

What will regrow?

How to water-up and assess pasture recovery post drought/fire



The issue

Drought and fire can kill or severely impact plant survival and pasture density. Weeds favored by bare ground may take advantage and add further stress to surviving pastures.

The impact

Reduced plant survival and density impacts feed production and soil health. Following fires, “usual” annual weeds like capeweed and annual grasses can be reduced but bare ground can encourage different hard-seeded weeds to emerge that can be more difficult to control.

The opportunity

Watering up areas helps identify what pasture species recover and at what density, so that planning with confidence can start to occur. Knowing which pastures may need resowing or just knowing what to expect puts you on the front foot to start working out what strategies can be put into place to help you quickly return pasture production and ground cover.

Watering up an area to see what comes back is easy to do, but there are some tricks to optimise the success and information you can get from it.



Follow the steps below to make the most of watering up areas.

Where to water?

Select a representative area of pasture you are most concerned about that you can keep stock off. Producers commonly water up perennial ryegrass pastures to check survival post drought or even stony barrier country post fire.

Livestock need to be kept out of the watered area, so choosing a site near a fenceline—where temporary fencing can be easily set up—is helpful. Other options include watering inside feed rings or using mesh panels or portable yards to exclude stock.

Using troughs to water an area isn't ideal, as the surrounding pasture is often unrepresentative—typically more fertile due to urine and dung, or bare from compaction and trampling.



When do I start watering?

Start watering after the hottest part of summer, so mid/late February to early March.

This is when most plants will break dormancy and gives the plants time to grow big enough before the autumn break, making identification easier. Evaporation will also be reduced, allowing soils to wet up more readily.

Plant species differ in their responsiveness to water/rainfall during summer because of differences in summer dormancy traits. Some plant cultivars have been selected for drought survival with strong dormancy and will not readily shoot with watering. Having a knowledge of common plant species' dormancy traits helps inform the timing of watering.

Native Grasses

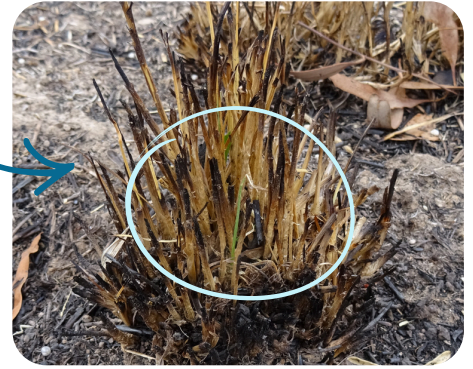
Native grasses such as kangaroo grass, wallaby grass, spear grass, weeping grass and windmill grass will respond to watering in summer/early autumn.

Perennial ryegrass

Perennial ryegrass will break dormancy with any rainfall events or watering and green shoots from plant crowns can be identified.

Phalaris

Phalaris cultivars have some dormancy and will break dormancy with both good moisture levels and milder temperatures. Cultivars bred for strong dormancy, will be less rainfall responsive include Atlas PG & Horizon.



Sub-clover

Sub-clover requires hard, thick seed coats to crack before taking in water to germinate. Seed coats crack with shrinking and swelling that occurs due to fluctuations between night and day temperatures.

Other plants that are less rainfall responsive due to strong dormancy traits include:

- **Winter active tall fescue cultivars** - Charlem, Flecha, Fraydo, Prosper, Medallion, Temora.
- **Cocksfoot cultivars** - Kasbah, Sendace, Summadorm, Uplands.

How much water do I apply?

The key to getting plants to grow is applying enough water. For example, if watering a 1 m² square grid, then at least 40 litres is needed to be applied to be equivalent to 40 mm of rainfall, which could equate to an autumn break. If there is high evaporation, then even more water may needed to be applied. Sandy soils wet up more easily, but soils with high clay content require higher amounts of water for plants to start growing.

Because high amounts of water are needed, producers find it easiest to take a water cart into a paddock and let the water drain out over a small representative area.

Several waterings might be needed. Choose areas where water won't necessarily run off easily or drain into deep soil cracks.

