its high productivity (GOMES et al., 2011).

The production of tropical grasses is divided in to two seasons: the rainy season, with great availability of high nutritional forage, and dry season, with restriction on growth and forage quality. The livestock farming has to use strategies aimed at minimizing the effects of seasonality in forage production. Pasture management strategies can be adopted to interact with the seasons in order to control the development processes of pasture, such as growth and senescence (SANTOS et al., 2011).

Despite the great diversity of forage for pasture, morphological variations, different soil conditions and climate, the employed grazing methods and pasture structure of the canopy are important for the accumulation and nutritive value of the produced forage, and consequently act on the ingestive behavior, intake and performance of animals at grazing. Therefore, grazing management strategies based on goals of height of the canopy are a real alternative and basic premise for the improvement and increase in production efficiency of livestock production systems in tropical pastures (DA SILVA; NASCIMENTO JUNIOR, 2007).

The Northeast region holds 58.55% of the Brazilian ovine herd (BRAZILIAN YEARBOOK OF CAPRINE & OVINE, 2008), most of which are explored in extensive system. The lack of feeding management and sanitary practices, had contributed to the stagnation of the herd over the years, despite the hardiness and adaptability of this species to the region (EMERENCIANO NETO et al., 2011).

Given the need for assessments on sheep production in tropical pastures in northeastern Brazil, the goal of this study was to evaluate the performance of ovine in pasture, the nutritive value and morphological composition of grasses of the genera *Brachiaria* and *Panicum* grown in the Northeast, during the rainy season.

MATERIAL AND METHODS

The experiment was conducted in an area of the Research Group in Forage (GEFOR), located at the Academic Unit Specialized in Agricultural Sciences–Federal University of Rio Grande do Norte - UFRN, in Macaíba, RN. The geographical coordinates of the experimental area are: latitude 5° 53' 35.12" southand longitude 35° 21' 47.03" Westland 160 m of altitude.

Soil fertility in the area was estimated by soil analysis in the depths 0-20 and 20-40 respectively, which had the following chemical composition: 2.0 and 1.0 $mg.dm^{-3}$ of P; 41.0 and 22.0$mg.dm^{-3}$ of K; 9.0 and 9.0 $mg.dm^{-3}$ of Na; 1.1 and 0.5 $cmol_c.dm^{-3}$ of Ca; 0.2 and 0.1 $cmol_c.dm^{-3}$ of Mg; 0.0 and 0.0 $cmol_c.dm^{-3}$ of Al; 1.1 and 0.6 $cmol_c.dm^{-3}$ of H+Al and pH of 6.6 and 6.3. Based on the results, 80 $kg.ha^{-1}$ of P_2O_5 were applied at sowing (Simple Superphosphate) and 50 $kg.ha^{-1}$ of KCl (Potassium chloride) after the establishment of pastures, with the goal of raising the base saturation around 60%, the phosphorus concentration between 8 and 12 $mg.dm^{-3}$ (P–Mehlich[1]) and the potassium level between 80 and 100$mg.dm^{-3}$. The pastures were established in June 2010, with the conventional system of planting in rows with distribution of seeds and fertilizer (P_2O_5). The amount of seed varied according to the cultural value (CV) of each lot. The pastures also received 100 $kg.ha^{-1}$ of N (ammonium sulfate) split in two applications after pasture, between April and June of 2011.

The presence of plagues in pastures was monitored from seeding until the end of the experiment. We used formicide and insecticide with foliar application to control a caterpillar' soutbreak in January, that attacked mainly the cultivars *Brachiarias*.

The experimental area of 2.88 ha was split in 2 lots of 1.44 ha, with four modules of 0.36 ha for each cultivar, which were subdivided into six paddocks of equal area (0.06 ha). The evaluation period was from April to September 2011, rainy season in the region with average monthly rainfall of 164 mm.

The treatments consisted of four tropical grasses, two cultivars of *Panicum maximum*: Aruana and Massai; and two of *Brachiaria brizantha*: Marandu and Piatã. The pastures were managed under intermittent capacity with height goal of 50 cm for the pre-grazing. At the post grazing the height goal was of 25 cm, so that approximately 50% of the available mass could be removed. To ensure the goals of height we used the variable stocking rate according to grass growth and the amount of available forage.

