



Optimising Pasture Management

Philip Honey, Smart Farms Co-ordinator, SCF

PROJECT AIMS:

To increase the skills & knowledge of landholders, researchers & local NRM officers in the use of effective and practical digital tools that can help monitor and improve our land resources through active management of groundcover.

PROJECT SUMMARY:

Training workshops and Best Practice Pasture Management workshop have been established across three farms in Mt Barker & Albany's high rainfall zones in southern WA. The project utilises a range of modern tools and technologies that will remove the barrier to best practice management, allowing landholders to sustainably build pasture productivity, carrying capacity & limit soil degradation. Some of the technologies implemented at these sites will include drone imagery, satellite & vehicle-based camera data and hyper-local weather stations.

The project has delivered a comprehensive extension program that provided NRM outcomes for land improvement and increased sustainability with a strong focus on technologies that help improve groundcover management.

PROJECT BACKGROUND:

Climate change presents a real threat to farming operations, particularly as seasonal conditions continue to change year on year. Rainfall variability, frosts & changes in temperature all play a significant part in the development and maintenance of groundcover. Effective ground cover management protects our soils against erosion, rain impact, and compaction and is an essential contributor to soil biology and soil chemistry, herbicide effectiveness, and overall soil condition.

With a varying climate, landholders need help to adapt their livestock and cropping management to limit their effect on the land whilst trying to optimise their

production systems to remain sustainable into the future. Successful adaptation to climate change will need strategic preparation and tactical responses from landholders to ensure that farming remains sustainable and pasture production remains synergistic with animal production.

Current ground cover measurements assess pasture availability by eye based on the farmer's experience. Many landholders find it difficult to accurately determine feed availability and extrapolate measurements to define a whole paddock's livestock carrying capacity. The adoption of digital technologies will provide landholders with the ability to monitor their land more effectively and the opportunity to monitor changes and trends over time through spatial analysis. Low-cost technologies are easily adaptable into farming enterprises where landholders can utilise monitoring, analysis & learning within their decision-making process to understand the impacts on groundcover production better.

A better understanding of ground cover variation across paddocks means that landholders can implement better animal grazing & regenerative techniques to ensure that biodiversity continues to thrive. Better ground cover management will improve the sustainability of animal production both on & off-farm.

TOOLS & TECHNOLOGIES AVAILABLE:

There is a wide range of tools and technologies available to help increase farmers awareness of pasture levels across a paddock, often with many available to use in conjunction with farm weather-stations & soil moisture probes for improved forward planning. These include options & examples such as:

- Ground based sensor measurements – these take measurements via direct contact (such as pasture measurement discs),



- Remotely sensed measurements – measure pasture density, quality and/or health from a distance (non-contact), such as vehicle-based sensor, drone, plane or satellite.
- Simulation based measurements – these utilise algorithms and calculations to predict and simulate a result based on a range of user inputted information (including soil type, rainfall, climate information).

Examples of digital tools currently available for pasture assessment/monitoring include:

PASTURES FROM SPACE

Pastures From Space allows farmers to track Pasture Growth Rates (PGR) and Food On Offer (FOO) weekly over their property using satellite technology. Users can see FOO & PGR rates in 6.25ha pixels, whilst the graph component allows farmers to turn on/off individual years, to get a better understanding of seasonal changes.

AUSTRALIAN FEEDBASE MONITOR (IN CONJUNCTION WITH CIBOLABS)

The Australian Feedbase Monitor tool is a relatively new grazing management tool that gives farmers insights into their feed capabilities. It uses higher-resolution satellite imagery and calibrated measurement points to generate percentage groundcover and total standing dry matter. This platform is free of charge for MLA members.

GREENSEEKER NDVI

Either hand-held or vehicle mounted, GreenSeeker systems measure plant NDVI levels to indicate overall plant health. Being an active sensor, these systems can be utilised day or night, but require complex calculations & measurement to return a food-on-offer value.

DRONE IMAGERY

Either through RGB and/or NDVI based imagery collected via drone and simple software such as Drone Deploy, Pix4D or Metashape, farmers have the ability to directly

map and monitor their individual paddocks and measure plant health across the landscape. These systems typically allow timebased comparisons (comparing two different timeframes) to enable identification of areas impacted or of substantial growth.

FARMINGFORECASTER – GRAZPLAN

Utilising a web-based (Farming Forecaster) or computer software-based version (GrazPlan) users can simulate & predict future pasture growth rates based off historic rainfall information, enterprise types and soil information, stocking rates and effects of supplementary feeding systems in

RESOURCES AVAILABLE:

For more information regarding the tools and technologies available, please visit the Stirlings to Coast Farmers projects webpage via www.scfarmers.org.au/pasture-optimization

PROJECT ACKNOWLEDGEMENTS:

This program is jointly funded through Australian Government's National Landcare Programme (Smart Farms Small Grants Round 4) and Stirlings to Coast Farmers.



Disclaimer: Information given in this publication are based on the best available information at the time of writing. Stirlings to Coast Farmers (SCF) makes no warranty of any kind (expressed or implied) concerning the technology, facts, pricing or equipment capabilities presented in this publication. All liability or responsibility to any person using this information/advice is expressly disclaimed by SCF, its employees and agents. Products may be identified by proprietary or trade names to help readers identify types of products but this is not, and is not intended to be, an endorsement or recommendation of any product or manufacturer referred to. Other products may perform as well or better than those specifically referred to.