

The long road to developing native herbaceous summer forage legume ecotypes

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Introduction Only a handful of well-adapted herbaceous summer forage legumes are currently marketed for drier regions of North America and even fewer are true natives. There is a growing demand for native germplasm in the region as a new generation of landowner attempts to return grasslands to a semblance of their original species and diversity. The objective of this paper is to describe preliminary research results of a grasslands team collecting, studying and promulgating native leguminous germplasm in Texas.

Materials and methods Initial efforts focused on screening commercial varieties considered even remotely native to Texas. Subsequent evaluation of locally collected germplasm has provided some idea of herbage and seed production potential and will now focus on anti-quality factors, seed harvest and establishment questions.

Results A wide variety in herbage and seed production has been observed in this germplasm (Table 1), often dependent on climate, cultivation and genetic potential. Crude protein (CP) and acid-detergent fibre concentrations also vary considerably. Data from Foster *et al.* (2004) indicated high rates of CP disappearance *in sacco* but unpublished data on condensed tannins and elevated levels of lignin indicate limitations to use as a ruminant forage. BeeWild, a *Desmanthus bicornutus* mix, is the only recent release. Further studies include establishment and performance grazing and in competition with native bunch grasses.

Table 1 Seed and forage production and forage crude protein (CP) and acid-detergent fibre (ADF) concentrations of native herbaceous legumes in Texas, USA (average values reported in the literature)

Herbaceous legume name	Seed production (kg/ha/yr)	Herbage production (kg/ha/yr)	CP conc. (g/kg DM)	ADF conc. (g/kg DM)
<i>Acacia angustissima</i>	120	5,000	170	200
<i>Desmanthus bicornutus</i>	800	6,500	200	200
<i>Desmanthus illinoensis</i>	800	4,560	170	230
<i>Desmanthus leptolobus</i>	780	2,200	220	200
<i>Desmanthus velutinus</i>	560	1,700	170	230
<i>Desmanthus acuminatus</i>		800	200	210
<i>Desmodium nuttallii</i>		4,100	140	350
<i>Indigofera miniata</i>	180	2,890	150	280
<i>Lespedeza stuevei</i>	210	1,200	120	300
<i>Lespedeza procumbens</i>	50	2,780	120	270
<i>Neptunia pubescens</i>		2,200	160	290
<i>Neptunia lutea</i>		5,000	180	270
<i>Rhynchosia americana</i>	130	1,700	140	250
<i>Rhynchosia senna</i> var. <i>texana</i>		700	160	250
<i>Strophostyles helvula</i>	650	7,500	130	320
<i>Strophostyles leiosperma</i>	750	7,500	160	310

References

Foster, J.L., J.P. Muir, W.C. Ellis & M.F. McFarland (2004). A nutritive evaluation of two native north Texas legumes (*Strophostyles*) for goat diet. American Society of Animal Science Abstracts, 26 July, 2004, St. Louis, MO.