

How do I increase my pasture persistence?

- The issue:** Poor seedling recruitment, weed incursions and soil limitations result in perennial ryegrass, sub-clover and phalaris pastures failing to persist in south-eastern Australia.
- The impact:** Livestock production potential is not achieved and producers face costs for pasture renovation.
- The opportunity:** Early intervention and lifetime management can lift the length of a pasture's peak production period and increase the return on investment.

How do I know if my pastures are failing to persist?

Counting the number of perennial grasses per square metre is a good way to assess:

- how well the plants have established
- how well the sown plants are persisting.

To measure plants/m², make up a quadrat (25 x 25cm metal or plastic square). Throw the quadrat 20 times across the paddock and record the number of perennial plants inside the quadrat.

Work out the average number of plants recorded inside the quadrat. Multiply results by 16 to convert to plants/m².

Pastures will recover with careful grazing management if you have 5–8 perennial plants/m².



Quadrat in action

Get a handle on ground cover

Ground cover includes existing pasture, weeds and other herbage, as well as litter. To estimate ground cover, stand in a representative part of the pasture with your feet 30cm (one foot) apart. Picture a 30cm square in front of you and, looking vertically into the pasture, estimate the percentage area covered by plant matter and litter.

Walk over the paddock and repeat the assessment at about 20 random sites. Record and average the results to accurately determine the percentage of ground cover. One way to conduct this is to take photographs at each site and then compare them.

What does it mean?

Ground cover at 20% means:

- high water and soil loss
- poor plant production and sustainability
- low water infiltration
- plants exposed to climate extremes
- low microbial activity
- poor organic content
- poor soil structure
- low plant and green leaf vigour.

Ground cover at 90% means:

- minimal water run-off and soil loss
- good topsoil and nutrient retention
- minimal weed colonisation risk.

Profitable persistence

What is profitable pasture persistence in a high-performing farming system? It is when pastures perform at peak production for the maximum length of time while meeting the needs of the production system within local conditions.

Well-managed pasture establishment and early intervention will reap more productivity long term and could potentially extend production by at least five years. Interventions such as weed control, encouraging reseeding and nutrient application need to be timely and well managed to increase the chances of good persistence.

An MLA-funded Perennial Pasture Systems (PPS) Producer Research Site project (B.FDP.0051) found maintaining a phalaris pasture may be different to having it produce at its potential, and achieving its full potential required a higher level of management. Persistence doesn't equal production.

Why do pastures fail to persist?

Phalaris and ryegrass-dominant pastures are impacted by:

- multiple stresses
- soil nutrient levels
- plants not allowed to regenerate or set seed
- poor grazing regimes.

The PPS project found:

- optimal paddock size to improve phalaris persistence is less than 20ha
- producers underestimated the quality of old phalaris stands and the potential to rejuvenate them into productive pastures
- preconceived ideas that phosphorus levels and annual rainfall had significant impact on persistence were not true
- persistence and productivity are not always mutual
- supplying nitrogen to phalaris via good sub-clover production in mixed pastures positively impacts production
- as little as five phalaris plants/m² can constitute a productive phalaris pasture.

Pasture persistence strategies

- Fully assess paddocks – it may be more cost-effective to renovate seriously run-down pastures.
- Establish whether your pastures are merely persisting or are reaching maximum productivity.

- Minimise combined stresses on pastures. Ryegrass has a shallow root system which struggles with long hot summers and insect attack.
- Apply early intervention weed control in ryegrass-based pastures. Weeds weaken pastures by taking nitrogen and moisture.
- Increase the percentage of perennials in the mix.
- Allow ryegrass to reseed naturally.
- Identify nutritional deficiencies in the soil.
- Graze strategically to encourage reseeding and good utilisation.
- Plan the management of weeds and understand the input costs and time involved in spraying versus pasture gains.
- Understand the impact of some herbicides on growth rates of species.
- Ensure good supply of nitrogen via other nitrogen-fixing species in the mix (e.g. sub-clover).
- Manage soil pH for phalaris persistence. As soil pH increased, so did persistence.
- Address low soil potassium in ryegrass pastures. Low potassium puts the plants at risk during drought, limits seed production and reduces growth.

More information

Download the MLA Pasture Health Kit mla.com.au/pasture-health-kit

MLA Tips & Tools:

Tactical grazing to maximise pasture and animal productivity mla.com.au/tactical-grazing

Looking after drought pastures mla.com.au/globalassets/mla-corporate/12943-looking-after-drought-pastures.pdf

More Beef from Pastures:

Pasture utilisation: Tool 3.01 *Pasture rulers, sticks and meters* mbfp.mla.com.au/pasture-utilisation/tool-31-pasture-rulers-sticks-and-meters/

Pasture growth: Tool 2.11 *Grazing management tactics* mbfp.mla.com.au/pasture-growth/tool-211-grazing-management-tactics/



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