

The effect of bacterial inoculum on the qualitative characteristics, ruminal degradability and PDI content of *Lolium multiflorum* silage

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Many breeding farms in the Campania region of Italy are adopting the practice of growing *Lolium multiflorum* forage crop, after the harvest of maize for silage. This practice allows harvesting at 3 to 4 stages of growth maturity, totalling up about 20 t DM/ha, with irrigation generally necessary only after the penultimate harvest. The high rainfall of early spring does not always allow optimal pre-drying. The aim of this study was to estimate the qualitative characteristics change and PDI content (Susmel *et al*, 1991, Liv Prod Sci, 27, 157-175) of silage, after a bacterial inoculum was added (*Lactobacillus plantarum*, CSL stocks, 125 x 10¹⁰ UFC/tons of forage). The 3rd cut of tetraploid *Lolium multiflorum* Westerwoldicum breed was harvested at the earing stage in the 2nd decade of April, roughly chopped (10-15 cm) after natural pre-drying (24 h; DM: around 28%), and was stored for 40 d in 2 clamp silos: one without inoculum (W), the other with inoculum (L). The analyses (Dulphy *et al*, 1975, Ann Zootech, 24, 743-756; Canale *et al*, 1983,

Atti SISVet, 37, 487) and the determinations of *in situ* degradability (Ørskov and MacDonald, 1979, J Agric Sci, 92, 499-503) were performed on samples withdrawn 5 d after the opening of the silos. Bags containing silage were incubated in the rumen of 5 rams (fed a diet with forage/concentrate ratio of 3 and CP content 12%) for 6, 10, 16, 24, 48, 72 and 120 h. For all other methodological information, see: Commissione proteine nella nutrizione e nell'alimentazione dei poligastrici (1994, Zoot Nutr Anim, 20, 331-341).

The bacterial inoculum decreased the percentages of soluble N and NH₃-N and improved the fermentation characteristics (lower content of acetic and butyric acids, large increase in lactic acid). Moreover, it reduced (P<0.05) crude protein and non protein dry matter (NPDM) degradability (P<0.01). The PDIE content of both silages was higher than PDIN content. The L silage had the most favorable content of PDI (P< 0.01).

	total N	sol N	NH ₃ -N	CF	Acetic acid	Lactic acid	Butyr acid	Degradability (%)		PDIA	PDIE	PDIN
	(% DM)	(% N total)			(g/kg DM)			N	NPDM	(g/kg DM)		
W	1.6	55.1	13.6	278	42.7	51.8	4.1	73.8 ^a	61.1 ^A	13.9 ^B	84.8 ^A	64.6 ^B
L	1.9	51.8	9.8	275	18.6	105.9	1.9	70.5 ^b	49.8 ^B	18.4 ^A	76.3 ^B	75.4 ^A

Contents (g/kg DM) of fresh forage: CP = 102; CF = 268; N-free extr. = 469; PDIA = 19.9; PDIE = 82.8; PDIN = 63.4. Deg (%): N = 62.8; NPDM = 52.0

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