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# APPLYING GRAZING MANAGEMENT PRINCIPLES IN THE NORTHERN SAVANNAS

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## ABSTRACT

The paper will broadly outline five generic principles which can be applied to most grazing enterprises in northern Australia. These principles have been applied on the author's property near Charters Towers during the past 14 years and they have been largely responsible for successfully negotiating a combination of extremely dry years in the late 80's and early 90's and poor cattle prices. The principles can be summarised as:

1. Personal goals and aspirations
2. Stock management
3. Financial management
4. Grazing management
5. Implementation and monitoring

Grazing management is the key to a successful, sustainable beef enterprise. Paddock spelling, the use of fire, conservative stocking and selective pasture development are the cornerstones for increasing animal and pasture productivity, reducing environmental and financial risk and controlling woody weeds. When combined with more intensive herd and financial management, the enterprise manager is allowed more marketing options which strengthens cash flow and investment opportunities.

## INTRODUCTION

The beef cattle industry north of the Tropic of Capricorn consists of 7.3m beef cattle depastured on approximately 180m ha of land. Approximately 150m ha or 84%, of the total area is native pasture. (Source *MLA*) The period between the 1970's and the mid 1990's brought to notice varying degrees of land degradation throughout the natural resources of northern Australia. (*Tothill and Gillies 1992*) This degradation had many forms, including pasture species decline, sheet and gully erosion, the invasion and spread of exotic weeds and an increase in native woody species, particularly eucalypts. The reasons behind these factors are many and varied, but largely were a result of overgrazing. (*Ash et al. 2001*) A combination of the use of tropically adapted cattle, the use of supplements and the uptake of new technologies within the nutrition and reproductive regimes massively reduced the mortality rate in the northern beef herd and allowed enterprise managers to remain stocked throughout times of drought. Inappropriate government policies and subsidies during these drought periods also exacerbated the degradation process.

A majority of key drivers of a pastoral enterprise are management oriented and it is important to realize that it is only these human inputs that can be manipulated. External factors like variable rainfall, declining prices, government policy and natural disasters are common to all enterprises and therefore cannot be blamed for resource degradation. Strategies must be in place to accommodate external factors for the long term sustainability of the resource and the enterprise. Most importantly, these strategies **must** be formulated around the enterprise manager's personal goals and aspirations. If the property resources do not have the capability of meeting short and long term financial and personal goals, then processes have to be put in place to either look at off farm sources of income or sell and purchase a property that does satisfy the needs of the manager.

Currently, my wife and I wish to educate our children, see that our parents are comfortable in retirement and build an investment portfolio to see us financially independent from the property at age 60 so we can then pursue an active retirement.

In the case of our property, Trafalgar, it has the capability to breed and to fatten for the Japanese and American markets and so is considered better than average for the area. Even allowing for the market declines that are inevitable in the beef industry, the property should be quite capable of meeting our goals at this stage. Things may change when our children decide on how many of them want to pursue a rural career.

## NATURAL RESOURCES

Trafalgar is a 32,000 ha pastoral property located 60 km to the south-west of Charters Towers. The soils are mainly phosphate deficient yellow earths though there are more fertile and productive alluvial soils flanking three large creeks which run through the property. Brown cracking clays, which have a higher phosphorus content, make up about 25% of the property. These clay soils are timbered with blackwood (*Acacia argyrodendron*) and gidgee (*Acacia cambagei*) scrub while the remainder of the land is mainly open eucalypt country, predominantly timbered with box (*Eucalyptus brownii*), narrow leaf ironbark (*Eucalyptus xanthoclada*), bloodwood (*Corymbia erythrophloia*), silver leaf ironbark (*Eucalyptus melanophloia*), wattle (*Acacia* spp.) and quinine (*Petalostigma pubescens*). Areas of eucalypt, blackwood and gidgee have been cleared and sown to Buffel (*Cenchrus ciliaris*) and Urochloa (*Urochloa mosambicensis*) grasses. The area cleared totals 3500ha or 11% of the property. Approximately 8000ha or 25% has been oversown with Seca (*Stylosanthes scabra*) and Verano (*Stylosanthes hamata*) stylos.

