

Bambatsi panic

Scientific name(s)

Panicum coloratum; *Panicum coloratum* var. *makarikariense*.

Strengths

- Palatable, high quality forage when green.
- Well adapted to heavy, self-mulching dark clay soils.
- Tolerant of temporary waterlogging and flooding.
- Drought tolerant.
- Tolerant of moderate soil salinity.
- Very persistent, even in heavy soils with low soil N.
- Cold tolerant.
- Lower nitrogen requirement than green or Gatton panic.

Limitations

- Slow to establish.
- Low seed yield because of seed shattering.
- Unsuitable to low fertility and light-textured soils.

Plant description

Plant: Generally an erect, leafy perennial grass, with tussocks spreading by short underground stems (rhizomes) to over 90 cm in diameter; leafy to about 1m and growing to over 1.5m at flowering.

Stems: Flowering stems are robust, waxy, and branching; nodes are elbow-shaped and slightly enlarged.

Leaves: Leaves are waxy and largely hairless, bluish-green, up to 45 cm long and 1.3 cm wide, with a prominent white, midrib.

Seedhead: the flower head is a large, open, panicle to over 30cm long; the developing seeds are green tinged with purple giving a flowering stand a purplish appearance.

Seeds: Seeds are smooth and shiny, oval to elliptical in shape, and brown to grey-black in colour; 1.6 million seeds/kg.

Pasture type and use

Used in grazed pastures on heavy, cracking-clay soils, particularly for cattle grazing; usually sown with legumes; can be cut for hay while leafy and before it matures.

Where it grows

Rainfall

500-700 mm/yr.

Soils

Bambatsi is particularly well adapted to deep, alkaline, dark, heavy, cracking clay soils of moderate to high fertility, and with poor internal drainage, as are common in the northern grain belt in Australia. These soils can become wet during summer and dry in the winter. While it also grows on lighter friable clay and clay-loam soils, it is poorly adapted to light loams and sands. It can tolerate moderate levels of soil salinity.

Temperature

Established plants have some frost tolerance and retain green material longer after the onset of frosts than many improved tropical grasses.

Establishment

Companion species

Grasses: purple pigeon grass, rhodes grass, Floren bluegrass, Queensland bluegrass; creeping bluegrass (on more friable clays)

Legumes:

S Qld/N NSW: annual medics, lucerne, desmanthus

Central Qld: butterfly pea, desmanthus, lucerne

Sowing/planting rates as single species

Sown at 2-4 kg/ha; while seed quality is usually high; it is advisable to sow 1-year old seed as fresh seed is likely to be dormant.

Sowing/planting rates in mixtures

Sow at a pro rata rate depending on the number of species sown in the mixture; sowing rate is unchanged when sown with legumes.

Sowing time

Bambatsi is much slower to establish than rhodes grass or green panic. It is best sown between mid-January and mid-March to coincide with the highest probability of post-sowing rain. However, if there is a profile of subsoil water, sowing may be planned for mid-November or December (perhaps into standing winter crop stubble), or for late August-early September.

Inoculation

Not applicable.

Fertiliser

Generally sown on fertile soils; responds to N fertiliser, possibly to P and S on very alkaline soils.

Management

Maintenance fertiliser

It is generally sown into fertile soils with high levels of nitrogen available initially, or with legumes that supply nitrogen. In grass pastures without legumes and where available soil nitrogen is low or declining, nitrogen fertiliser at about 100 kg N/ha/yr may be required to maintain productivity.

Grazing/cutting

Bambatsi panic is slow to establish, and in dense, establishing stands of grass mixtures, early grazing is advised to reduce the competition. However, while mature stands withstand short-term heavy grazing, Bambatsi should be grazed only lightly during the establishment year. Being so palatable, it is selectively grazed if sown with purple pigeon grass.

