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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 Data from Foster *et al.* (2004) indicated high rates of CP disappearance *in sacco* but unpublished data on condensed tannins and elevated levels of lignin indicate limitations to use as a ruminant forage.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	Herbage production	CP conc.	ADF conc.
	(kg/ha/yr)	(kg/ha/yr)	(g/kg DM)	(g/kg DM)
Acacia angustissima	120	5,000	170	200
Desmanthus bicornutus	800	6,500	200	200
Desmanthus illinoensis	800	4,560	170	230
Desmanthus leptolobus	780	2,200	220	200
Desmanthus velutinus	560	1,700	170	230
Desmanthus acuminatus		800	200	210
Desmodium nuttallii		4,100	140	350
Indigofera miniata	180	2,890	150	280
Lespedeza stuevei	210	1,200	120	300
Lespedeza procumbens	50	2,780	120	270
Neptunia pubescens		2,200	160	290
Neptunia lutea		5,000	180	270
Rhynchosia americana	130	1,700	140	250
Rhynchosia senna var. texana		700	160	250
Strophostyles helvula	650	7,500	130	320
Strophostyles leiosperma	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.