



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

Brunswick grass

Scientific name(s)

Paspalum nicorae

Strengths

- Widely adapted.
- Moderately drought and frost tolerant.
- Tolerant of heavy grazing.
- Palatable.
- Persistent ground cover.
- No serious insect or disease problems.
- Good seed crops.

Limitations

- Difficult to control with cultivation or herbicide
- Competes strongly with legumes

Plant description

Plant: A mat-forming, perennial grass, with long, vigorous underground stems (rhizomes), mostly in top 10 cm of soil. Foliage usually 20 - 30cm deep, and seedheads carried on erect stems 10 - 20cm above the foliage.

Stems: Rhizomes 2 - 3mm diameter, and hairless flowering stems, 1 - 2mm.

Leaves: Grey-green in colour, to about 30cm long and usually 5 or 6mm wide.

Seedhead: Also grey-green in colour, generally comprising 2 - 5 branches 2 - 7 cm long along a main axis.

Seeds: Roughly oval about 2.5mm long and 1.5mm wide, flat on one side and rounded on the other. The grain is dark chestnut brown. 450,000 seeds/kg

Pasture type and use

Brunswick grass is used in permanent pasture in the subtropics, and may have application for hay and silage, but is not suited to short-term pasture due to difficulty of control. It forms a good ground cover and can be used for soil conservation and stabilisation of waterways. It is moderately shade tolerant and can be grown under more open tree canopies. It is showing some potential to suppress invasive grasses such as giant ratstail and african lovegrass.

Where it grows

Rainfall

Brunswick grass is best sown in areas receiving about 1000 to 1500mm average annual rainfall. However, by virtue of its tolerance of dry conditions, it has been successful in upland areas with annual rainfall as low as 700mm.

Soils

While preferring sandy soils, it has also proven adapted to light to medium clays, and even hard-setting sandy clay loams, provided internal drainage is fair to good and moisture is adequate. It will grow in acid to slightly alkaline soils (pH (H₂O) 5.0 to 8.0). It survives short periods of flooding, but does not tolerate permanent waterlogging.

Temperature

The foliage has frost tolerance comparable with that of kikuyu, but is burnt off by severe frost and makes no further growth during winter. Deep rhizomes are protected from frost by the soil, and even severely frosted plants recover quickly with the advent of warmer, moist conditions.

Establishment

Companion species

Grasses: Not normally sown with other grasses, but will form associations in some situations with bahia grass, digit grass, and ryegrass.

Legumes: annual medics, clover (subterranean, white), greater lotus, pinto peanut.

Brunswick grass is very competitive, suppressing other grasses such as mat grass, blady grass, blue couch, and spear grass as well as many broadleaf weeds including blue heliotrope. It also competes effectively with the aggressive bahia grass. Unfortunately, it also suppresses most warm season legumes including creeping verna that is capable of growing with other mat-forming grasses. However, it can combine successfully with a number of cool season legumes, more so at the southern extreme of its application.

Sowing/planting rates as single species

Seed has low dormancy and can be planted relatively fresh. It is normally sown at 2-3 kg/ha, or up to 10 kg/ha if more rapid ground cover is required. Complete cover can be achieved in one season compared with bahia grass, which may take two or three seasons to achieve the same level of cover.

Sowing/planting rates in mixtures

1 - 2 kg/ha

Sowing time

Brunswick grass is primarily a warm season grass and is best planted any time from spring to autumn, as long as moisture is adequate for establishment. In areas that are not heavily frosted, it can be planted in autumn with a light sowing of ryegrass, giving plants an early start the following spring. In such cases, the ryegrass should be grazed regularly.

Inoculation

Not applicable

Fertiliser

It will establish successfully on most soils with minimum fertiliser inputs. However, in the interest of stimulating any companion legume, it should be sown with 200 - 300 kg/ha of superphosphate, with other plant nutrients added if required.

Management

Maintenance fertiliser

Although it will grow on infertile soils, it responds well to improved fertility, giving good yields of high quality feed following application of 100 kg/ha of fertiliser nitrogen. Availability of other nutrients, particularly phosphorus (P) and potassium (K), should be monitored and corrected if required.

Grazing/cutting

It is extremely tolerant of grazing, forming a low dense cover under regular mowing or continuous grazing. However, forage yields are reduced under heavy grazing, and a rotational grazing system will be more productive.

Seed production

In the subtropics, it commences flowering in December, and continues for about 4 months. Leaf production is reduced during flowering, but unlike in common paspalum, is still significant. It may not flower at all in the upland tropics.

Brunswick grass seeds freely, presenting the crop at 10 - 20 cm above the foliage and the seed

holding in the head once ripe. The stand is maintained as a low sward to maximise shoot numbers until seed-heads start to appear in late December/early January, at which point it is mowed off and fertilised with 100 kg/ha nitrogen.

If the crop is commenced too early, excessive leaf growth develops, which can result in crop lodging. Crops started a little later may produce slightly less seed, but present fewer problems with lodging. Seed can be easily harvested with a mechanical header, good crops yielding 0.5 to 1 t/ha of clean seed each year.

Ability to spread

Within a paddock, stands thicken up by rhizome development. Plants appear outside the sown area, through seed probably spread by cattle.

Weed potential

Brunswick grass is difficult to control with cultivation due to rhizome survival and regeneration, although several cycles of cropping with taller species can result in control. It is also difficult to control with herbicides. A low growing, rapidly maturing, less palatable type naturalised around Rappville near Casino in northern NSW has resulted in the species being listed as a weed.

Major pests

It is generally not seriously affected by insects, although sod webworm and lawn armyworm often infest well fertilised, vigorously growing stands during the wet season. African black beetle is suspected of causing damage to roots and rhizomes, leading to yellowing of shoots.

Major diseases

None to date

Herbicide susceptibility

Mature stands are not affected by haloxyfop (e.g. Verdict®), triclopyr (e.g. Garlon®), sulfometuron methyl (e.g. Oust®), metsulfuron methyl (e.g. Ally®, Brushoff®) and atrazine at normal or double rates. It is weakened by glyphosate at normal rates, but recovers within about a month. Double normal rates of glyphosate are required for a complete kill.

Animal production

Feeding value

In 6-week regrowth, crude protein levels average 10% and phosphorus levels 0.2% of the dry matter. Sodium levels are very low, and a salt supplement may be required.

Palatability

As with other tropical pasture grasses, if regrowth is kept relatively young and leafy, (say 3-4 weeks, and no more than 6 weeks), brunswick grass is readily consumed. It becomes unpalatable if allowed to grow rank.

Production potential

In the absence of frost, it has good cool season growth, producing about 50% more dry matter than kikuyu during the 6 coolest (also driest) months. Although vegetative growth begins in spring and continues until autumn, over 80% of the forage is produced during the 6 warmer, moister months. Annual dry matter yields of brunswick grass are usually of the order of 10 - 15 t/ha, but under good growing conditions and if heavily fertilised, can exceed 25 t/ha.

Under good growing conditions, young cattle can gain up to 1.3 kg/hd/day at 5 beasts/ha, although this may drop to 0.6 kg/hd/day (or less) as pasture growth declines going into winter.

Livestock disorders/toxicity

No problems have been recorded. Soluble and total oxalate levels in the dry matter have been too low to measure, suggesting there is little likelihood of oxalate-related problems in grazing livestock.

Cultivars

Cultivar	Seed source/Information
Blue Dawn	Progressive Seeds

Further information

Tropical Forages database (SoFT) - Brunswick grass

Author and date

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