Poster #: 716

Ensiling characteristics of sunn hemp and tall fescue affect nutritive value and animal performance

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BACKGROUND

In fescue-based forage-livestock systems, tall fescue (TF, *Lolium arundinaceum* (Schreb.) S.J. Darbyshire) is commonly harvested for stored forage at later stages of maturity, when its nutritive value is less than optimum. A high-yielding and high-nutritive value warm-season legume, like sunn hemp (SH, *Crotalaria juncea* L.) may be used as a suitable alternative stored forage.

OBJECTIVES

1. To compare ensiling characteristics and nutritive values of SH and TF.
2. To evaluate animal performance on both respective stored forages.

MATERIALS AND METHODS

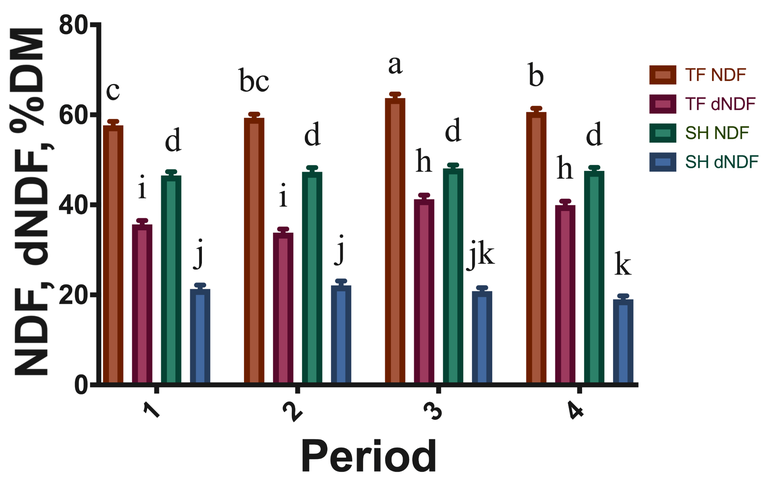
Planting and harvesting: SH was drilled @ 30-lbs/ac, harvested at 60 DAP and ensiled for >90 days. Novel-Endophyte TF was harvested in mid-May and ensiled for >150 days.

Feeding: Feed was processed and allocated at 3.5% of body weight. Refusals were weighed and removed daily. Cattle were weighed every 21 days for an 80 day period. Completely randomized design with 4 replications.

Laboratory analysis: pH, organic acids, NH_4, Neutral Detergent Fiber (NDF), Acid Detergent Fiber (ADF), In vitro True Digestibility (IVTD) & Crude Protein (CP)

RESULTS

a.



b.

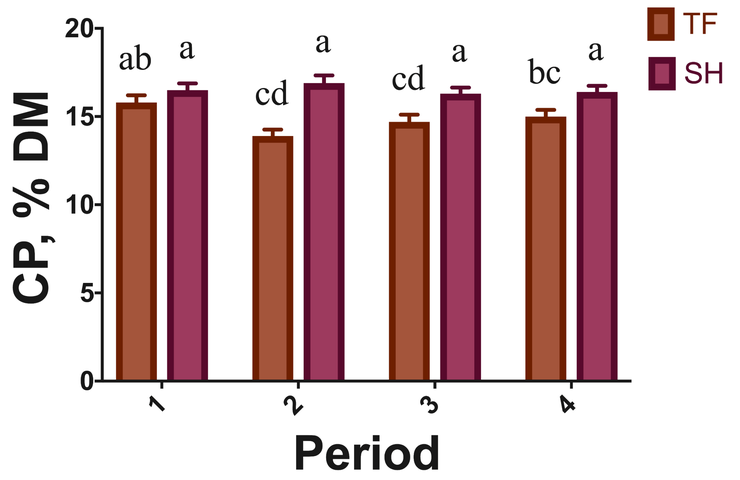


Fig.1. a.) Neutral detergent fiber (NDF) and digestible neutral detergent fiber (dNDF) by treatment and feeding period; a,b,c,d = NDF; h,i,j,k = dNDF **b.)** Crude protein (CP) concentration by treatment and feeding period ($P < 0.0001$). Means without a common superscript differ ($P \leq 0.05$).

Table 1. Composited mean **e**nsiling characteristics by treatment.

Forage	Moisture, %	DM, %	pH	NH_4, %	VFA, %	Lactate, %	Acetate, %	Isobutyrate, %
TF	45.6	54.4	5.73	1.13	1.98	0.90	0.98	0.10
SH	57.0	43.0	5.65	2.71	5.15	2.20	2.16	0.79

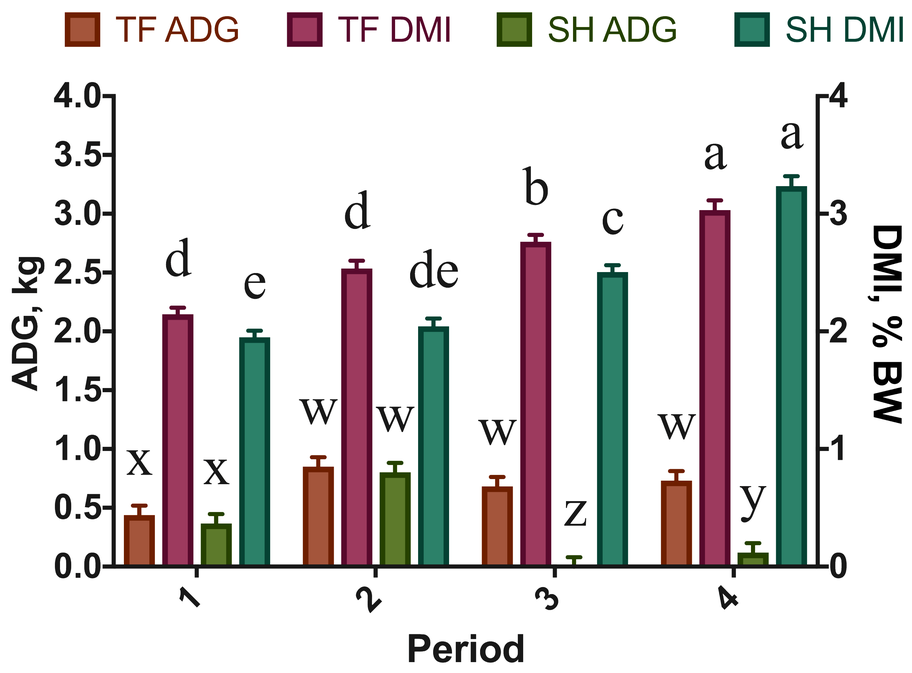


Fig.2. Mean average daily gain (ADG) and dry matter intake (DMI) by treatment and feeding period ($P < 0.0001$). Means without a common superscript differ ($P \leq 0.05$). a,b,c,d,e = DMI; w,x,y,z = ADG.

CONCLUSION

Our results suggest ensiling SH resulted in anti-nutritional characteristics that may have created unfavorable conditions for efficient digestion and increased metabolic load on cattle, resulting in lower ADG on SH treatment despite greater CP and lower total fiber.

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