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Presenter Information

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Preliminary evaluation of *Lespedeza juncea* var. *sericea* in south-western Australia

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Introduction *Lespedeza juncea* (L.f.) Pers. subsp. *sericea* (Thunb.) Steen. [syn. *L. cuneata* (Dumont de Courset) G. Don.; sericea or perennial lespedeza] is a long lived perennial forage legume native to Asia and Australasia. It is a warm season plant, well adapted to infertile acid soils, and tolerates drought. Sericea lespedeza was developed in the USA initially for soil conservation and later as a source of fodder (Munger 2004). Breeding of fodder cultivars focused initially on stem thickness, and later on tannin content and grazing or cutting tolerance (Mosjidis 2001). Breeding and selection relied on germplasm sourced mainly from China and Japan. Sericea lespedeza was evaluated in a program aimed to improve water use efficiency all year round with perennial plants and to drought proof the wheat belt of south-western Australia.

Materials and methods Between 2005 and 2007, 60 plants of 16 accessions and cultivars from genebanks in USDA and ARC, South Africa, were characterised in un-replicated plots under irrigation at Medina (32°13'S, 115°48'E). Accessions included Interstate, AU Grazer, Arlington, PI174874, PI179699, PI296575, PI300009, 2412, 2413, 2414, 2415, 2419, 2420, 2421, 2422, 2424. One half of each plot was cut to 20cm. Plant height was measured over time, and a number of morphological characters assessed. In parallel, five cultivars and accessions (AU Grazer, AU Lotan, Interstate, AL489, AL2180) were sown with 51 cool and warm season, perennial legume species at Katanning (33°41'S, 117°38'E) and Newdegate (33°07'S, 118°49'E) as 3 replicates of 1m rows in a randomized block design. Visual ratings and dry matter production were assessed.

Results and discussion The range of germplasm grown at Medina varied in maximum plant height (62-159cm), stem thickness (1.2-1.9mm), leaflet density (23-40 leaflets/15cm stem), length of terminal leaflet (8.2-17.9mm), ratio of leaf length to leaf width (2-4), ratio of dry weight of leaf to stem (1.0-3.4), presence of leafy bracts, petiole length and branching. Sericea lespedeza ranked 10th at Katanning and 8th at Newdegate in March 2007 for visual rating of dry matter. It ranked 10th at Katanning and 15th at Newdegate in dry matter production measured in May 2007. Growth of sericea lespedeza was compromised by the lack of nodulation despite the application of commercial rhizobium. Growth occurred outside of the three-month winter period, peaking in February-April at all three sites. Plants grew vigorously after cutting (Figure 1).

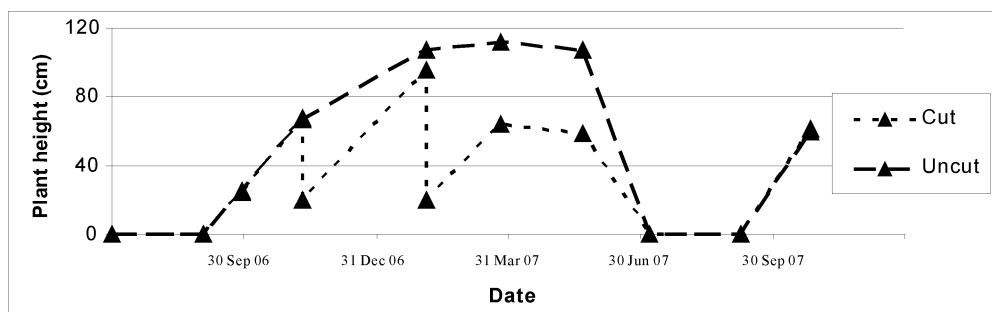


Figure 1 Average plant height of 16 diverse accessions and cultivars of sericea lespedeza grown at Medina.

Conclusions Sericea lespedeza has potential for the southern wheat belt of south-western Australia. Three diverse accessions (2423, 2419 and Arlington) were sown on 14th August, 2007 at Katanning, Muresk (31°44'S, 116°41'E) and Badgingarra (30°20'S, 115°33'E) using alternative strains of rhizobium. If nodulation proves effective and plants perform well compared to other warm season species, breeding for southern Australian conditions will commence.

References

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