The most common natural perennial grasses include: Desert Bluegrass (*Bothriochloa ewartiana*) Queensland Bluegrass (*Dichanthium sericeum*) Black Spear (*Heteropogon contortus*) Kangaroo Grass (*Themeda triandra*) Dark wire grass (*Aristida calycina*) and Golden Beard Grass (*Chrysopogon fallax*).

The property has been in the Landsberg family since 1913 and therefore is managed with a long term focus. Even though the personal goals of the three generations have varied, the common underlying factor has been to develop the property along sound environmental lines and to include the native animals as part of the landscape.

## STOCK MANAGEMENT

I believe the sustainable carrying capacity of Trafalgar is 3500 head of cattle. This is derived from 89 years of management experience on one property. This number can be increased during good seasons and is currently over 4000, due to 3 very good seasons since 1998. Cattle numbers reached their peak in the 1970's because of sustained good seasons combined with a beef price slump. The numbers exceeded 5000 head and this created pasture degradation problems when we tried to sustain a large herd through the 80's, which were dry years. Given the level of pasture development on the property the average beast area is 7 ha while 20% is spelled. During the dry years of the early 90's, 3000 head were maintained. With this number, branding percentages remained in excess of 70%, steers turned off to slaughter were still attaining 300kg dressed weight at 4 -6 teeth, and the pasture remained in excess of 80% perennial.

Numbers roughly consist of 1000 commercial breeders, 1500 steers, 250 stud breeders and 750 young heifers. As the property is well sub-divided, this allows relatively intensive management of the breeder herd. Breeders are classed into maidens, 1<sup>st</sup> calf and mature herds, control mated and joined with red and grey Brahman, Limousin and Brangus bulls. Unproductive breeders are culled either at pregnancy testing or at the end of the calving season or for temperament and type at any time. Weaners are taken off in May and tailed extensively as quiet temperament is the key to productivity in this day and age. Quiet cattle require less staff, therefore reducing costs, grow better and are not a threat to staff and other animal safety. Weaners are also turned into a spelled paddock after tailing so that they keep growing. Contented weaners can mean that turnoff can be up to 12 months earlier than cattle that have not been looked after as weaners.

All cattle are supplemented with phosphorus during the wet season and urea/phosphorus dry licks during the remainder of the year. This costs in the vicinity of \$8-12/head. The benefits of the supplementation program combined with the pasture management program mean that we are now turning off the 300kg dressed weight Japanese type steer at an average age of 30-36 months as opposed to 10 years ago when the average age was 48 months. Our breeders are also averaging 75% branding rates, even through the extreme dry years of the 1990's.

## FINANCIAL MANAGEMENT

Careful financial planning is important if a property is to be developed successfully and managed profitably. I am also finding in today's environment that with GST and other tax compliance requirements, records management is increasingly becoming a huge cost impost. I have had to employ a person to replace me in the workforce because compliance with government and industry requirements is costing me three days per week in the office.

To be competitive and profitable in today's industry, you have to be ahead of your neighbours when it comes to marketing. I cater for about 10 different market categories and this allows a huge amount of flexibility with regard to price negotiation and risk management. So it can be a positive thing if the time in the office is not only paying bills and filling out BAS forms. Forward planning and use of cashflow in other investments can mean that money can be made to work for you rather than just sitting in the bank.

