Demonstrating Pasture Zoning in the Upper North

DEMO

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Key messages

- **On farm zoning puts into practice farmer and agronomists' knowledge and intuition combined with relatively cheap technologies such as free maps available from the internet (e.g. Google Earth©) and satellite imagery (e.g. NDVI).**

- **This project is helping farmers put into practice their understanding of how their property can be managed to achieve greater sustainability and production outcomes.**

Why do the trial?

A property can be divided into a number of production zones, through the use of maps (such as Google Earth©), landholder experience and the use of satellite technology. The number of production zones may vary depending on landholder experience and technologies available. Generally three or four production zones/areas are adequate. For example:

- Better cropping areas
- Unviable cropping areas
- Un-arable pastures

These can be further sub-divided where there is significant variation in production. Grazing management of these zones may be managed with a combination of permanent and/or electric fencing and portable watering points.

This demonstration follows from the innovative work that the Upper North Farming Systems Group (EPFS 2009 pp. 169-170) has undertaken implementing best practice grazing management in the low rainfall cereal zone.

The aim of this local case study is to demonstrate the benefits of maximum utilisation of the best cropping areas, improved grazing efficiency and increased production from poorer (unviable) cropping areas, whilst maintaining production and ground cover. The initial focus of the trial is in improving production and sustainability in poorer (unviable) cropping areas.

The aim of the farm demonstration is to increase production and sustainability and reduce costs by identifying production zones across a property and managing these zones differently. However, it is important these zones are large enough to be managed.

How was it done?

The demonstration farm in the Upper North used a range of tools and technologies to determine production zones including maps (Google Earth© and farm maps), Normalised Difference Vegetation Index (NDVI), agronomist advice and landholder experience. As a result the farm was divided into three major areas/zones: better cropping areas; unviable cropping areas and un-arable pastures. Better cropping and unviable cropping areas were further subdivided due to significant variation in production (Figure 1). On the demonstration farm, good cropping areas produce an average of 1.8 t/ha; average cropping zones produce an average 1.4 t/ha and unviable/ poor cropping zones average 0.8 t/ha.

1. **Better cropping zone –** These are the highly productive soils on the property and can be intensively cropped with cereals. This zone was further split into two further zones:

(1A) Good cropping: Cropping and annual pasture rotation; and

(1B) Average cropping: Cropping and two years pasture rotation.

By separating these two zones, areas may be more intensively cropped without the risk and costs of cropping poorer areas. It is envisaged with the use of precision agriculture that these zone will be further divided and managed more intensively.

2. **Unviable cropping zone/ Poor cropping –** These are areas of the farm which have consistently been cropped over the years but may no longer be producing profitable crops (average < 1.0 t/ha and in some seasons totally fail). In most years these areas will produce enough to cover the variable costs (seed, fertiliser, chemical, etc.), but not all of the overhead costs. It may be more profitable to take these areas out of cropping or only crop them on an opportunistic basis (low inputs). This zone was also split into two further zones:

(2A) Poor cropping to be improved with native pastures; and

(2B) Poor cropping to be improved with fodder shrubs.

The native pasture area will be sown with valuable native grass species such as Wallaby grass (*Austrodanthonia* species*)* for both grazing and native grass seed production. The fodder shrub area will be sown with 3 rows of fodder shrubs, with inter-rows of approximately 16 m wide to allow opportune cropping for both grazing and grain production dependent on the year. The best fodder shrub species in terms of production and palatability have been selected from the local ENRICH site. Once established these shrubs will be grazed to maximise production and utilisation. It is envisaged that the fodder shrubs will also provide valuable shelter to livestock in the future.

3. **Un-arable zone –** These areas of the farm have traditionally been set stocked over the winter/spring period. Livestock have selectively grazed the more palatable species and bared out (stock camps) other areas of the paddock. Only the less palatable native grass species, such as Spear Grass (*Austrostipa* species) have generally survived in many areas, and annual grasses and weeds have out competed many of the native species. These areas will be rotationally grazed, either through the winter or throughout the whole year depending on seasonal conditions.

Over the last 3 years, the landholder has undertaken a whole farm program of subdividing large paddocks into smaller units with portable watering points. This un-arable zone contains a mix of pasture species including good native pastures such as Wallaby grasses and Curly Windmill grass (*Enteropogon acicularis*) along with some less productive grass species.

What does this mean?

The project is still in the planning phase and results will be available over the next 18 months with a field day to be held in September/October 2011.

Through on-farm application the benefits of increased biomass production, improved biomass quality, greater grazing efficiency, maintaining and improving soil cover whilst increasing production and sustainability outcomes results will be demonstrated to landholders, extension staff and the community through field days.

Acknowledgements

Livestock

Figure 1   Assignment of zones to demonstration farm in the Upper North