

## Effect of urea-treated *Pennisetum pedicellatum* and supplementation of concentrates with urea on milk production of “Mossi” ewes

V.M.C Bougouma-Yameogo and A.J. Nianogo

Institut of Rural Development (IDR) Polytechnic University of Bobo-Dioulasso, 01 BP 1091 Bobo-Dioulasso Burkina Faso, Email: Bouval2000@yahoo.fr

**Keywords:** *Pennisetum pedicellatum*, urea treatment, urea supplementation, milk production, milk composition, “Mossi” ewes

**Introduction** The “Mossi” sheep is a near parent of “Djallonke” sheep that live in sudano-sahelian area of Burkina Faso. However, there are few available results on dairy production from this breed. The treatment of straw with urea is a technique used in several developing countries to improve the nutritional value of gramineous forages (Sourabié *et al.*, 1995). The aim of this study was to test the influence on the performance of “Mossi” ewes and on milk composition of treatment of *Pennisetum pedicellatum* (Pp) with urea in comparison with addition of urea to the concentrate feed.

**Materials and methods** Twenty-three “Mossi” ewes in early lactation were used. Three dietary rations were tested: (1) untreated Pp + 22% concentrate (treatment NoU); (2) untreated Pp + 2.8% urea + 20% concentrate (UCo); (3) Pp treated with 6% urea + 22% concentrate (UPp) (Table 1). The Pp was harvested at the straw stage at the beginning of the dry season. The composition of the concentrate was: 25% whole cottonseed, 25% cottonseed cake and 50% of ground corn grain. The diet dry matter was offered at 4.4-6 % of bodyweight (BW). Measurements were made of milk yield, by the oxytocin method, milk composition (AOAC, 1984), fat (Babcock) and body condition (Russel *et al.*, 1969).

**Results** The effects on milk yield, body weight changes, feed intake and milk composition are given in Table 2. The ADY was significantly higher for UPp than for UCo, but not higher than for the NoU treatment, which had no added urea. The differences in average daily milk yield were reflected in differences between treatments in the yields of milk solids, milk protein and milk fat. There were no significant differences in milk protein %. Body weight (BW), however, showed a clear advantage for UPp over the other two treatments.

**Table 1** Chemical composition of straw and experimental diets

	Pp-U	Pp+U	UPp	NoU	UCo
CP	3.7	13.9	8.0	15.9	15.9
EFUL	0.58	0.66	0.69	0.68	0.75

EFUL=French Energy Feed Unit for lactation/DM; Pp-U, *P. pedicellatum* without urea; Pp+U, *P. pedicellatum* treated with urea

**Conclusion** Whilst milk production in local ewes cannot be sustained by poor quality straws alone, natural grasses such as Pp may be significantly improved by treatment with urea. This treatment gave better results than addition of urea at feeding.

### References

- AOAC (1993). Official Methods of Analysis, Association of Official Analytical Chemists. Washington DC, 114 pp.  
 Russel, A.J.F., J.M. Doney & R.G. Gunn (1969). Subjective assessment of body fat in live sheep. *Journal of Agricultural Science, Cambridge*, 72, 451-454.  
 Sourabié, K.M., C. Kayouli & C. Dalibard (1995). Le traitement des fourrages grossiers à l'urée : une technique très promotrice au Niger. *World Animal Review*, 82, 3-13.

**Table 2** Effect of urea treatment on milk yield, body weight and condition changes, and on feed intake and on milk composition

	NoU	UCo	UPp	Prob
ADY (g)	257 <sup>ab</sup>	197 <sup>b</sup>	316 <sup>a</sup>	0.0001
BW	-3.3	-1.3	+0.2	-
TFI/MW	93	88	96	NS
Milk composition				
ES(g/d)	44 <sup>b</sup>	35 <sup>b</sup>	56.7 <sup>a</sup>	0.0001
Ash(g/d)	2.8 <sup>ab</sup>	2.3 <sup>b</sup>	3.1 <sup>a</sup>	0.01
CP(g/d)	9.5 <sup>b</sup>	7.5 <sup>ab</sup>	12.9 <sup>a</sup>	0.0001
Fat(g/d)	17.2	13.8	21.5	NS
CP(%)	3.8 <sup>b</sup>	4.0 <sup>a</sup>	4.1 <sup>a</sup>	0.05

a,b: means in a row with the same superscript are not significantly different ( $p > 0.05$ ). ADY, average daily milk yield; BW, bodyweight; TFI/MW, total feed intake g/kgBW<sup>0.75</sup>; ES, milk solids