The Effects of Alfalfa Silage Harvesting Systems on Dry Matter Intake of Friesland Dairy Ewes in Late Pregnancy

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Introduction With the recent introduction of alfalfa in Chilean Patagonia (Aisén), its utilisation as silage has to be reviewed relative to animal performance. The effect of silage chop length on the voluntary intake has been evaluated in different species, with sheep being more sensitive to chop length than cattle (Dulphy *et al*., 1984). The objective of this experiment was to evaluate the effects of different alfalfa silage chop lengths on dry matter (DM) intake and eating behaviour of Friesland dairy ewes in late pregnancy.

Materials and methods Twenty-four synchronised Friesland ewes, weighing 75.3 kg (s.d. 10.1 kg) were used to evaluate the following wilted alfalfa silage treatments: T1) single chop, flail; T2) double chop, flails plus rotary chopper-blower fitted with six knives and; T3) double chop, flails plus rotary chopper-blower fitted with twelve knives. Animals were allocated to a randomised block design, with 8 ewes per treatment, and housed in individual pens 1.5x1.5 m, arranged in three rows and separated by metal wire partitions. A daily sample for each silage was taken for chemical composition and silage chop length measurements (Elizalde, 1993). Silage DM intake and eating rate (Forbes, 1972) was recorded daily; live weight (LW) and condition score recorded once per week

Results Animals offered T1 silage had lower (P<0.05) eating rate during the first meal than those offered T2 and T3 silages. Overall silage DM intake was significantly higher (P<0.05) for T3 compared to T1, being intermediate with T2 (Table 1). Higher condition score (P<0.05) was observed when feeding the twelve knives silage compared to six knives or single chop silages. However, no differences (P>0.05) were observed in liveweight gain across treatments. With the exception of DM content, WSC and ammonia N, there were no differences (P>0.05) in chemical composition between silages (Table 2).

Table 1 Treatment effects on silage DM intake, feeding behaviour, condition score and LW gain

	T1	T2	T3	s.e.
Silage dry matter intake (g/kg $W^{0.75}$)	43.1[a]	47.7[b]	56.2[c]	1.0
Eating rate during the first meal (g DM/min)	8.3[a]	15.2[b]	18.1[b]	1.6
Condition score	2.19[a]	2.28[a]	2.47[b]	0.02
Liveweight gain (kg/day)	0.30[a]	0.28[a]	0.21[a]	0.02

Table 2 Chemical composition and mean particle lengths of silages as removed from the silos (g/kg DM, unless otherwise stated)

	T1	T2	T3
Dry matter	557.0[a]	640.0[b]	700.0[c]
pH	5.8[a]	5.8[a]	5.9[a]
Crude protein	153[a]	158[a]	156[a]
Ammonia N (g/kg TN)	175.0[b]	199.0[b]	118.0[a]
WSC	7.0[a]	7.9[b]	7.1[a]
Ash	103[a]	102[a]	105[a]
ADF	319.0[a]	308.0[a]	325.0[a]
Mean particle length (mm)	250	70	20

Conclusions The results of the present study indicate that DM intake was affected with different alfalfa silage harvesting systems. Higher DM intake and eating rate were observed as the mean particle length decreased. A better condition score was observed when animals were offered silage harvested with 12 knives.

References

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