



# Adapting to changing seasonal conditions

## Maintaining productivity during increasingly variable climatic conditions has led to some major management changes for one mixed farming and grazing operation near Toobeah, west of Goondiwindi.

In 2003 when Steve and Emily Wilkins took on the management of a 15,000 hectare mixed farming and grazing operation near Toobeah, conventional cropping and set stocking were a matter of course. However, conventional cultivation since 1965 had led to a decline in soil organic matter and an associated drop in soil fertility. The cropping side of the enterprise was changed to minimum till; to ensure a higher likelihood of successful crops, even in poorer seasons. When combined with a series of low rainfall years, the risk of crop failure increased and at the same time, pastures had become overgrazed and supplementary feeding increased business costs for that sector of the operation as well.

To best deal with the changing seasonal conditions and to achieve long-term business goals, Steve had to modify and adapt both farming and grazing practices in order to improve the condition of the land while remaining profitable. The business balances the demands of winter and summer cropping, wool and fat lamb production and a Santa Angus cross cattle breeding enterprise. In the past five years, Steve, with the help of the Queensland Murray-Darling Committee, has been able to increase groundcover and better use the land to its capacity. This has included pasture establishment and participation in QMDC's Sub-Catchment Planning process as well as LeyGrain and Grain & Graze.

### The enterprise

Of the 15,000ha aggregation managed by Steve and Emily, 4000ha are currently cropped, 11,000ha grazed and there is an average rainfall of about 525mm.

### Adding grazing flexibility

As a result of the variable climate of the region, pasture growth can be difficult to predict and filling the feed gap can be tough. In 2009 Steve decided to take on agistment cattle as an alternative to buying in steers when seasonal conditions allowed. Short term contracts allow Steve to remain flexible and to regularly reassess the available feed without the long term commitment to turning off marketable steers.

### Grazing system

In an average year the properties carry about 1000-1200 head of the enterprise's cattle along with 300-440 head of agisted cattle. As well, 4000 sheep (a combination of Merinos for wool production and Merino/Coolalee cross fat lambs) are also run across the 11,000ha of pasture. Steve has changed from set stocking to rotational grazing and adjusts the stocking rates when required. The previous management system caused poor land condition, with low groundcover and the soil in some areas setting hard. In dry years, this overgrazing added a cost burden as supplementary feeding became a necessity. The increased input costs were coupled with raised staff costs as the workload increased and with stock often sold into a declining market, the result was an economic loss for the enterprise.

Visual monitoring, planning and rotational grazing allows for the maintenance of groundcover and Steve is convinced this leads to an improvement in land condition because:

- stocking rates are set low enough to allow each pasture paddock to set seed once every two years, improving pasture composition and persistence; and
- the adoption of rotational grazing combined with strategic destocking has meant there has not been a need to drought feed stock.

This has many benefits including reduced overheads with less money spent on feed and a reduction in the demand and stress placed on staff. The improved groundcover management has already had a tangible financial benefit: improved rainfall infiltration and pasture composition is directly linked to better quality stock with a faster growth rate.



# Drought recovery planning

## Cropping system

Currently the enterprise has 4000ha of cultivation with 70% sown to winter crops and 30% to summer crop, with a long fallow component; the rotation includes wheat, chickpeas, barley and sorghum. Erosion in the cultivation country has been an issue intensified by the intensive summer storms experienced in the region. In order to minimise the risk of erosion Steve has converted the enterprise from largely conventional farming systems to include minimum tillage, stubble retention, chemical fallows, contour banks and cover crops to assist in the protection of the soil surface. These practices allow for better infiltration during heavy rainfall events which results in reduced run-off and erosion as well as increased soil water storage and better yields. To mitigate the risk of crop loss, current planting strategies include the need for a full profile of moisture before sowing. Steve recognises the importance of soil fertility and in consultation with his agronomist, employs a regular soil testing and fertiliser program. The cost of soil testing can be prohibitive and so five paddocks are selected annually for analysis with particular attention paid to phosphorus and nitrogen levels.

Steve has recognised the soils he is managing have a variation in their suitability for long term grain cropping. Poorer performing paddocks that are less suitable for cropping are being selectively sown with pasture grass and legume mixes to improve groundcover, build organic matter, reduce erosion risk and improve on-farm water use efficiency. Once paddock conditions have improved, the land will be returned to cropping.

Generally, livestock are kept out of the cropping country so as not to exacerbate compaction issues. However, occasionally animals are allowed in to graze stubble during particularly dry periods and to help clean up difficult to manage weeds.

## Integrated weed and pest management

To minimise the risk of introducing weeds into the catchment, agisted cattle are quarantined in the yards for 36 hours. As a result the cattle yards are consistently monitored for any signs of new weeds species.

The properties are involved in a pest control project with QMDC that involves coordinated baiting, trapping and shooting of feral pigs, foxes and cats. This project aims to reduce the impact of these pests on crop and pasture yields, lambing rates and biodiversity. Steve has noticed many benefits from being involved in these types of activities including increased lambing percentages, better peace of mind around lambing season and less crop damage. The regular practice of controlling Mother of Millions along the creeks has also led to improved land condition as productive grasses become more prevalent.

## Future goals

Steve hopes to continue to make paddocks smaller in size for easier management, better grass usage and improved grazing management. He also wants to install more watering points to promote even grazing pressure.

Steve will continue to incorporate a period under pasture for rundown cropping areas, returning a suitable pasture paddock back to cultivation as he converts a current cropping paddock to pasture.

Best management practices will help reduce the risk associated with crop failures due to inadequate in crop rain from variable seasonal conditions.

Combined with the selection of varieties with a longer planting window and higher yields, this will allow Steve to achieve his goal of improving the land while achieving economic returns.



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