The average height of the grass was determined using a one meter ruler with centimeter graduation. Forty readings per paddock were taken at representative points, and the average height of the curvature of the leaves around the ruler was considered. The volumetric density of forage was calculated by dividing the mass of forage per hectare by the height of the canopy in centimeters ($kg.cm.ha^{-1}$ of DM).

Forage mass in pre-grazing was estimated by cutting the forage contained within six representative areas per paddock, with the help of 0.25 m² squares with a support of 25 cm hooked on one another to generate the layers of 0-25 and 25-50 cm. The total forage mass was estimated by the sum of the masses in the two layers. The post-grazing forage mass was estimated analogously to pre-grazing, but was harvested at ground without the use of layers.

The period of the paddocks regrowth was determined by the time required for the canopy to reach the 50 cm of height (average of 53 days). The occupation time of the paddock was set by the stocking rate so that the canopy would measure an average of 25 cm (average 11 days) when the next paddock was with 50 cm.

To evaluate the morphological components of forage, representative sub-samples were taken from samples harvested for the determination of forage mass of each layer and of post-grazing. These samples were manually separated into fractions of leaf blades, stem (stem + leaf sheath), dead material and undesirable species. The morphological components (leaf blade and stem) were ground and subsequently analyzed for dry matter (DM), crude protein (CP), neutral detergent fiber (NDF), acid detergent lignin (ADL) (AOAC, 1990) and *in vitro* dry matter digestibility (IVDMD) (TILLEY & TERRY, 1963).

Grazing efficiency was calculated by the difference between the mass of the components in the pre-grazing and post-grazing, and converted into percentage. For not having measured forage losses during the occupation, it was considered that all the disappeared forage was actually consumed by animals.

For the evaluation of animal performance were used 48 test sheep, intact males, and anestrous females to adjust capacity, both of the genotype Santa Ines, all from commercial farms located within the state of Rio Grande do Norte. The animals remained on pasture during the day (from 8 a.m. until 5 p.m.) and housed in barn with collective pens overnight. Access to water and mineral salt (with monensin) was available 24 hours by day. The animals were identified by numbered plastic earrings and necklaces of different colors, one for each cultivar. The animals went through a 15 days adaptation period to grazing and management. Gastrointestinal nematode infestation was monitored weekly by counting the number of eggs per gram of feces (EPG), where ever reached 500 eggs/g of feces was realized oral anthelmintic application.

The average daily gain ($g.day^{-1}$) was monitored weekly and calculated by subtracting the weight of the animals at the beginning and end of the experiment divided by grazing days, always 15 hours fasting. The stocking rate (animals with 30 $kg.ha^{-1}$) was calculated by dividing the average animal capacity of the grazing period by 30 to express in animal units of the category used in the experiment per hectare. The average weight gain per area ($kg.day.ha^{-1}$) was obtained by multiplying the average daily gain of test animals by the number of animals kept per hectare during the grazing period.

The experimental design was a randomized block , the data was analyzed for variance and the averages compared by Tukey test at 5% significance, using the model: Yijk=μ+Fi+Cj+eijk, in which: Yijk = observed value of cultivar i in block j repetition k; μ= general mean effect; Fi= cultivar effecti, i= Marandu, Aruana, Piatã e Massai; Cj= block effect j, k = 1, 2; and eijk = random error associated with observation Yijk.

RESULTS AND DISCUSSION

The average height of the grass in the pre-grazing did not differ among cultivars (P=0.0710), which demonstrated that the management goal for the entry of animals in the paddocks when the pasture was 50 cm high was met for all cultivars (Table 1). On the other hand the canopy height in the post-grazing was achieved only in the pasture of cv. Massai, being smaller than that in the cv. Aruana and Piatã (P=0.0041). The difficulty in decrease the pasture height may have been a result of the stem elongation in the regrowth due to rejection of this component by the animals. Brâncio et al. (2003a) found that the cattle grazed, on average, 47% of the height of pastures of *Panicum maximum* in the rainy season. In the present study, the grazing percentage was close to 52% for cv. Massai. Greater heights in the post-grazing tend to accumulate higher proportions of stem and dead material in relation to leaf blades, thereby compromising the structure and quality of the forage in the next cycle (DIFANTE et al., 2011).

