Bromatological composition of vaquero grass in the summer in different storage systems

M.A. Neres[1], I.W.J. Machado[2], D.D. Castagnara [3], L.M. Mufatto[4], C.D. Nath [4], M. Pasqualotto[2], C. Ducati[2], R.R. Lipsch[4]

[1]*Universidade Estadual do Oeste do Paraná, Paraná, Brasil, 85960-000, Email: marcela.neres@unioeste.br.*
[2]*Mestrandos do Programa de Pós-Graduação em Zootecnia, Unioeste, Paraná, Brasil*
[3]*Pós Doutoranda em Zootecnia – Unioeste. Bolsista do CNPq/Capes.*
[4]*Graduandos em Zootecnia – Unioeste, Paraná, Brasil.*

Introduction Ruminants feeding is based mainly on forage crops, but in order that the animals' performances get suitable, they should be offered to grasses of high nutritional quality. Tifton 85 (*Cynodon* spp) is of *Cynodon* and stands out due to its high dry matter yield and crude protein content (Carvalho et al., 2000). Vaquero grass has been under prominence among hay producers because of its favorable morphological characteristics such as thin stems, which allow some fast dehydration. There is little scientific information about vaquero grass (*C. dactylon*) as its bromatological composition in tropical conditions as grazing and hay. Thus, this study aims at evaluating the contents of acid detergent fiber (ADF), neutral detergent fiber (NDF) and crude protein (CP) of vaquero grass before cutting time, at baling time and 30 days after its storage in a closed and open shed.

Material and Methods The trial was carried out in a hay producing farm in the municipality of Marechal Cândido Rondon - PR, whose coordinates are 24º 26' and 24º 46' South latitudes and 53º 57' and 54º 22' West longitudes, respectively. Vaquero grass has been cropped for two years exclusively for hay production and it is fertilized with swine wastewater from the farm. The grass cutting was carried out on November 10th, 2012 with a mower conditioner with free swinging flail fingers, whose residual height was 5 cm from the ground when vaquero grass was 40 days age of resprouting. After a dehydration period of a 44 hour haying, fodder was baled. After baling, bales were stored for 30 days in open and closed sheds. Vaquero grass samples were collected before cutting, at baling time, 30 days after storage in open shed and samples with 30 days of storage in a closed shed. The experimental design was in randomized blocks with 4 treatments (cutting, baling, after 30 days of storage in closed shed - with sidewalls and 30 days after storage in open shed - without sidewalls) and 5 replications. The samples were wrapped in paper bags, taken to an oven with forced ventilation and kept at 55 ºC for 72 hours. After a pre-drying period, they were ground in a Willey mill type, with a 30-meshed sieve and packed in plastic bags for later bromatological analysis. The NDF and ADF determinations were in accordance with Van Soest and Robertson (1985) and to determine crude protein and Kjeldahl method was used according to AOAC (1990). NDF, ADF and CP contents were compared by Tukey test at 5% probability.

Results and Discussion There were no significant differences (P> 0.05) among the evaluation times and storage systems for ADF and NDF values (Table 1). Castagnara et al. (2011) observed 84.93% NDF contents for Tifton 85 and 40.87% for ADF at 42 days of resprouting in the summer. Such values were higher than those ones obtained in this study with vaquero grass (average values - 69.2% to NDF and 36.75% for ADF). For crude protein answer, at cutting time, vaquero grass showed a higher answer (P<0.05) when compared to other answers concerning times and storage systems. There was a decrease on crude protein

content after 30 days of storage in a closed shed when compared to the other treatments (P<0.05). Castagnara et al (2011) obtained 10.87% CP for Tifton 85 at 42 days of regrowth.

Table 1 NDF (%) ADF (%) and crude protein (%) values of Vaquero grass in the summer

Parameters	Cutting	Baling	Storage in open shed	Storage in closed shed	CV%
NDF	69.40*ns	70.40	66.6	70.4	6.09
ADF	35.00 *ns	37.20	36.80	38.00	5.10
CP	18.18[a]	16.13ab	17.03ab	15.32b	7.39

Averages followed by different letters in the row differ by Tukey test (P> 0.05).
* ns = not significant.

Conclusions: Vaquero grass can be recommended for hay production, but, it should be stored in open shed in order to keep unchanged its protein content.

References

International AOAC. 2003. Official Methods of Analysis. 17th. Gaithersburg, MD: AOAC International.

Carvalho, CAB. 2000. Demografia do perfilhamento e taxas de acúmulo de matéria seca em capim 'Tifton 85' sob pastejo. Scientia Agricola, 57(4): 591-600.

Castagnara DD; Ames JP; Neres MA; Oliveira PSR; Silva FB; Mesquita EE; Stangarlin JR; Franzerman G.2011. Use of conditioners in the production of Tifton 85 grass hay. Revista Brasileira de Zootecnia, Viçosa, MG, 40(10): 2083-2090.

Jobim CC; Lombardi L; Gonçalves GD. 2001. Desidratação de cultivares de *Cynodon spp.* durante o processo de fenação. Revista Acta Scientiarum, 23:795-799.

Van Soest PJ; Robertson JB. 1985. Analysis of forages and fibrous foods. Ithaca: Cornell University, 202p.