DPI&F note

Mitchell grass – enhancing post-drought recovery

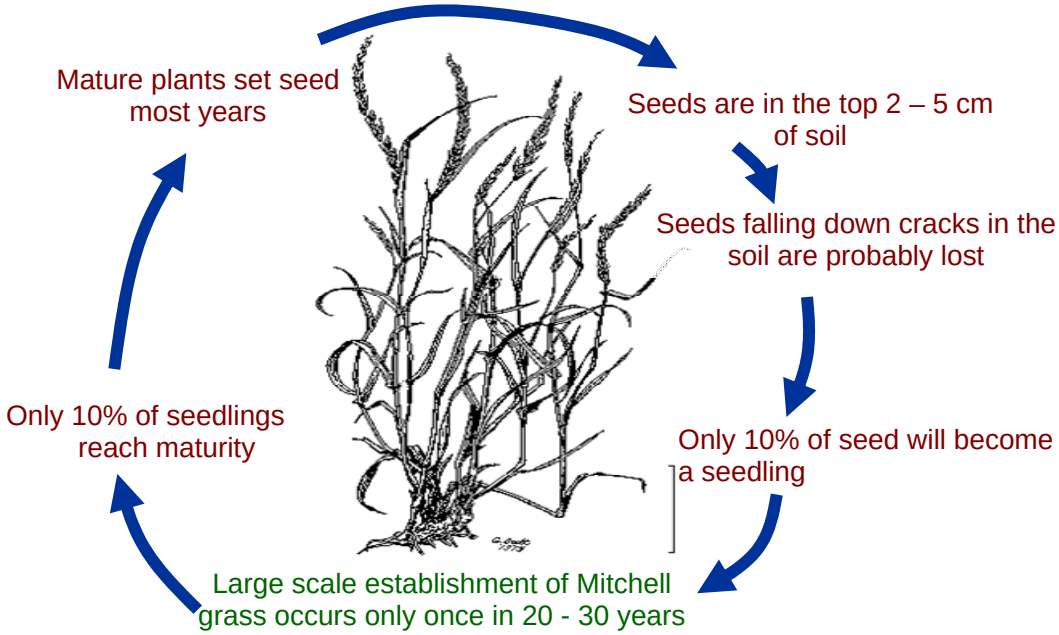
David Phelps and Lyndal Rolfe, Animal Science, DPI&F Longreach

Mitchell grass provides the backbone of sheep and cattle production in large areas of western Queensland. Where pastures are depleted following drought, Mitchell grass density will be reduced, as will pasture productivity and livestock carrying capacity.

Drought-affected pastures

Depleted pastures may have a large number of Mitchell grass plants which have responded poorly, isolated plants or patches which have responded well, or large areas of dead plants. Recovering from significant Mitchell grass dieback will generally take a number of wet seasons. To restore healthy pastures as quickly as possible, grazing management will need to concentrate on protecting existing plants and encouraging new plants. Strategies such as wet season spelling, delayed re-stocking and reduced stock numbers will help to restore pasture health and maximise productivity as quickly as possible.

Individual Mitchell grass plants and the supply of seed in the soil are the keys to recovery. Mitchell grass seed remains viable in the soil for up to five years, depending on rainfall patterns. The right conditions for significant germination of Mitchell grass occur every 20 - 30 years, although some seedlings are evident in most years. Without some healthy Mitchell grass plants in the pasture, seed supplies would eventually be depleted and recovery would not be possible.



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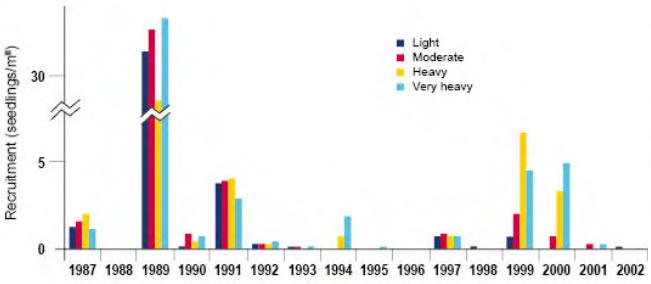
Grazing management to enhance recovery from drought

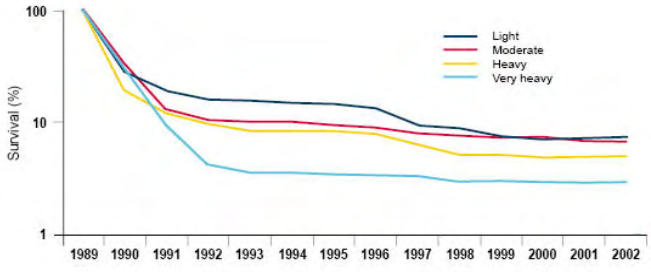
A high density of plants which have few living stems can lead to a rapid recovery from drought under light grazing pressure and average summer rains. Protecting the individual stems (tillers) or leaves which have grown will ensure energy reserves are being restored in plants, and build their capacity to respond to rain. The best way to protect large numbers of plants with only small quantities of stems or leaves is by delaying re-stocking or wet season spelling. The Mitchell grass should be allowed to set seed before being grazed, as this will maximise the replenishment of energy reserves. An alternative to spelling is to lightly stock based on a feed budget. Over one to two summers, these plants will become healthier, replenish the seed supply in the soil and restore pasture productivity.

Isolated plants or patches that have responded well can provide for hastening recovery from drought. Protecting these plants or patches during the growing season will allow them to quickly re-build seed supplies and help recovery in adjacent areas. Under average rainfall conditions healthy pastures should be restored within two to three summers. The best way to protect isolated plants or patches is to set your stock numbers to the feed available and continually re-asses the status of living Mitchell grass. The Mitchell grass in the pasture should be allowed to seed before being grazed. If it is not, stock numbers should be reduced for the four to six weeks while Mitchell grass needs to seed. An alternative to lightly stocking is to spell during the wet season or delay re-stocking.

Where there are large numbers of dead Mitchell grass plants, the main recovery will be through seedlings. The number of seedlings germinating in any one year will depend on the amount of seed in the soil, favourable rainfall and limited competition from other plants. Seedling survival is then dependent on follow-up rains. Despite anecdotal evidence of sheep and cattle grazing removing Mitchell grass seedlings, there is little scientific evidence of this. It is more important to encourage the young plants to grow in size so that they are capable of surviving the next drought. The most effective way to achieve this is through feed budgeting to match the amount of pasture on offer. Under average rainfall conditions nurturing these new plants will restore the pasture to good health within three to five summers.



Mitchell grass seedlings establish well under the right rainfall patterns – even with high grazing pressure



Young Mitchell grass plants need light to moderate grazing pressure to reach maturity and survive drought

Further information

Copies of the following publication are available from your nearest DPI&F Client Information Centre or DPI&F Shop Online: *Managing Mitchell Grass - A Grazier's Guide*, by Ian Partridge, DPI 1996. 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* and *Mitchell grass - survival during drought*. For further information contact the DPI&F Call Centre on 13 25 23 for the cost of a local call within Queensland (open from 8.00 am to 6.00 pm Monday to Friday), email callweb@dpi.qld.gov.au or visit the DPI&F website www.dpi.qld.gov.au. This DPI&F Note is also published on the PrimeNotes CD-ROM. ■