In the pre-grazing, the major leaf blades mass (LBM) (P<0.0001) was seen at the cv. Massai, the other cultivars were similar. These results demonstrate that the Massai grass remained with an inlet height of 50 cm has a greater availability of forage, and therefore a higher stocking rate than the other cultivars. The greatest LBM presented by Massai grass confers an advantage, since the leaf blade is the component of highest nutritional value and preferred by the animals. Flores et al. (2008) describe 1.470 $kg.ha^{-1}$ of DM of leaf blades in canopy with 40 cm height for the cultivar

Marandu, these values were lower than those observed in this work.

The LBM in the residue of the cv. Massai was more than double when compared to the cv. Marandu and Aruana (P=0.0007). In this cultivar the base of the leaf blades are surrounded by stem and dead material, which hinders the crop by sheep, this result was also observed by Brâncio et al. (2003b). The LBM amount in the cv. Massai indicates that more grazing pressure could have be done in order to suppress the selectivity exerted by the animal (LOPES et al., 2011). On the other hand, the leftover of leaf blades in the post-grazing can decrease the use of reserves by the plant, which can increase the vigor of regrowth and reduce the interval between grazing (GOMIDE et al., 2002).

Table 1. Means and standard error of canopy height, of leaf blades mass (LBM) and stem (SM), leaf blades:stem ratio under the pre-and post- grazing conditions and harvesting efficiency in tropical forage

Variable	Marandu	Piatã	Aruana	Massai	SEM
		Pre-grazing			
Height (cm)	52.44a	46.55a	51.71a	52.65a	1.70
LBM ($kg.ha^{-1}$)	1972.36b	1370.45b	1518.32b	3129.07a	26.13
SM ($kg.ha^{-1}$)	1885.94ab	1471.08b	2399.33a	1456.91b	213.4
Relation LB:S	1.06b	0.94b	0.66b	2.25a	0.10
		Post-grazing			
Height (cm)	29.84ab	31.30a	32.13a	25.49b	1.1
LBM ($kg.ha^{-1}$)	321.55b	461.74ab	251.54b	764.12a	74.9
SM ($kg.ha^{-1}$)	1317.80a	1146.14a	1362.58a	1121.39a	129.2
LB:S Ratio	0.25b	0.39ab	0.20b	0.74a	0.1
		Harvesting efficiency			
Leaf Blades (%)	82.90a	62.85a	79.98a	74.75a	11.86
Stem (%)	30.05a	22.65a	42.97a	19.09a	79.14

Means represented by different letters in the same row are different for cultivars by the Tukey test (P<0,05)

The stem mass (SM) in the pre-grazing seen on cv. Aruana exceeded by more than 60% of the component in the masses of cv. Piatã and Massai (P= 0.0303), probably due to higher stem elongation for the canopy to reach 50cm of height. The SM in the residue did not differ among cultivars (P=0.4721). The observed values were higher than 1.000 $kg.ha^{-1}$ for all cultivars. High amounts of stems indicate that this component may have been a physical barrier to grazing (CASAGRANDE et al., 2010), preventing the lowering of the canopy by the animals to the goal of 25cm.

The highest leaf blade:stem ratio (LB:S) in the pre- (P<0.0001) and post-grazing (P=0,0017) were seen on cv. Massai. The LB:S ratio of the cv. Piatã and Aruana on the pre-grazing (0.94 and 0.66), showed an unfavorable condition for these cultivars, once the SM is greater than the LBM. Euclides et al. (2009) highlighted that the LB:S ratio pastures of cv. Marandu, Piatã and Xaraés is more important than the nutritive value of forages in controlling the weight gain of animals. The LB:S ratio found by the authors for the cv. Marandu and Piatã in the rainy season (1.9 and 1.6 respectively) were higher than the ones found in this work, but were similar to those described for the dry season (0.8 and 1.0). This can be explained by the regrowth period of 28 days, while the regrowth period in this work was in average of 53 days, so that the canopy reached the height goal for the pre-grazing.

