Register of Australian Herbage Plant Cultivars

B. Legumes
21. Arachis
(a) *Arachis pintoi* Krap. et Greg. *nom. nud.* (Pinto peanut) cv. Amarillo

Reg. No.B–21a–1

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Origin

Amarillo was collected by G. C. P. Pinto in April 1954 near the coast in Brazil, between the mouth of the Jequitinhonha River and Belmonte City (altitude 5 m; 15°52'S., 39°6'W.) (Gregory *et al*. 1973). Rainfall is 1800 mm in the wet season (October–May) and 200 mm in the dry season (June–September). Amarillo was growing in low fertility, reddish sand to loamy sand with high aluminium saturation, under low forest with trees to 5 m. Seed may have originated near Aracuai and been carried downstream (Valls 1983). Amarillo seed was transferred in turn to Cruz das Almas (Brazil), Corrientes (Argentina), Experiment (Georgia, U.S.A.) and Brisbane. Further collections have been made recently in the valleys of the Jequitinhonha, Sao Francisco and Tocantins Rivers (C. E. Simpson, pers. comm.).

Evaluation of Amarillo has been carried out by CSIRO at Beerwah, Samford and Pittsworth; the Queensland Department of Primary Industries at Brisbane, Gympie, Rockhampton and Mackay; and NSW Agriculture & Fisheries at Grafton and Alstonville.

Amarillo was submitted by Queensland Department of Primary Industries, NSW Agriculture & Fisheries and CSIRO Division of Tropical Crops and Pastures and recommended for registration by the Queensland and New South Wales Herbage Plant Liaison Committees. Breeders' seed will be maintained by the Queensland Department of Primary Industries.

Morphological description

Amarillo is a prostrate, stoloniferous, perennial herb. Stems hairy, hairs are appressed with a few long hairs (2 mm), spreading. Stipules to 30 mm long, acute, somewhat falcate, the lower half to two-thirds adnate to the petiole between petiole base and pulvinus, hairs appressed with a few long hairs close to line of fusion with petiole. Leaves with 2 pairs of leaflets; petiole hairy, grooved above, free part to 65 mm long; distal leaflets obovate, proximal leaflets oblong–obovate, obtuse at apex, slightly cordate at base, to 45 mm long by 35 mm wide, 12–18 lateral nerves on each side of midrib; upper surface glabrous, pale green in full sun, dark green with paler midrib in shaded situations, rarely variegated; lower surface paler, with sparse appressed hairs on all leaflets and scattered long tubercle-based spreading hairs on proximal, rarely on distal leaflets. Flowers in short axillary racemes, sessile, arising from linear, stipuliform bracts; pea-shaped, yellow with deep orange striations on the standard; lower calyx fused to form greyish-red pilose, filiform tube to 130 mm long, upper calyx membranous 5-lobed to 8 mm long, pilose with occasional stiff tubercle-based hairs, the upper 4 lobes united for much of their length, the lower free, linear; standard rounded, 15 mm wide, obtuse wings to 10 mm long, keel beaked, the beak 5 mm long; anthers 8; ovary with 2–3 ovules. Pegs 1–27 cm long penetrating the soil obliquely mostly to a depth of less than 7 cm, producing mostly a single pod with 1 seed (rarely 2), but occasionally 2 and rarely 3 pods separated by varying lengths of peg. There are about 6000–8000 seed in pod per kg. Chromosome number 2n = 20.

Agronomic characters

Amarillo has proven persistent and productive in subtropical (B. G. Cook, R. J. Williams and G. P. M. Wilson, unpublished data) and tropical (Grof 1985) environments, on strongly acid–neutral soils with textures ranging from sand to heavy clay. It grows well in soils of only moderate fertility and is tolerant of high aluminium saturation of the exchange complex (Grof 1985).

Although Amarillo can survive long dry periods, the best dry matter yields are obtained under warm moist conditions. Growth appears to be markedly reduced under conditions of high evaporation even when soil moisture is adequate. Leaves and some stolons are killed by frost, but plants mostly survive and recover quickly with the onset of better growing conditions. Annual dry matter yields of 5.2–9.6 t/ha have been recorded from Amarillo growing with *Brachiaria* spp. producing 10.8–20.1 t/ha in the tropics (Grof 1985), while 7.3 and 6.5 t/ha have been obtained in irrigated and non-irrigated pure stands in the subtropics (B. G. Cook, unpublished data). Amarillo has grown in association with Kikuyu (*Pennisetum clandestinum* Hochst. ex Chiov.), narrow-leaf carpet grass (*Axonopus affinis* Chase), Rhodes grass (*Chloris gayana* Kunth.), blue couch (*Digitaria didactyla* Willd.), paspalum

(*Paspalum dilatatum* Poiret) and Bahia grass (*P. notatum* Flügge) in subtropical Australia but grows more vigorously in pure swards. It colonises bare soil, rapidly forming a dense mat up to 20 cm deep, with stolons held down by roots and fruiting pegs. It is tolerant of low rates of phenoxy and glyphosate weedicides.

Amarillo is highly specific in its rhizobial requirement, with the strain QA 1091 (CIAT 3101) *Bradyrhizobium* (Jordan 1981, 137) being the most effective available. It has proven resistance to peanut rust (*Puccinia arachidis* Speg.) and leaf spot (*Mycosphaerella* spp.) (K. J. Middleton, pers. comm.) and possesses moderate–high field resistance to the various root knot nematodes *(Meloidogyne* spp.) but is susceptible to root-lesion nematode [*Pratylenchus brachyurus* (Godfrey 1929) Filipjev & Schuurmans-Stekhoven 1941] (R. W. McLeod and P. C. O'Brien, pers. comm). Dark stem lesions, from which *Colletotrichum gloeosporioides* (Penzig) Penzig & Sacc. has been isolated (J. L. Alcorn, pers. comm.), have been recorded but have little adverse effect on plant vigour. No virus particles were observed in the sap of variegated material using electron microscopy (J. E. Thomas, pers. comm.).

Flowering commences 3–4 weeks after emergence and continues until late in the growing season, with flushes often developing following rain. In sandy and clay loam soils, 90–95% of the seed develops in the top 5 cm. Yields of seed-in-pod up to 2 t/ha have been obtained in experimental plots (D. S. Loch and G. P. M. Wilson, pers. comm.), and about 1 t/ha from larger areas. Burrowing rodents have eaten most of the seed set in plots at Alstonville.

Amarillo is readily eaten by stock. *In vitro* dry matter digestibility of 6-week regrowth in a trial near Gympie averaged 73% (P. R. Martin, pers. comm.), and crude protein level was 19%. Heifers grazing Amarillo–*Brachiaria* spp. pasture at 2.4 animals/ha in Colombia gained an average of 515 g/heifer.day over a 594-day period (Grof 1985). Amarillo has also found application as a ground cover in orchards and banana plantations by virtue of its low mat forming growth habit coupled with a high degree of shade tolerance.

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References

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