

Post-fire small-scale erosion control

Fact Sheet 3 – Groundcover management

CSIRO has found that cool-moderate burns reach 50-150°C and hot burns reach 100-250°C. The soil below 15mm is usually not changed by more than 10°C and returns to its original temperature within five minutes.

This CSIRO research suggests that plants which bury their seed or have growing points below the surface should be best able to survive the impacts of a fire. Fires in the 2019-2020 summer tended to be cooler in open pastures and grasslands as prevalent drought conditions had led to low fuel loads.

Native grasses and many introduced species have generally recovered quickly after fire for this reason if they have been given time, some rainfall and a rest from grazing.

Figure 1: Cool-moderate burn: most dead plant material burnt, some seed, perennial grasses and clovers survive. Usually a small residue of unburnt pasture remains.



Figure 2: Hot burn: all dead plant material, many seeds, young and weaker perennial grasses destroyed. Topsoil usually appears charred and bare.



Figure 3: Very hot burn: soil is virtually sterilised. All plant material and seed are destroyed as the fire burnt into the top organic matter layer of the soil. Usually under tree cover.



The speed of pasture recovery will also depend on the rainfall patterns in the months following fire. Exposed soil may make the land more vulnerable to wind erosion and invasion of weeds.

Figure 4: A site near Braidwood in December 2019 after the North Black Range fire. This was a cool burn in a native/introduced grass mix. Pasture levels were low at the time due to prevailing drought conditions.



Figure 5: Pasture regenerating in February 2020, triggered by over 100mm of rainfall. The fireground margin is now hard to detect as the pasture is recovering quickly.



To better anticipate pasture recovery after fire, consider watering small test areas several times to see what regrows. A poor response may indicate that new pasture may need to be sown but it is best to wait for adequate rainfall before making any decisions.

If the pasture was highly weedy and/or degraded prior to the fire, consider sowing annual forages such as oats, wheat and grazing brassicas to help provide groundcover. This will also assist with weed control prior to sowing a new pasture in subsequent years.

The *'Pasture recovery after bushfires'* link provides more details about the likely response of different pasture types and outlines key principles to consider.

Talk to your local LLS agricultural advisor for pasture establishment advice.

Grazing practices

It can take some time for pastures to return to pre-fire (and pre-drought) condition. Reducing stocking rates or using stock containment areas can enable pastures to rest and start to recover through a growing and seed-setting season.

This will allow the seed to set to replenish the seed bank and allow the plant to re-establish its root reserves, both of which will result in faster pasture recovery.

Pasture recovery

The post fire period may be a good opportunity to control persistent weeds and rejuvenate pastures through a combination of strategic spraying, application of fertiliser or ameliorants, and re-sowing in perennial improved pastures.

Agronomic advice should be sought to help make the most appropriate decisions for your landscape context and type of farming enterprise.

If your pastures were largely native grasses prior to burning, they will recover given time- often much more efficiently than improved exotic pastures. If you want to change your native pasture system to an exotic improved pasture contact LLS for further advice as it may involve getting permission for 'native vegetation clearing'.

Contact LLS for more information and advice on your specific circumstances (*see 'Managing native vegetation' link*).

More information

[Managing soil after fire](#)

[Managing native vegetation after a bushfire](#)

[Pasture recovery after bushfires](#)

Contact LLS if you need assistance to access these links.