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Managing scotch, nodding and spear thistles to boost pasture

Scotch, nodding and spear thistles are large thistles that grow best on high fertility soils disturbed by cropping, grazing or pasture management activities. They are strong competitors and dense infestations reduce carrying capacity as livestock avoid them due to their dense sharp spines that damage hides, mouths and eyes and cause vegetable fault in wool.

Key benefits

- Seasonally specific management tactics can reduce the impact of thistles on grazing land.
- Thistle management can be achieved with a combination of herbicides, pasture improvement, grazing management, physical control methods and biological control.

Tactics for target paddocks

Autumn

During autumn maintain weedy pastures above 1,500kg green DM/ha and more than 80% ground cover to reduce thistle germination. Apply fertiliser and lime, according to soil tests, to increase the vigour of desirable pasture species.

Apply broadleaf herbicides in the first year to reduce the initial population. Spray thistles at the seedling to small rosette growth stages 6–8 weeks after climatic conditions trigger the mass germination of seedlings. After spraying defer grazing to increase pasture competition, then rotationally graze to maintain pasture at over 1,000kg green DM/ha. Do not spray biological control nursery sites or areas where biological control is a long-term management option.

Winter

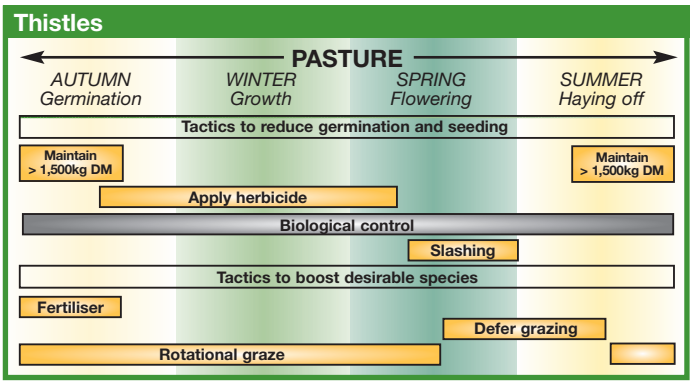
Rotationally graze and maintain pastures above 1,000kg green DM/ha to retain desirable pasture species. Spray any late-germinating thistles in winter and early spring.

Spring

Make silage or slash affected paddocks to reduce thistle seed heads and allow stock access to underlying pasture. Defer grazing for 10–12 weeks starting mid to late spring to encourage the growth and seed-set of desirable perennial grasses.

Summer

Rotationally graze pastures to achieve at least 1,500kg DM/ha by autumn to reduce seed germination and establishment.



Management tips

Controlling existing infestations

The key to managing thistles is to reduce seed-set and germination, while encouraging a strong competitive pasture. Reduce seeding using herbicides, grazing management and physical control methods such as making silage or slashing. Reduce germination by maintaining a vigorous and competitive pasture (greater than 1,500kg DM/ha, and more than 80% groundcover) especially in autumn.

As a starting point, pastures need to contain a minimum percentage of desirable species (such as more than 20% perennial grasses and 20% legume) to compete with and eventually replace the weed. Pasture improvement tactics such as light rotational grazing,

fertiliser and deferred grazing are required to achieve weed replacement.

Severely degraded pastures with few desirable species (ie below 20%) may need to be completely re-sown.

Avoid overgrazing that encourages the germination and aids the establishment of thistles in any bare areas, particularly in autumn.

Preventing new infestations

To prevent new infestations treat small infestations early, sow only certified pasture and crop seed, avoid moving stock from infested to clean country and purchase uncontaminated fodder. If feeding contaminated fodder, keep to a confined area where weeds can be localised and more easily treated. Quarantine newly purchased livestock in a sacrifice paddock to reduce weed spread.

Biological control

Biological control is a valuable farm management tool to reduce the vigour and competitiveness of thistles. It is also a valuable tool for long-term thistle suppression, particularly on non-arable and difficult-to-manage areas.

Grazing impact on biological control agents will be minimal because these thistles are generally avoided, except by goats.

Herbicide use is usually incompatible with the use of biological control agents as the host plant is killed by the herbicide. Biological control agents are most suited to non-arable and difficult-to-manage areas where other control options are hard to implement.

Nursery sites for rearing, harvesting and maintenance of biological control agents are small areas kept free from grazing, cultivation and herbicides for 3–4 years to allow populations to increase. Insects can be harvested from these sites for distribution around/on the property.

Nursery sites can suffer from declining thistle populations, following zero grazing for a year or more as perennial pasture species begin to dominate. To re-instate, apply short-term, high density grazing in late summer/early autumn, when most control agents are inactive. This opens up the pasture for further thistle germination and insect survival. Biological control often takes a long time to take effect and is not appropriate for high priority control areas. Other management options must be continued.

Plant facts

Nodding thistle (*Carduus nutans*), scotch thistle (*Onopordum acanthium*), spear (black) thistle (*Cirsium vulgare*) and illyrian thistle (*Onopordum illyricum*) seeds germinate in autumn or late winter/spring, but can occur at any time. Autumn germinating plants are true annuals, flowering in spring before dying-off in summer. Later germinating plants can be annuals, or biennials that remain as rosettes over summer, flowering the following spring/summer.

Dead thistles can remain standing for many months, preventing stock from grazing underlying pasture. Thistles spread by seed, with most seed falling within a metre of the parent plant. The seed adheres to clothing, wool and fur and is transported by mud, machinery, and contaminated grain and fodder. Seeds can remain viable after passing through the gut and can stay dormant in soil for 10 years.

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Glossary

Target paddock: A paddock selected for dedicated weed control tactics over a 1–2 year period.

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

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

Defer grazing: No stock grazing in paddock.

Rotational grazing: Rotating stock across several paddocks with movement based on fixed time periods or regrowth of the pasture.

Further information

Go to www.mla.com.au/publications to search for other MLA publications on grazing and pasture management.

A range of selective herbicides is registered for thistles. Consult your local rural supplier, agronomist or weeds officer. Contact your local control authority for details on noxious status and your legal obligations.

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