Monitoring & pasture assessment methods

Seedling and green shoot emergence will start after 2 weeks.

Pasture Paramedic kits and the summer assessment method of determining live perennial grasses can be used. This involves counting the number of live perennial grass plants within a 0.1 m² area. Inspect tufts of sown perennial grasses for green shoot appearance.



Pasture Paramedic

Use the grass, clover and weed identification in the Pasture Paramedic guidebook for assistance with identification of established plants. Alternatively, use the QR code above to access the online booklet.

Southern High Rainfall Pasture Paramedic kits can be obtained from Southern Farming Systems.









Native grasses can be identified using the EverGraze poster - use the QR code below to access the online poster.





Seedlings are difficult to identify. Remains of seeds attached to annual grasses can help confirm identification. Broadleaf plants will have two cotyledons, first leaves and then mature leaves. Leaf shape, hairiness and leaf texture can help with identification.



EverGraze Native Grasses ID

Plant Identification- common annual species

| Species | Seedlings | Young plants |
|---|---|--|
| <p>Sub-clover (<i>Trifolium subterraneum</i>)</p> | <p>Cotyledons resemble bunny ears, hairless.</p>  | <p>Cotyledons, spade leaf and trifoliate mature leaves.</p>  |
| <p>Capeweed (<i>Arctothea calendula</i>)</p> | <p>Cotyledons club shaped, first leaves spear shaped and scalloped, white hairs.</p>  | <p>Mature leaves deeply lobed, hairy upper leaf surface and lower leaf surface whitish in colour.</p>  |
| <p>Spear Thistle (<i>Cirsium vulgare</i>)</p> | <p>Club shaped cotyledons and first leaves with rounded ends. Margins spiny, long hairs.</p>  <p>Photo: Sheldon Navie</p> | <p>Young leaves spiny.</p>  <p>Photo: Sheldon Navie</p> |
| <p>Annual ryegrass (<i>Lolium rigidum</i>)</p> | <p>Shiny leaves, base of stems reddish purple.</p>  |  |

| | | |
|---|---|---|
| <p>Barley grass (<i>Hordeum leporinum</i>)</p> | <p>Remains of seed still present.</p>  | <p>Leaf twists as it grows.</p>  |
| <p>Winter grass (<i>Poa annua</i>)</p> | <p>Light green leaves, hairless.</p>  | <p>Folded leaves shaped like a canoe.</p>  |

Targets and pasture density

The number of established improved species required to avoid reseeding are a minimum of:

- 2 phalaris, tall fescue or cocksfoot, or 3 perennial ryegrass within 0.1 m² quadrat (square foot) or minimum 5 phalaris / m² or 8-10 perennial ryegrass plants / m².
- 1 clover seedling / 0.1 m² or 10 seedlings / m². Ideally, 200 clover seedlings / m².

New seedlings of perennial ryegrass and cocksfoot can easily emerge and establish compared to phalaris and tall fescue seedlings which struggle to survive competition.

Ideally, you want at least 5-10 % of native grasses remaining as part of the pasture composition which provides a base to improve upon over time.

Typically, pasture density is reduced after drought and fire and strategies aimed at increasing pasture density are required.

Annual grass weeds like annual ryegrass, barley grass, soft brome grass and silver grass can make up at least 20% composition of a pasture. While these are generally considered weeds, they provide fast-growing, high-quality feed over autumn, winter and early spring. When fire consumes their surface seed, the pasture density and feed production can be severely impacted because these plants have little dormant seed that regenerates.

Greater than 50 seedlings of annual grasses / m², so 5 per 0.1 m², typically indicates good recovery of annual grasses.

Authors- Lisa Miller, Isabelle Fox and Jessie Wettenhall
Southern Farming Systems [www.sfs.org.au]

For more information



The Diverse Farms, Resilient Catchments growing diversity and resilience on-farms, in communities and across landscapes project is supported by the Australian Government through funding from the Natural Heritage Trust under the Climate-Smart Agriculture Program.