

DPI&F note

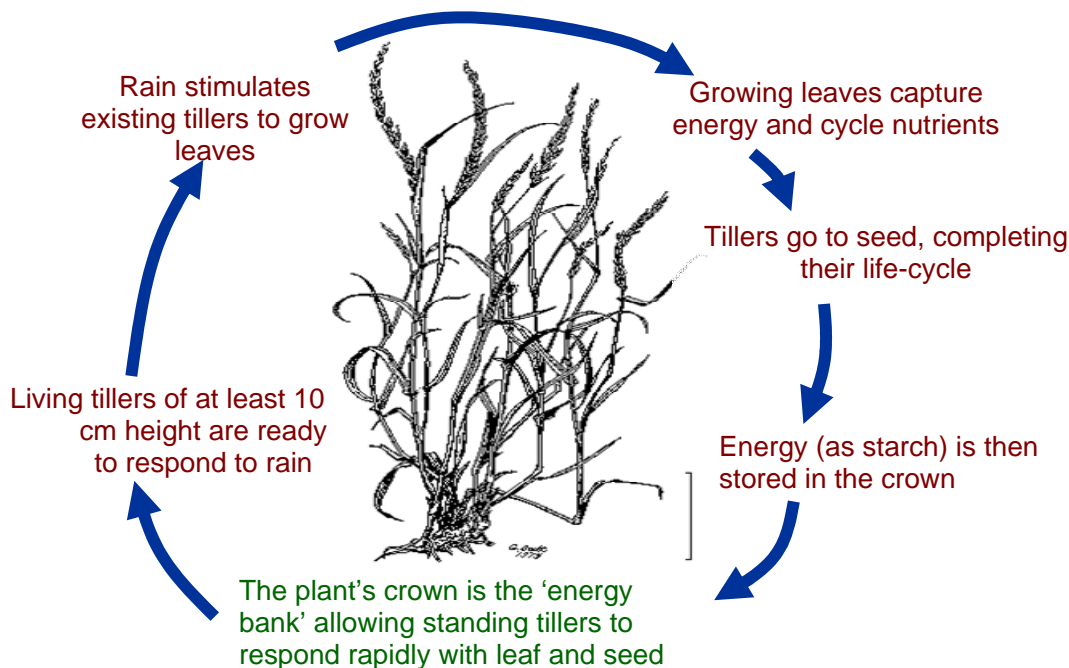
Mitchell grass – survival during drought

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Appropriate management of Mitchell grass during prolonged dry conditions is critical for its long-term survival. In cases where short green pick provides much welcome relief to producers struggling to keep feed up to their stock, there may be a hidden danger for Mitchell grass survival.

Biology

Mitchell grass plants are most susceptible to over-grazing when re-shooting from the base. Whilst it may be the best sheep feed available, it is also the time when Mitchell grass is attempting to renew valuable energy and nutrient reserves ready for the next dry spell. Damage from over-grazing to plants at this stage will adversely affect the longer term productivity and survival of Mitchell grass. It is important that the short term benefits are weighed up against the long term costs – grazing out the entire green pick will mean a longer recovery time for the Mitchell grass when the drought does break.



Variation in response to rain

A large variation in Mitchell grass response to rain is often noted during drought condition. A lack of response following storm rain can be due to reduced height of living tillers (stubble), tiller death or plant death. Living tillers are generally hayed off, or retain some green in the stem, prior to rain. Dead tillers are grey or blackened and show no green in the stem.

Where there has been 25 to 50 mm of rain, but there was no response despite a good retention of stubble (at least 10 cm height), then the soil was probably so dry that even a couple of inches has failed to 'wet it up'

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sufficiently. Under normal conditions, a response would be expected from along the stems and some pick growing from the base would also be evident.

However, if retention of stubble was less than 5 cm height, then at least 75 to 100 mm of rain is needed to stimulate significant growth from the base of the plant. There may be a bit of green leaf at the base, but more rain will be needed to stimulate growth of new stems and produce significant bulk.

If there is no response, even after 75 to 100 mm rain, then the soil has probably become so dry that it needs good soaking rain to wet it up. It is possible that storm rain has fallen too quickly and a lot of water has run off rather than soaked in. This will especially be the case if the stubble was generally short at the time of the rain falling.

Really heavy, clay soils – and especially the ashy soils – need good soaking rainfall of 75-100 mm to produce much response. These soils dry out so strongly that they need much more rain to ‘wet them up’ than lighter soils do.

The reason for wide-scale death of Mitchell grass plants during the drought of the early 2000s is still unclear. It is possible that isolated areas of Mitchell grass have died out from moisture stress, old age or fungal attacks to the crown of the plant. If you can pull out a Mitchell grass stem and the enlarged rhizome at the base is easily crushed, then that part of the plant is dead – quite possibly from fungal attack. Mitchell grass plants can live for 20 to 30 years, but it is not known just how long they can survive severe drought conditions.

Grazing management

In extensive areas where storm rains have fallen only in parts of paddocks, good practical solutions are difficult. However, it is imperative to allow only light stock numbers on the green pick. It is important to keep in mind that stock numbers should be calculated relevant to the area of green feed, since this is the area that will be selectively grazed whilst the rest of the paddock remains relatively ungrazed. A rule of thumb would be "if the grass is growing faster than they can eat it, then numbers are about right", but "if they are eating it faster than the grass can grow, then numbers are too high" and there is likely to be longer-term damage.

It also worth noting that overgrazing by sheep, as opposed to cattle, is more likely to do damage to the short green pick of Mitchell grass. This is mainly because cattle are not as efficient at accessing the short leaf that the Mitchell grass plant is using to renew valuable carbohydrate and nutrient reserves in the roots.

Kangaroo damage to Mitchell grass pastures is very likely. Kangaroos are very mobile and able to follow the storms and graze short green feed almost exclusively. Large numbers of kangaroos are difficult to manage practically. It is recommended that kangaroo management advice be sought from the Environmental Protection Agency.

Carefully considered grazing strategies in times of extended drought will do much towards ensuring the long-term health of your Mitchell grass pastures. Light grazing pressure should be maintained until effective follow-up rain has fallen.

Further information

Copies of the publication *Managing Mitchell Grass - A Grazier's Guide*, by Ian Partridge, DPI&F 1996, are available from your nearest DPI&F office or DPI&F Shop Online on www.dpi.qld.gov.au/shop/ Other DPI&F Notes in this series include *Mitchell grass- Australia's own grass*, *Mitchell grass- Identifying the four species*, *Mitchell grass - safe burning*, *Mitchell grass - long term wool production and grazing pressure*, *Mitchell grass - post drought survival* and *Mitchell grass- enhancing drought recovery*.

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