The harvesting efficiency of leaf blades (P=0.1729), and of stem (P=0.3337) did not differ among cultivars. The high percentage of leaves removal could be explained by the high selective ability of sheep, due to the way these animals get the food by moving lips (VAN SOEST, 1987). The consumption of stem is preferably made when it is tender and thinner. Grazing efficiency is closely related to the intensity and frequency of defoliation, and also to the selective consumption of forage and the resulting heterogeneity of the canopy. This factor must be kept under control, to prevent damage to plant growth and animal performance (BRAGA et al., 2007).

The level of dry matter (DM) in the stem of the cv. Massai exceeded the value of cv. Marandu (P=0.0024), that did not differ from other cultivars. High levels of DM in the stem may indicate senescence of this component besides causing greater rejection by animals that prefer tender forage.

Table 2. Means and standard error of chemical composition of stem and leaf blades of tropical forages in the pre-grazing

Variable	Marandu	Piatã	Aruana	Massai	SEM
	Stem				
DM (% in NM)	21.2b	24.1ab	23.8ab	28.8a	2.4
CP (% in DM)	8.4a	6.7ab	8.5a	4.5b	1.0
MM(% in DM)	7.8a	6.8a	7.3a	6.7a	1.4
NDF (% in DM)	72.6b	74.6b	76.7ab	81.0a	2.3
ADL (% in DM)	6.1a	5.8a	7.3a	7.2a	0.8
IVDMD (% in DM)	60.3a	58.0a	55.7a	54.9a	9.9
	Leaf blades				
DM (% in NM)	24.5ab	27.3ab	23.6b	30.7a	2.1
CP (% in DM)	15.0a	12.0b	16.2a	9.7b	1.2
MM(% in DM)	7.7ab	7.1b	8.6a	7.8ab	0.3
NDF (% in DM)	61.8c	65.6bc	70.7ab	74.4a	1.6
ADL (% in DM)	4.1bc	3.8c	6.0a	5.2ab	0.4
IVDMD (% in DM)	68.4a	66.8a	65.0ab	60.2b	1.6

DM (dry matter), CP (crude protein), MM (mineral matter), NDF (neutral detergent fiber), ADL (acid detergent lignin) and *in vitro* dry matter digestibility (IVDMD); Means represented by different letters in the same row are different by the Tukey test (P<0,05)

The levels of crude protein (CP) in the stem of the cv. Aruana and Marandu exceeded the ones from the cultivar Massai (P<0.0001), the cv. Piatã obtained intermediate level. The level of CP in the cv. Marandu and Piatã was much higher than the 4.7 and 4.6% described by Euclides et al. (2009) to the stem of these cultivars. The level of mineral matter (MM) in the stem did not differ among cultivars (P=0.4903).

The neutral detergent fiber (NDF) content in the stem varied among cultivars (P=0.0005), cv. Massai obtained higher values than those from the *Brachiaria* tested. All cultivars had high NDF values and could affect animal performance, once levels higher than 55 to 60% have negative influence on the voluntary intake of forage (VAN SOEST, 1965), but they were lower than the 78.7 and 80.7% NDF values obtained by Euclides et al. (2009) in the cv. Marandu and Piatã. No differences were observed among cultivars for the acid detergent lignin (ADL) values (P=0.0594) and for the *in vitro* dry matter digestibility (IVDMD) (P=0.3307) of the stem.

The level of DM in the leaf blades of cv. Aruana was only lower than the Massai (P<0.0001). The lever of DM was bigger for Massai cultivar in relation to Aruana (P<0,0001) There are no differences among other cultivars evaluated for this characteristic (Table 2). The cv. Aruana and Marandu obtained the highest CP concentration in the leaf blades (P<0.0001) with higher nutritional quality than other cultivars. These pastures, as the only source of food, can reduce the use of protein supplements in the diet, reflecting directly on cost reduction, since the CP is the component of highest market value of the diet. The MM content in the leaf blades of cv. Aruana was higher than the values of cv. Piatã (P=0.0009), for cv. Massai and Marandu were observed intermediate values.

