

tips & tools

FEEDBASE & PASTURES

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Making perennial ryegrass-based pastures productive and persistent

Perennial ryegrass is a highly nutritious and palatable pasture plant, well suited to livestock production. Management strategies can maximise its productivity and persistence and maintain plant density without the need to resow regularly.

Tactics

Late summer/autumn

Graze pastures to around 1,000kg DM/ha (kilograms of green dry matter per hectare) to remove dry herbage before the autumn break. This optimises germination of sub-clover and ryegrass seed, and ensures light penetration and low competition (for moisture and nutrients) for rapid growth of mature ryegrass plants.

Autumn break

Rotationally graze pastures during autumn using a quick rotation (25 days around all paddocks) and when pasture growth slows down, also slow down the rotation. A slow rotation (45 days around all paddocks) is also best if there is a false break.

Seedling recruitment is improved by deferring grazing for two weeks after seedlings emerge. A rest of up to four weeks may be needed if opening rains are drawn out.

To minimise ryegrass staggers, avoid close grazing of the bases of ryegrass plants where toxins are concentrated.

Winter

Graze to maintain 1,200–2,000kg green DM/ha (around 3–9cm), to optimise winter growth rates. Prevent weed competition by using short-term (3–7 days) high density grazing to 600–800kg DM/ha.

Nitrogen fertiliser (at up to 25kg N/ha) can be applied to achieve faster growth during cold periods, provided moisture is not limiting.

In paddocks where seedling recruitment is being encouraged, keep pastures short (down to 1,000kg DM/ha) to maximise light to new seedlings and control

Key benefit

- Seasonal grazing management decisions can maximise productivity and assist pasture production.

weeds. A rotation with rests of 40–50 days will help achieve this without overgrazing seedlings.

Spring

Rotationally graze in early spring to keep pastures between 1,000–2,000kg green DM/ha (around 2–12cm) until late spring. This will encourage growth of sub-clover, reduce weed competition and keep perennial ryegrass leafy late into the season.

By the end of spring, aim to have 3,000–3,500kg green DM/ha (around 15cm) for use as dry feed over summer. This also allows seed head development that encourages ryegrass survival.

Cutting pastures for fodder can help control weeds when sufficient grazing pressure is not available. Ryegrass regrowth in paddocks cut for fodder should not be grazed until it begins to dry out (eg 6–8 weeks after harvest) to reduce plant deaths.

For seedling recruitment, keep pastures below 1,500kg DM/ha in early spring to encourage tillering. Close up a paddock in mid to late November to allow ryegrass to flower. The paddock will need to be spelled until mid January when the seeds will be shed.

Summer

Maintain total herbage of at least 1000kg DM/ha. Residual herbage over summer helps protect green tillers. The growing point is located at or just below ground level and can be damaged by overgrazing.

A long rotation (6–8 weeks rest) over summer and early autumn ensures that the ryegrass is not frequently grazed. This is particularly important when plants are drought stressed.

Minimise ryegrass staggers by avoiding excessive consumption of ryegrass seed heads where toxins are concentrated.

Paddocks being saved for natural ryegrass seeding should not be grazed until perennial ryegrass sheds its seed (around mid January). A few hot, windy days at this time will cause seeds to fall.

Management tips

Strategic grazing may enable 30% more livestock to be carried on perennial ryegrass/sub-clover pastures than when continuously grazed. Such strategic systems can incorporate deferred grazing, rotational grazing and periods of set stocking.

The ideal grazing rotation length depends on the time it takes for three leaves to regrow after grazing (generally 1,200–2,000kg DM/ha). Temperature primarily determines this interval, and hence grazing rotation length. The grazing duration of a paddock should be relatively short (2–3 days in fast growth seasons) to prevent stock grazing newly re-growing shoots before they are fully established. This sort of damage can delay future plant growth.

To avoid a decline in herbage quality perennial ryegrass plants should be grazed before the plant's third leaf dies (generally around 2,000kg DM/ha). This assists pasture survival. Colse up pastures for two months in early summer to help achieve seedling recruitment by ryegrass plants.

Ryegrass paddocks require moderate levels of fertility to perform and persist. Undertake soil testing to determine soil P levels and apply fertiliser accordingly.

Glossary

Rotational length: The time between graze periods of a paddock. A fast rotation has short rotation length.

kg DM/ha: Kilograms of total dry plant matter per hectare.

kg green DM/ha: The weight of just the green component (ie growing)

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Further information

For further assistance, contact your local pasture or livestock advisor or go to www.mla.com.au/publications to search for other MLA publications on grazing and pasture management.

Plant facts

Most ryegrass tillering is initiated during autumn–winter, so the whole year's growth depends on management through autumn–winter.

Regeneration from seed is often very successful in depleted perennial ryegrass pastures. Ryegrass seeds remain dormant over summer, despite sporadic rainfall. Sub-clover germination is suppressed where excessive groundcover in summer–autumn prevents softening of sub-clover seeds.

Soil fertility strongly influences ryegrass productivity, especially nitrogen (N) and phosphorus (P) levels. High P levels increase ryegrass persistence. However, the higher quality of the dry herbage in well-fertilised pastures can result in overgrazing if they are continuously stocked over summer and autumn.

Cutting hay removes perennial ryegrass seed heads and can stimulate new tiller growth during relatively hot, dry conditions. These new tillers are vulnerable to stress and risk dying without any generation of new buds for future tiller growth in autumn. Grazing moisture-stressed hay paddock regrowth probably exacerbates this problem.

Ryegrass plants survive very dry summers by going dormant until conditions are cooler and moister. However, even while ryegrass is dormant it is susceptible to overgrazing of the growing point (to ground level or below).

The sporadic summer rainfall (false breaks) common to south-eastern Australia poses a risk to ryegrass survival. Most ryegrass cultivars break dormancy following summer rainfall, wasting tiller buds that generally perish if hot, dry conditions return. Grazing adds stress at this time and can increase plant deaths.

Endophyte/ryegrass staggers

Endophyte is a microscopic fungus that lives in perennial ryegrass cells. It benefits the plant by giving increased seedling vigour, insect resistance and better persistence. However, some alkaloids (toxic chemicals) produced by endophyte cause ryegrass staggers in livestock. The alkaloids are concentrated in seed heads and ryegrass stems.



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