Seed production

Seed matures unevenly from the apex of the panicle to the base over a long period, at least 15 days with no peak maturation, and sheds seed as it matures. Seed begins to ripen when the seed loses its purplish colour and appears bleached blue-green; this is also detected by the enhanced ease of stripping from the seed head and the gritty feel of the seed; seed is usually direct-headed (drum speed 1,000 rpm, concave fairly well closed, adjustable screens or 19 mm top/6 mm bottom, negligible air), some crops are windrowed for 2-3 days before being picked up with a header with the drum speed slower and the concave opened up slightly. Direct heading harvests about 20-25% of the seed; this may be increased to about 60% by repeated passes by a beater harvester during seed maturation. Seed yields of 100-180 kg/ha have been obtained and up to 400 kg/ha when irrigated.

Ability to spread

Bambatsi panic does not colonise readily owing to the difficult conditions for establishment in existing swards, except during very wet conditions.

Weed potential

Very low.

Major pests

No significant insect pests.

Major diseases

No significant diseases though susceptible to maize streak virus.

Herbicide susceptibility

Tolerant of pre-emergent propazine and triasulfuron; Susceptible to pre-emergent atrazine, ametryne, prometryne, propazine, linuron, pendimethalin, alachlor, metolachlor, propachlor, metsulfuron methyl and imazapic; Tolerant of post-emergent propachlor, metolachlor, triasulfuron, propazine, and metsulfuron methyl but susceptible to other post-emergent herbicides; Susceptible to 2,4-D and dicamba up to the 5-leaf stage but safe in established swards; Established stands are tolerant of picloram, but rates should be checked.

Animal production

Feeding value

High quality feed; crude protein levels of 19% when young and leafy decline to 5% when mature; digestibility of about 60% in leafy, 3-6 week old regrowth, with % crude protein declining to 12-15% and digestibility to 47% after 10 weeks regrowth; at these levels, the capacity for liveweight gain declines dramatically. Mature, hayed-off dry matter is of a very low quality.

Palatability

Very palatable when young, declining with maturity.

Production potential

DM yields of 8-23 t/ha (commonly 10 t/ha) have been recorded, depending on rainfall and soil fertility. In a grazing trial, Bambatsi panic/lucerne pastures persisted better and produced more dry matter and sheep liveweight than Rhodes grass/lucerne pastures in dry conditions on the Darling Downs, Queensland.

Livestock disorders/toxicity

Photosensitisation has occurred in sheep, goats, cattle and horses grazing Bambatsi panic pastures, but the condition is rare; sheep are the most vulnerable with lambs in stressed condition e.g. after shearing, trucking, that are placed on early regrowth following dry conditions, the most at risk; this toxicity disrupts liver function and lamb deaths have been recorded.

Cultivars

Bambatsi is the only cultivar commercially available. Three cultivars, Bambatsi, Pollock and Burnett were released in the late 1950s and early 1960s in Australia; Pollock developed larger clones and showed a tendency for better DM production, but there were no differences between them in animal production; however, Bambatsi was the superior seed producer; owing to the sexual, outcrossing breeding behaviour of the species, cultivar entity was lost; and the germplasm was melded into a single cultivar now known as Bambatsi.

Further information

Bambatsi panic makes less growth in winter than green panic (*Panicum maximum*), digit grass (*Digitaria eriantha*) or buffel grass (*Cenchrus ciliaris*), albeit that winter production is low from all species, except in warmer districts e.g. in central Queensland.

Acknowledgements

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Register of Australian Herbage Plant Cultivars A. Grasses 6. Panic *Panicum coloratum* var. makarikariense Goosens (Makarikari grass) cv. Bambatsi Reg. No. A-6a-1, <http://www.pi.csiro.au/ahpc/grasses/pdf/bambatsi.pdf>

Register of Australian Herbage Plant Cultivars A. Grasses 6. Panic *Panicum coloratum* var. makarikariense Goosens (Makarikari grass) cv. Pollock Reg. No. A-6a-2, <http://www.pi.csiro.au/ahpc/grasses/pdf/pollock.pdf>

Register of Australian Herbage Plant Cultivars A. Grasses 6. Panic *Panicum coloratum* var. makarikariense Goosens (Makarikari grass) cv. Burnett Reg. No. A-6a-3, <http://www.pi.csiro.au/ahpc/grasses/pdf/burnett.pdf>

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