The lowest NDF value (P<0.0001) was observed in Massai cultivar and the highest IVDMD (P=0.0007) was obtained in the leaf blades of Marandu and Piatã pastures. The average pasture regrowth of this work (53 days) is described by Barbosa et al. (2003) as determinant of the reduction in the level of CP, of IVDMD and the increase in the NDF in Aruana and Tanzânia pastures. The lowest IVDMD of the leaf blades of the Massai grass may be a result of increased frequency of *Girder I* structure, an arrangement of sclerenchyma cells between epidermal and vascular bundle sheath cells (EUCLIDES et al., 2008).

The lowest percentage of ADL in the leaf blade of cv. Piatã (P<0.0001), characterizes better quality than the cv. Aruana and Massai. By analyzing the components of forage in general, the best nutritional characteristics were of cv. Marandu. The experimental conditions may have disadvantaged the cultivars of the genus *Panicum*, that require higher fertility standards.

The initial weight (IW) of the test animals did not differ among cultivars (P=0.9845), an important result to avoid the effect of it on other studied variables. The final weight (FW), after 115 days of grazing, of the animals kept on Aruana pastures was higher than the animals kept on Piatã pastures (P=0.0430), with an average of 31.5 and 27.8 kg live weight respectively and therefore a greater permanence of animals grazing on Piatã to obtain an ideal weight for slaughter is necessary. For the Northeast region, in which the rainy season is concentrated in three to four months, the shorter the time for termination of animal products, the lower the risks inherent to production and viability.

Only animals kept in Aruana pastures obtained an ideal final weight for slaughter. According to Cesar e Sousa (2007), the slaughter weight standard for the Brazilian consumer market is of 30 kg body weight. Smaller values may be the cause of difficulties in the marketing of animals or of lower income in desirable carcass components.

The highest average daily gain (ADG) was obtained in animals kept on Aruana pastures (P=0.0059), with ADG of 70.5 g/day, between the other cultivars there is no difference. This result was similar to that obtained by Pompeu et al. (2009) for supplemented ovine in Tanzânia pastures and to the gains of 74 $g.day^{-1}$ obtained by Araujo et al. (2008) in pastures of Marandu, Tifton-85 and Tanzânia with no use of supplement. Using supplementation in the dry period Menezes et al. (2010) obtained gains of 93.6 $g.day^{-1}$ for Santa Inês sheep in pastures of Aruana.

As a consequence of the ADG, the total weight gain (TWG), was also higher for the cultivar Aruana (P=0.0059) when compared to others. Barbosa et al. (2003), with supplement use, achieved this same TWG by sheep in 82 days, although 115 days were necessary in this study, the production costs may have been lower once no source of concentrate was used in the animals feeding. According to Machado et al. (2008), the average daily gain is related to quantitative and qualitative factors of forage, besides the animal's opportunity to do selective grazing. The good nutritive value of morphological components (Table 2) and reduced grazing pressure observed in the Aruana grass can be considered favorable to its use in ovine production systems. In this management, the Aruana pastures are best suited to animal categories of greatest nutritional requirement. Generally, for exclusive pasture systems, gains were considered satisfactory, since it is a food of low cost when compared to grains.

Table 3. Means and standard error of performance of sheep variables in tropical forages pasture

Variable	Marandu	Piatã	Aruana	Massai	SEM
IW (kg)	23.7a	23.6a	24.1a	23.8a	1.0
FW (kg)	29.3ab	27.8b	31.5a	28.9ab	1.0
ADG ($g.day^{-1}$)	53.6b	40.2b	70.5a	49.2b	6.5
SR ($AU.ha^{-1}$)	24.7ab	15.0b	17.8ab	26.6a	3.1
TWG (kg)	5.6b	4.2b	7.4a	5.2b	0.7
AG ($g.day.ha^{-1}$)	1,332.3a	669.8b	1,256.3a	1,309.6a	170.4

IW (initial weight,), FW (final weight), ADG (average daily gain), SR (stocking rate, AU of 30kg) TWG (total weight gain), AG (average daily gain per hectare); Averages represented by different letters in the same row are different for cultivars by the Tukey test (P<0,05).