I place a lot of importance on climate forecasting as forward selling can mean a lot more money in my pocket and a lot less stress on the animals and the landscape. As an example, our last decent rain was March 2001. There were predictions of an El Nino event in 2002 as early as October 2001. We did not have a wet season in 2002 so it was a fairly sure bet that there would be a price slide after Easter when everybody started turning off. I turned off about 450 head before Easter while the price was high, whereas the market was about \$100-\$200/head lower in April – May and still no rain. Even if it did rain, the money is in the bank. My philosophy is that when the animal is ready to sell it has to go. I have also found that with strategic, disciplined pasture and grazing management, there is always something to sell. This really helps cashflow, which is very important as it lessens the need for expensive overdrafts to see the enterprise through the dry season.

## PASTURE AND GRAZING MANAGEMENT

Grazing management is the key to a successful, sustainable beef enterprise. Paddock spelling, the use of fire, conservative stocking and selective pasture development are the cornerstones for increasing animal and pasture productivity, reducing environmental and financial risk and controlling woody weeds.

Currently at Trafalgar, 15 to 20 % of the property is spelled per annum on a rotational basis, regardless of season. This is relatively easy to achieve given the level of divisional fencing. Apart from the obvious advantage of allowing the more desirable species to seed and compete, it provides fuel for fire and allows the manager the flexibility of a drought mitigation option. This strategy has allowed the perennial pasture base to increase to over 80%. (*Landsberg et al. 1998*). Grazing utilisation is kept to around 30%. This is not an exact figure but is based on the author's experience, use of Grasscheck and QDPI photo standards. Exceptional years like this one (2002) where we lost 13,000ha to accidental fires at the end of 2001 and have not enjoyed much of a wet season, will see that utilisation rate increase dramatically in some paddocks. However, due to the high perennial base, high utilisation infrequently will not damage the pasture. The key is to remove the stock before the tussock base is damaged.

Fire is used on Trafalgar as an important pasture management tool. Others may argue that it is a waste of resources to burn grass, that it is best utilised in growing stock. This is true in the short term, but if we are to be serious in managing our resources in the long term, then these "perceived" sacrifices must be made. There is ample evidence throughout the northern rangelands of tree thickening, particularly in the eucalypt

areas. This is the legacy of the "no fire" period of the 1970s and 1980s. I am a keen follower of fire research as I don't think we know enough about different fire regimes. For example, I used to subscribe to extremely hot, "wild" fires for the control of certain woody weeds. From my observations these fires tend to pass over the woody plants too quickly, whereas a slower moving fire on a humid day tends to "cook" plants like Parkinsonia far more effectively. It is always difficult to get the perfect burn because of the planning involved. You always need sufficient personnel present and so to organise the neighbours and fluke the right weather conditions can be tricky. I aim to burn each paddock once every 7-8 years and usually it is to control exotic woody weeds and native woody increase. I usually aim to do this after the first storms to alleviate some of the risk, but it has to be within a few days of rain so as to minimise any pasture seedling damage. The paddock is usually spelled for the following wet season or at least until good grass cover is established.

Cleared pastures are important to the productivity of the property. This strategy commenced in the 1960's with other areas developed through the 1980's. Currently 11% of Trafalgar is cleared. Because most of the area cleared is eucalypt, it is necessary to reclear the regrowth every 7 to 8 years. As research and knowledge has increased our understanding of soil types, hydrology and pasture, areas along ridges, recharge and discharge areas have been allowed to regrow to reduce the risk of salinity. There is still more work to be done on the northern Australia clearing issue, as there are far wider issues like nutrient recycling, nitrogen rundown, evapotranspiration of regrowth and salinity risk that we don't know enough about yet. From my observations though, if the landscape has poor soils then it is far more economic to leave it as is and perhaps over sow with stylos as a best bet method of improvement. I have seen examples of landowners attempting to improve the productivity of their property by clearing and trying to establish exotic grasses in soils that were not capable of growing such grasses. The money that was spent in pursuing these endeavours would have been much better utilised in purchasing another property.

