



A collaboration between AWI, GRDC, MLA, RIRDC and Dairy Australia

Digit grass

Scientific name(s)

Digitaria eriantha (previously *Digitaria smutzii*)

Strengths

- Persistent.
- Widely adapted across soils and rainfall environments.
- Tolerates acid soils and moderate to high levels of exchangeable aluminium.
- Recruits well on sandy and loamy soils.
- Well-suited to the transitional zone of adaptation between temperate and tropical species
- Very palatable.
- Tolerates close grazing by sheep
- Low levels of soluble oxalate i.e. suitable for horses
- Drought and frost tolerant
- Produces new shoots after rain in the winter and is one of the earliest tropical grasses to regrow in the spring

Limitations

- Does not recruit on heavy, cracking clay soils.
- Seed heads are palatable, restricting seed set in grazed stands.
- Selectively grazed in mixtures.
- Needs nitrogen to express its high production potential, and should be sown with a legume on less fertile soils.

Plant description

Plant: A tufted grass with spreading crowns, usually 30 - 50cm tall in a pasture, and 100 - 170 cm tall when flowering; under close grazing, the tussocks develop a more prostrate growth habit to form a cover.

Stems: Fine, hairless.

Leaves: Grey-green, 10-30 cm long, 6-20 mm wide, largely hairless.

Seedhead: Finger-like with 4-14 (usually 10) branches, 7-17 mm long, arranged generally in 3 or more rings (whorls); purple or brownish-purple when immature and brownish grey when mature.

Seeds: hairy with tendency to clump; 2.5 million seeds/kg.

Pasture type and use

Used in long-term, permanent pasture for grazing; suitable for hay.

Where it grows

Rainfall

400-1,000 mm average annual rainfall

Soils

Digit grass is adapted to a wide range of soils including friable sands, friable and hard setting loams and friable cracking clays, but not to heavy cracking clays; performs well on both deep and shallow soils. It is adapted to acid and alkaline soils with pH(water) 4.5 - 8.5; and grows in

soils with poor internal drainage but does not tolerate waterlogging. Digit grass appears to be moderately tolerant of soil salinity.

Temperature

In eastern Australia it is adapted to latitudes between 23°S to 34° S, at altitudes from sea level to 1,000 m. Leaves are "frost-tender", but plants recover after frost.

Establishment

Companion species

Grasses:

- Sandy, acid, Granite Belt soils: Brunswick grass, kikuyu
- Hard setting, acid, traprock duplex soils: Swann forest blue grass, Medway pertusa, Competidor Bahia grass
- Acid solodic soils: Rhodes grass
- Neutral and alkaline loamy soils and friable clays in drier areas: Bisset and Hatch creeping blue grasses, Medway pertusa, Gatton panic, American and Gayndah buffel grasses.

Legumes: as appropriate to soil type:

- Warm season: desmanthus, siratro, stylo (caatinga, fine-stem, shrubby), and Wynn cassia
- Cool season: medics, serradella

Sowing/planting rates as single species

1-2 kg/ha of high quality seed.

Sowing/planting rates in mixtures

Sow at a pro rata rate depending on the number of companion species in the mixture.

Sowing time

Mid-January to mid-March; earlier sowings (November-December) may be successful if there is a profile of soil water and weather patterns are favourable; successful sowings have been achieved on light soils in Queensland from sowing in the autumn with a cover crop of oats.

Inoculation

Not applicable.

Fertiliser

To provide N, sow with legumes shown above. Successful legume stands often require the application of phosphorus and sulphur e.g. as superphosphate at 100 - 200 kg/ha in the establishment year. Digit grass may benefit also from the fertiliser applied to stimulate legume growth.

Management

Maintenance fertiliser

Digit grass is persistent on soils of low fertility; but requires nitrogen for production. This is usually provided by legumes. Maintenance applications of 100 kg/ha superphosphate should be applied in better winter seasons to stimulate legumes and grass.

Grazing/cutting

After establishment, do not graze before the development of secondary roots, then graze lightly and allow the grass to set seed. Try to allow seed set at least every second year. Rotational grazing is preferable to continuous stocking as digit grass is extremely palatable. If sown in mixtures with other grasses, digit grass will be one of the first selected by livestock (cattle and sheep), and the pasture will require rotational grazing management to maintain the digit grass component.

Seed production

Seed crops develop in 60 - 90 days after cutting in the summer; two crops/year can be achieved in good seasons or with irrigation; seed production is maximised with the application of 50-100 kg/ha of nitrogen and 20 kg/ha of sulphur fertiliser. Seed is ripe when it changes

colour from purplish-brown to grey-brown and the seed strips readily from the head; seed sheds quickly in windy weather when ripe. Seed yield 100 kg/ha (up to 300 kg/ha if irrigated).

Ability to spread

Spreads well from seed, particularly on loamy and sandy soils; stands thicken noticeably if managed to allow seed set.

Weed potential

Not considered to have serious weed potential.

Major pests

No major insect pests recorded in Australia.

Major diseases

No major diseases. However, leaves can be affected by a rust in humid environments, and seed heads by a false smut during prolonged wet weather.

Herbicide susceptibility

No information available.

Animal production

Feeding value

A tropical grass of high quality when in a green, leafy stage of growth. Depending on soil fertility and stage of growth, the protein content can vary from 9 - 14% in older material, but can be as high as 20% when very young, before becoming stemmy; digestibility varies between 70% when young and green to 45% when dry and mature.

Palatability

Very palatable, even when mature. It is one of the first grasses selected by both sheep and cattle that eat both leaves and flowering stems.

Production potential

In line with its high nutritive value and dry matter production potential, the livestock potential for milk, beef and prime lamb production is high, varying according to environment; lambs grazing digit grass in early winter (May-July), have gained an average of 3.5 kg/head more than their equivalent grazing native pastures.

Livestock disorders/toxicity

No record of disorders or toxicities; contains low, non-toxic concentrations of oxalate and therefore suitable for feeding to horses and lactating cattle.

Cultivars

Cultivar	Seed source/Information
Premier	Australian Herbage Plant Cultivars

Further information

Tropical Forages database (SoFT) - Digit grass
Qld Department of Primary Industries and Fisheries - Digit grass
NSW Department of Primary Industries - Digit grass Agnote DPI-430

Acknowledgements

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Strickland, R.W. (1987) Register of Australian Herbage Plant Cultivars A. Grasses 23. Digitaria a. Digitaria smutzii Stent (digit grass) cv. Premier (Reg. No. A-23a-1) The Journal of the

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Author and date

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