The stocking rate (SR) in the cv. Massai was higher than the cv. Piatã (P=0.0174), in the cv. Marandu and Aruana intermediate values were observed. This fact demonstrates a competitive fragility from cv. Piatã when compared to cv. Massai, which makes better use of the area. The results for SR were similar to the available LBM of pre-grazing between the cultivars (Table 2). The SR obtained in the study was similar to 24.5 and

32.0 AU of 30 kg.ha^{-1} in Aruana pastures described by Meneses et al. (2010) and Barbosa et al. (2003) respectively, without the use of concentrated supplements. The AG obtained in the cv. Marandu and Massai were more than double when compared to cv. Piatã (P=0.0209). Difante et al. (2010) state that the weight gains per area unit is a consequence of the stocking rate. Flores et al. (2008) obtained results of animal productivity according to the available LBM in pre-grazing; the same result was obtained in this study.

The bigger animal yield in Massai and Marandu pastures infers a greater ability of such forages for sheep meat production, being suitable for use in commercial farms located in areas with similar soil and climatic characteristics of the present work.

The importance of the gain per animal is equal to the gain per hectare, being related to the individual termination rate of the animals and to the return on invested capital (MACHADO et al., 2008). Therefore it is interesting to use more than one forage type in the production unit. The animals in termination phase can be allocated on the cv. Aruana, for its speed in termination, due the biggest individual gain, while Massai and Marandu cultivars may be indicated for maintenance animals, due the greater stocking rate.

CONCLUSION

The Marandu grass presents greater balance between the values of forage chemical composition. However, the nutritional value of the leaf blades and stem of cultivars is not a limiting factor to the animal performance in the rainy season, since a higher proportion of leaf blades intake is allowed.

The evaluated cultivars can produce satisfactory gains for sheep on pasture with no supplement use in the rainy season in northeastern Brazil, nevertheless Aruana grass promote higher individual gains and consequently highest speed of animal finishing.

Studies of different management strategies in these cultivars will contribute significantly to definition of the ideal balance in the relation plant-animal-environment.

ACKNOWLEDGEMENTS

To CNPq for the financial support for the development of the experiment, to CAPES and to CNPq for the granted scholarships and to the Group of Studies on Forage – GEFOR/ UFRN for their assistance in implementing this work.

RESUMO: Objetivou-se com esse estudo avaliar o desempenho de ovinos em diferentes forrageiras tropicais e a estrutura do dossel e composição química do pasto. Os tratamentos constituíram de duas cultivares de *Panicum,* Massai e Aruana e duas de *Brachiaria,* Marandu e Piatã, sob lotação intermitente e taxa de lotação variável, na época das águas. Foram utilizados ovinos machos não emasculados da raça Santa Inês. No pré e pós-pastejo foram observadas as maiores massas de lâminas foliares e relação lâmina foliar:colmo para a cv. Massai. As eficiências na colheita de lâminas foliares e colmos não deferiram entre as cultivares. Em ambos os componentes das cvs. Massai e Piatã foram obtidos os maiores teores de FDN. Os maiores teores de proteína bruta no colmo e na lâmina foliar foram observados nas cvs. Aruana e Marandu, esta também com a maior digestibilidade *in vitro* da matéria seca das lâminas foliares. Os animais mantidos nos pastos de aruana obtiveram os maiores ganhos médios diários. As maiores taxas de lotação e ganhos por área foram observadas nos pastos das cvs. Massai e Marandu. As gramíneas são capazes produzir resultados satisfatórios para ovinocultura sob sistema exclusivo em pasto na região Nordeste durante a época das águas.

PALAVRAS-CHAVE: *Brachiaria brizantha*. Componentes morfológicos. *Panicum maximum.* Produção animal.

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