I have no interest in clearing any more of Trafalgar. Apart from the long term ecological risk, the economic cost of maintenance would become unsustainable if the cleared area increased. Because of the relatively large riparian areas on the property, it is a far more profitable proposition to fence off the fertile creek flats and manage them more strategically for special purposes like steer fattening, weaners or dry season breeder grazing. These areas have been overgrazed in the past as they have been part of a larger paddock and the better soils and higher pasture palatability in the riparian zone have attracted higher grazing pressure relative to the remainder of the paddock. Fencing them off allows for wet season spelling, less flood fence crossings, improved water quality, improved fauna and flora habitat and weed control. Other sensitive areas like watering points need to be located in areas that minimise direct impact on runoff into creeks and rivers.

I am involved in catchment projects that are utilising NHT and other funding sources to fence off major riparian areas on a large scale. The fact that 80 producers are involved means that a substantial area of the upper Burdekin catchment will be better managed in future years, which not only has positive ramifications for the properties involved, but for downstream users and the Great Barrier Reef Lagoon. "Flow-on" projects for weed control are now being established, so this will further enhance the environmental benefits.

## **IMPLEMENTATION**

The key to successfully managing for sustainability is to follow the basic strategic planning principles: Where you are now, where you want to be and how you are going to get there. Conducting a detailed resource and skill audit is the first step in determining whether the property, its management and staff have the potential to realize the goals you have set. Setting out the strategies for each component of the enterprise is time consuming but highly necessary if you are going to achieve them. The real skill in successful holistic management is the implementation of all the components. This can only be achieved through experience, as there are no shortcuts. By watching and listening to your peers and following a plan, major disasters can be avoided. Having come through a bad drought in the 80's and watched the land and our bank account suffer as a result of reactive management, my family has learnt that planning and disciplined adherence to that plan are essential for long term sustainability. If there

is one thing that is the foundation to our ability to maintain profitability and environmental integrity it is the adherence every year to paddock spelling. It allows so much flexibility and decreases risk.

It is most important that constant reviews are conducted on the different components of the enterprise so that progress can be monitored. This can be done either by the manager, by checking progress against his property plan and keeping pasture records such as Grasscheck, or it can be done externally. I find now that I tend not to record my Grasscheck sites as diligently as I should. They have been forced down the priority list because I tend to think I can visually assess pasture composition and yield accurately enough for my purposes. It is important to check species composition in more detail every 5 years or so, to try and establish a trend. I tend to be a bit cunning and use university botany students to do field trips and get my pastures monitored. Getting the information back from the bowels of academia is challenging and even more challenging (or entertaining) is the personal interpretation by the students. Pasture monitoring overall is not a stimulating exercise for most and it will always be difficult to encourage producers to at least establish monitoring sites or, at best, annually record their pastures. I believe the future use of remote sensing technology and web access will be the answer. I also am involved in a benchmarking exercise in my region where a professional economics firm collects data from about 40 properties in the region and this a very useful tool to see how you compare with properties of similar size and operation.

## CONCLUSION

Trafalgar is a property that is working well. Future plans will include more even distribution of water points to reduce the detrimental effect of cattle pads and to even out the grazing pressure. The use of technology for identification and genetic improvement will further reduce turnoff age. Technology will also drive marketing tools and a lot of the property infrastructure like water facilities and cattle handling facilities. The real challenge in the future will be maintaining the integrity of the natural resource. The plethora of exotic weeds that are being spread around will provide most of the headaches for the manager. Technology in the form of satellite monitoring will assist in mapping weed spread as well as play a key role in monitoring pasture condition and trend.

I find the whole experience of property management and the work totally fulfilling. Since we embarked down the sustainable route in 1988 it has only been a totally rewarding experience, both financially and philosophically. Balancing the needs of production and the needs of conservation is relatively easy once one changes their mindset to one that views the ecosystem as something that is all encompassing and that every little bug, every leaf and every little stalk of grass has a role. I am not sure that anybody really understands what biodiversity means, but until we do, by respecting everything in, on or under the landscape and keeping good groundcover we'll muddle by.

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