Register of Australian Herbage Plant Cultivars

B. Legumes
17. Jointvetch
(b) Aeschynomene americana L. (American jointvetch) cv. Lee

Reg. No. B-17a-2

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Origin

Derived from CPI 93574, collected as CIAT 7026 by R. Schultze-Kraft, C. Ortega, and B. Castillo on 27 January 1978 at the roadside entering the village Rio Sereno in the State of Chiriqui, Panama (8°48'N, 82°52'W; alt. 850 m, 3320 mm annual rainfall). Lee was growing in clay soil with moderate drainage and intermediate fertility. CPI 93574 came to Australia in 1981 as part of A. E. Kretschmer's Florida Aeschynomene collection (IRFL 2823) when representative accessions were sent to R. J. Williams of CSIRO Cunningham Laboratory, Brisbane. All accessions of *A. americana* in Australia were grown at Mackay, Queensland, in 1983 and classified into 4 groups (Bishop *et al*. 1988). CPI 93574 was selected for further evaluation as a perennial but having many favourable attributes similar to the annual *A. americana* cultivar Glenn. Evaluation continued under the DPI–CSIRO coordinated plant evaluation (COPE) project and in large grazed swards at various sites in tropical coastal Queensland.

Lee was submitted by the Queensland Department of Primary Industries for release as a cultivar protected by Plant Variety Rights and was recommended for registration by the Queensland Herbage Plant Liaison Committee in August 1990. Breeders' seed will be maintained by the Department of Primary Industries and commercial seed will be produced under the Department of Primary Industries' seed certification scheme.

Morphological description

Lee has orange flowers, distinguishing it from Glenn which originally had mauve flowers. Commercial seed of Glenn now contains a small proportion of off-types with orange or light pink flowers.

Lee flowers are larger than Glenn flowers [7.6 *v.* 6.5 mm long at Gympie (Anon. 1995) and 8.5 *v.* 7.5 mm at Mackay (S. Reynolds pers. comm.)]. Seed pods have more glandular hairs than Glenn and, on average, contain an extra article (6–8 *v.* 4–7/pod) (S. Reynolds pers. comm.). Naked seeds of Lee are slightly smaller than those of Glenn (476 000 *v*. 341 000/kg).

Lee has a more compact, semi-erect growth habit than Glenn, with profuse basal branching. This difference in habit is more obvious in spaced plants, which develop an almost prostrate habit. The lead shoot in Glenn is more erect and branched in the upper part than that in Lee. In dense swards Lee plants grow more erect but maintain stronger basal branching and do not grow as tall as Glenn. Lee is 4–6 weeks later flowering than Glenn, that is, late May *v.* mid April at Gympie (Anon. 1995) and mid May *v.* early April at Mackay (H. G. Bishop unpublished data). Perennating plants flower and produce seed in spring–early summer when moisture is available. Most *A. americana* flowers are self-pollinating, but field studies in Florida indicate outcrossing can occur (McKellar *et al*. 1991). Chromosome number for *A. americana* is $2n = 20$ (Shaofu *et al*. 1987).

Agronomic characters

Lee is predominantly perennial, Glenn annual. Lee plants in grazed plots at Proserpine and Mackay have lived for longer than 4 years, with crowns >20 mm diameter at ground level. Spaced nursery plants at Gympie had 88% survival after winter while only 2% of Glenn plants regrew (Anon. 1995). The percentage of plants that perennate depends on the length of dry season, frost, and grazing pressure. In the DPI/CSIRO COPE Project, Lee received a higher third-season performance rating than Glenn at sites near Mareeba, South Johnstone, Tully, Mackay, Calliope, and Gympie (Bishop and Hilder 1994). Seedling development in Lee is slower than in Glenn over the first 6 weeks (Anon. 1995; H. G. Bishop and J. Rains unpublished data).

Flowering in Lee is less well synchronised owing to the terminal shoot showing some dominance and hence precociousness (J. M. Hopkinson pers. comm.). Seed yield potential, though high, is lower than for Glenn. Ripe seed holds well on the standing crop and is readily direct-headed. Direct harvest from a 1000-m^2 seed increase area at Walkamin yielded 600 kg/ha while the 1992–93 commercial crop yielded 700 kg/ha. Suction harvesting increased this to >1000 kg/ha. Southedge Seeds, Mareeba, has exclusive seed production rights to the variety under licence.

Lee, like Glenn, is well adapted to environments receiving

>1000 mm annual rainfall, but it will grow on fertile soils receiving <900 mm. It produces adventitious roots from stems touching moist soil and is very suited to low-lying, waterlogged soils. Glenn and Lee will also grow in clay soils receiving sufficient moisture. Several successful stands of Glenn have been reported in brigalow melonhole country (H. G. Bishop unpublished data) and in other clay soil environments (Peacock and Smith 1992).

Good liveweight gains in steers have been recorded from Lee pastures at 'Tedlands' south of Mackay. In a grazing demonstration comparing Lee and Glen, each sown with Seca stylo and Callide Rhodes grass in January 1992, both groups of steers gained 0.8 kg/head.day for 90 days in April–June 1993. In 40 days during July–August 1993, steers on Lee gained 0.5 kg/head.day while those on Glenn gained 0.1 kg/head.day.

Lee is less affected by powdery mildew than Glenn, but seed crops may require treatment with a fungicide. *Botrytis* spp. were present on seed crops at Mareeba but were not damaging (J. M. Hopkinson pers. comm.). Root nodulation, nitrogen fixation, leaf protein content, response to phosphorus, and forage palatability are similar to Glenn.

Glenn is tolerant to 2,4-D and a range of other herbicides for management of weeds in seed crops but can be eradicated by an application of Blaser at 2 L/ha (Loch and Harvey 1990). Experience with commercial seed growing at Mareeba indicates Lee has tolerance of 2,4-D similar to Glenn (J. Rains pers. comm.).

Lee will complement Glenn as a pasture legume and will extend the period of weight gain from animals, particularly in more extensive grazing areas where Glenn may mature and die before cattle can graze it.

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