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Tropical perennial grasses – grazing management

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In the first year after sowing, grazing should be avoided until plants have a well developed root system. Test how well plants are anchored by pulling the plant by hand. It is also preferable in the first year to allow the pasture to flower and produce seed before commencing grazing.

In good seasons, light grazing of well anchored plants will encourage tiller development. Plant size affects the ability of plants to over-winter the first year after sowing, with smaller plants being more susceptible to frosting.

To keep tropical perennial grass pastures at a green leafy stage of growth for high animal production, have smaller rather than large paddocks that can be rotationally grazed at high stock densities.

Perennial grasses generally benefit from being allowed to seed periodically.

Hard grazing in late summer–early autumn will open the sward and promote better germination and establishment of annual legumes.

In spring, companion aerial seeding of annual legumes requires resting from grazing to allow flowering and seed set; while annual clovers that bury their seed, such as subterranean clover, should be grazed to encourage the plants to flower and increase seed set.

Purple pigeon grass, Rhodes grass and green panic are particularly susceptible to overgrazing in dry conditions or when soil nitrogen levels are low.

In the first year after sowing

In the establishment year, it is best to avoid grazing until plants have flowered and set seed. Young tropical perennial grass plants have a poorly developed primary root system so, depending on seasonal conditions, they may be susceptible to damage by grazing over the first summer. In wet summers, plants may flower and produce seedheads within 8–10 weeks of sowing; in drier years plants may not flower in summer–autumn, particularly if they were late sown. Also, remember that bigger plants are more likely to successfully over-winter and survive frosts in the first year.

Grazing too early will result in stock pulling out and killing many plants. Test whether or not plants are firmly anchored by pulling them by hand – if you can pull them out it is likely that cattle, in particular, will also be able to pull them out. Rhodes grass has long runners (stolons) that do not always root down into dry soils and so are particularly susceptible to grazing damage in the first summer. Again before grazing test how well plants are anchored by pulling on the stolons. If plants are well advanced for the season then light grazing may increase tillering.

If broadleaf weed competition is severe and threatening establishment, then grazing may be considered as a lower cost, but less effective alternative to herbicide application. If grazing for weed control is being considered, again make sure that the tropical grass plants are well anchored and that the weeds will be grazed by livestock.

Consider using less valuable animals as many of the summer-growing broadleaf weeds can have cumulative poisonous effects on livestock. If you are unsure of the impact of weeds on grazing animals, consult your animal health advisor. Grazing should be short and intense (i.e. using high stocking numbers) and for a short duration to ensure that new grass regrowth is not overgrazed.

Established stands

Once established many tropical perennial grass pastures have proven themselves to be remarkably resilient to the variable climate of hot, dry summers and cold, frosty winters that occurs in northern NSW. With adequate nutrition, they can make prolific growth in wet summers (growth rates of about 170 kg of dry matter/ha/day and total summer production of more than 20 tonnes of dry matter/ha), but are cold sensitive and have little or no growth in June–July, particularly when frosts are severe.

These extremes of growth can make grazing management difficult and different strategies are needed to utilise large quantities of rapidly growing green feed in summer, to those required for getting the most out of high amounts of dry stalks and leaves in winter.



Cattle grazing tropical perennial grasses at the actively growing, green leafy stage. Note that the grass is a dark green colour, indicating that nitrogen is adequate.

To make the best use of tropical perennial grass pastures, it is important to know the level of production, in terms of both stocking rate and liveweight gain, that you want to achieve at various times of the year and to be realistic about the carrying and productive capacity of your tropical perennial grasses each season.

The productive capacity of the pasture will also be greatly affected by whether or not you have sown a companion legume to provide green feed, particularly in winter, and nitrogen for growth and whether or not you have applied nitrogen to promote green, leafy growth.

As a general guide, tropical perennial grasses will have the highest quality when they are in the vegetative growth stage. Research has shown that frequent grazing of a tropical perennial will increase

the leaf to stem ratio and thus feed quality will be higher. Too short an interval between grazings can reduce vigour and overall dry matter production. At 2–4 leaves per tiller quality has been maximised. Trade-offs between quality and quantity generally occur between 4–6 leaves per tiller. Quality declines further during stem elongation and flowering.

The key factor in being able to keep tropical perennial grass pastures at a green, leafy stage of growth for long periods is to have smaller rather than larger paddocks, and to graze them rotationally at high stock densities. It is best to use a flexible rotation which is dependent on seasonal conditions and regrowth, with grazing periods of 7–10 days and regrowth periods of 3–4 weeks in wet summers and longer periods of resting (6 weeks or more) in drier summers. These grazing and rest guidelines can also be adjusted for herbage mass, with pastures managed between 1500–3000 kg DM/ha of green dry matter suited to a range of different animal classes and having a range of digestibility. If lucerne has been sown as a companion legume, then rotational grazing will also be of benefit, allowing it to flower and build root reserves. Again there is a trade-off in maximising lucerne root reserves and maximising the quality of the tropical grass.

In winter, paddocks can be set stocked at low to moderate rates if there is a companion legume such as subterranean clover or a medic, and/or supplemented with energy and/or protein as feed quality changes, to utilise the large bulk of low quality, dead grass material.

Depending on the type of livestock being grazed and the liveweight gain required, livestock production will benefit from supplementation at most times of the year.

Generally, perennial grasses will benefit from being allowed to seed periodically, every 2–3 years.

This rest from grazing allows root reserves to be replenished and provides seed for regeneration of seedlings in subsequent years. If annual clovers or medics have been sown as companion legumes or occur naturally, then grazing pastures hard in late summer–early autumn will open the sward, allowing better light penetration and promoting better establishment of the legumes. In younger stands this helps to build legume seed reserves in the soil. In older stands, hard grazing of a paddock in late summer–early autumn one year in three should be sufficient to allow good annual legume establishment to provide valuable winter forage and soil nitrogen to promote grass growth. In spring, aerial seeding of annual legumes such as medics requires resting from grazing to allow flowering and seed set. Annual legumes that bury their seed,

such as subterranean clover, need to be grazed so that the plants are not shaded and flowering and seed production is increased. For this reason, short- to mid-season annual legume cultivars are recommended for sowing with tropical perennial grasses, so that they flower and set seed in early spring before grass growth is too high.

Some tropical perennial grasses are susceptible to being overgrazed when it is dry or when nitrogen levels are low. Rhodes grasses in particular are susceptible to having their runners (stolons) grazed to ground level. Tropical perennial grasses such as purple pigeon, Rhodes grass and green panic are susceptible to overgrazing in dry conditions and particularly when soil nitrogen levels are low.

Animal health issues

Pasture improvement may be associated with an increase in the incidence of certain livestock health disorders (e.g. photosensitisation from panic grasses). Livestock and production losses from some disorders are possible. Management may need to be modified to minimise risk. Consult your veterinarian or adviser when planning pasture improvement.

Further reading

PROGRAZE manual. Sixth edition (Ed. B. Noad). NSW Agriculture, Orange.

The department's website www.industry.nsw.gov.au contains useful information on individual grass species.

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